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The Atmosphere:
Composition, extent, vertical division:

Fog and cloud formation takes place by:
A) Condensation.
B) Evaporation
C) Sublimation.
D) None of the above.

What is the most likely temperature at the tropical tropopause?
A) -75° C.
B) -25° C.
C) -35° C.
D) -55° C.

You observe the altimeter in a parked aircraft shortly before an active cold front passes. What does the altimeter indicate?
A) It increases.
B) It decreases.
C) It is not affected by a pressure change.
D) The pressure changes are very small and therefore, there is no visible change of the indication.

You intend to overfly a mountain ridge at an altitude of 15000 ft AMSL. The average air temperature is 15° C lower than ISA, the sea level pressure 1003 hPa. Which altimeter indication (standard setting) is needed?
A) 13830 ft.
B) 16170 ft.
C) 15630 ft.
D) 14370 ft.

The amount of water vapour which air can hold largely depends on:
A) relative humidity.
B) stability of air.
C) air temperature.
D) dew point.

The percent by volume of the gases to be found in the atmosphere is distributed according to size as follows:
A) less oxygen than carbon dioxide.
B) more nitrogen than oxygen.
C) less nitrogen than water vapour.
D) more oxygen than nitrogen.

Lines connecting points of equal pressure are called:
A) Agonic.
B) Isobars.
C) Barometric.
D) Isogonic lines.

You observe the altimeter in a parked aircraft shortly after an active cold front has passed. What does the altimeter indicate?
A) It decreases.
B) It increases.
C) It is not affected by a pressure change.
D) The pressure changes are very small and therefore, there is no visible change of the indication.

The temperature gradient in the international standard atmosphere (ISA) is:
A) 0.6° C/100m.
B) 0,5° C/100m.
C) 1° C/100m.
D) 0.65° C/100m.

How does the level of the tropopause vary with latitude in the Northern Hemisphere?
A) Decreases North - South.
B) Decreases South - North.
C) It varies with longitude not latitude.
D) Constant.

Where is the ozone layer?
A) Ionosphere.
B) Stratosphere.
C) Tropopause.
D) Troposphere.

What is the pressure in surface weather charts called?
A) QNH.
B) QFF.
C) QNE.
D) QFE.

The troposphere is deepest:
A) near the poles.
B) over the poles in summer.
C) near the equator.
D) the same all over the earth.

What is the primary cause of all changes in the Earths weather?
A) Variation of solar energy at the Earths surface.
B) None of the above.
C) Movement of air masses from moist areas to dry areas.
D) Changes in air pressure over the Earths surface.

Given a surface temperature of +10° C, and a dew point of +5° C, at what height might you expect cumulus clouds to form:

A) 1000 ft.
B) 6000 ft.
C) 4000 ft.
D) 2000 ft.

In which layer is most of the atmospheric humidity concentrated?

A) Troposphere.
B) Tropopause.
C) Stratopause.
D) Stratosphere.

The pressure at sea level in the ISA is:

A) 29,95 in Hg.
B) 1013.25 hPa.
C) 1012.35 hPa.
D) 1025.13 hPa.

You observe the altimeter in a parked aircraft while a cold front passes the airport. What does the altimeter indicate?

A) The pressure changes are very small and therefore, there is no visible change of the indication.
B) It first decreases and then increases.
C) It first increases and then decreases.
D) It is not affected by a pressure change.

In a cold air advection wind blows towards warmer air and causes:

A) A backing.
B) No wind at all.
C) Strong wind forces.
D) A veering.

As a parcel of air warms, its ability to hold water vapour:

A) Unable to say - it also depends on the pressure.
B) Decreases.
C) Remains unaltered.
D) Increases.

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21. An OAT of -15° C at the 700 hPa pressure level:

A) equals approximately (+/-5° C) ISA.
B) is high.
C) is almost impossible.
D) is low.

What can be said if you encounter +FZRA during flight?

A) There is no significant icing to expect.
B) Only light rime ice has to be expected.
C) Icing will most probably occur.
D) Freezing rain consists of water droplets which supercooled to below-freezing temperatures on impact.

FL 140, an OAT -12° C is measured. What will the temperature be at FL 110, if you consider the temperature gradient of the Standard Atmosphere?

A) +2° C.
B) -6° C.
C) -2° C.
D) -18° C.

A body of air over the ocean is referred to as:

A) Maritime air.
B) Moist air.
C) Oceanic air.
D) Polar air.

What is the boundary layer between troposphere and stratosphere called?

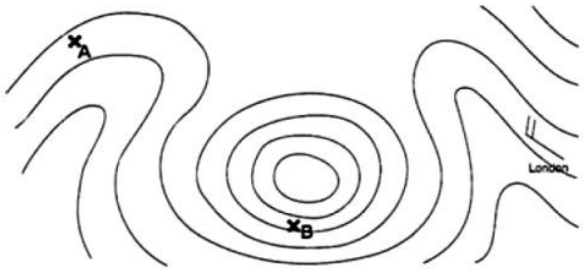
A) Atmosphere.
B) Stratosphere.
C) Ionosphere.
D) Tropopause.

Which of the following alternatives applies to the correct composition of the atmosphere by volume?

A) 21 % nitrogen and 78 % oxygen.
B) 25 % oxygen, 50 % nitrogen and 25 % water vapour.
C) 21 % oxygen and 78 % nitrogen.
D) 50 % oxygen and 50 % nitrogen.

Flight path A - B, altimeter setting 1013,2 hPa:

A) The wind speed is greater in A than in B.
B) Your true altitude is greater in A than in B.
C) The wind speed is equal in A and in B.
D) Your true altitude is greater in B than in A.



Which air mass can be related to thunderstorms during summer in Central Europe?

A) Continental tropical air.
B) Maritime polar air.
C) Maritime tropical air.
D) Continental equatorial air.

Going from the equator to the north pole, the altitude of the tropopause:

A) increases and its temperature decreases.
B) increases and its temperature increases.
C) decreases and its temperature increases.
D) decreases and its temperature decreases.

The thickness of the troposphere varies with:
A) latitude.
B) rotation of the earth.
C) longitude.
D) the wind.

What, approximately, is the average height of the tropopause over the equator?
A) 11 km.
B) 16 km.
C) 8 km.
D) 40 km.

The height and the temperature of the tropopause are respectively in the order of:
A) 16 km and -40° C over the poles.
B) 8 km and -40° C over the equator.
C) 8 km and - 75° C over the poles.
D) 16 km and -75° C over the equator.

The tropopause is lower:
A) south of the equator than north of it.
B) over the equator than over the South Pole.
C) over the North Pole than over the equator.
D) in summer than winter in moderate latitudes.

The percentage concentration of gases in the atmosphere is constant from the surface of the earth to a certain altitude with the exception of:
A) hydrogen.
B) nitrogen.
C) water vapour.
D) oxygen.

Which of the following statements concerning the conditions in the lower part of the atmosphere is correct?
A) In the lower part of the stratosphere the temperature decreases with on an average 2° C per 1.000 ft.
B) That part where the temperature on an average decreases with height is called the tropopause.
C) The troposphere has a larger vertical extension when the average temperature is low.
D) The tropopause is lower during the winter than in summer.

Which process in an air mass lead to NS-AS-ST clouds?
A) Sublimation.
B) Evaporation.
C) Lifting.
D) The presence of a high pressure area.

The changes of state of water are known as:
A) freezing, liquidation, evaporation, sublimation, condensation.
B) melting, freezing, sublimation, vaporization, condensation.
C) evaporation, freezing, sublimation, vaporization, melting.
D) liquidation, freezing, evaporation, sublimation, melting.

What is the tropopause?
A) The layer between the troposphere and stratosphere.
B) The boundary between the troposphere and stratosphere.
C) Where temperature increases with height.
D) Upper boundary to C.A.T.

What is the average temperature of the tropical tropopause?
A) -65° C.
B) -75° C.
C) -56,5° C.
D) -40° C.

The boundary layer between troposphere and stratosphere is called:
A) Tropopause.
B) Atmosphere.
C) Ionosphere.
D) Stratopause.

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41. You cruise at FL 200 and notice an OAT of -35° C. The airmass has therefore an average temperature which is...
A) 10° C colder than ISA.
B) 5° C warmer than ISA.
C) 20° C colder than ISA.
D) 5° C colder than ISA.

The troposphere is:
A) deepest over the poles.
B) shallowest over the poles in summer.
C) deepest over the equator.
D) the same depth all over the earth.

In the mid-latitudes the stratosphere extends on an average from:
A) 11 to 50 km.
B) 0 to 11 km.
C) 50 to 85 km.
D) 85 to more than 200 km.

The troposphere:
A) reaches the same height at all latitudes.
B) is the separation layer between the stratosphere and atmosphere.
C) has a greater vertical extent above the equator than above the poles.
D) contains all oxygen of the stratosphere.

What is relative humidity?

A) The actual water vapour content in the air given in per cent.
B) A term used to indicate the presence of water vapour, or moisture, in the air.
C) The possible saturated water vapour content at a given temperature, given in per cent.
D) The ratio of the actual water vapour content in the air to the saturated water vapour content of the air at a given temperature.

The unit of pressure most commonly used in meteorology is:

A) kg /cm2.
B) hPa.
C) lbs/inch2.
D) tons/m2.

What is the temperature decrease in the ISA?

A) 0,65° C/1000 ft
B) 0,65° C/100 m
C) 2° C/100 m
D) 1° C/100 m

Which statement is true concerning the tropopause from the equator to the poles?

A) The tropopause increases, the tropopause temperature increases.
B) The tropopause decreases, the tropopause temperature increases.
C) The tropopause increases, the tropopause temperature decreases.
D) The tropopause decreases, the tropopause temperature decreases.

Which one of the following statements applies to the tropopause?

A) It separates the troposphere from the stratosphere.
B) It indicates a strong temperature lapse rate.
C) It is, by definition, a temperature inversion.
D) It is, by definition, an isothermal layer.

The danger of experiencing fog is greatest when:

A) dew point temperature is high.
B) dew point temperature is low.
C) there is great dispersion.
D) there is little dispersion.

The average heights of the tropopause and Stratopause are:

A) 11km; 50km.
B) 36,090m; 20km.
C) 11km; 20km.
D) 5km; 50km.

Define the tropopause:

A) A relatively thick layer or boundary zone below the troposphere.
B) That area where the temperature change does not exceed two-thirds of one degree Celsius per thousand foot increase in altitude independent of latitude.
C) That area where the temperature change does not exceed two-thirds of one degree Celsius per thousand foot increase in altitude over a range of 6000 feet.
D) A relatively thin layer, or boundary zone, which separates the lower atmosphere from the tropopause.

The temperature is -15° C on an airport 3000 ft above mean sea level. Which of the following statements is correct?

A) QFF = QNH
B) QNH = QFE
C) QFF > QNH
D) QFF = QFE

What can be said about the temperature in the lower stratosphere?

A) The temperature is increasing.
B) The temperature is constant.
C) The temperature is first increasing and then decreasing.
D) The temperature is decreasing.

An aircraft is flying on a constant heading with left drift in the northern hemisphere, maintaining a constant indicated pressure altitude. Which of the following is true?

A) It is likely to be climbing relative to the surface.
B) It is likely to be descending relative to the surface.
C) None of the above
D) It is likely to be maintaining a constant distance relative to the surface.

Average seasonal tropopause heights would be:

A) Latitude 25; winter :FL500; summer :FL250
B) Latitude 25; winter :FL250; summer :FL400
C) Latitude 55; winter :FL500; summer :FL250
D) Latitude 55; winter :FL250; summer :FL350

The international standard atmosphere (ISA)is defined for mean sea level as:

A) 1013.25 hPa, 15° C, a temperature lapse rate of 1.98° C per 1000 ft. and a density of 1.225 kg/m3.
B) 1015.25 hPa, 15° C, with a lapse rate of 1.98° C per 1000 ft.
C) 1015.25 hPa, 15° C, and a density of 1.225 kg/m3.
D) 1013.25 hPa, 15° C, a temperature lapse rate of 1.98° C per 1000 ft. and a humidity of 5%.

The lowest layer in the atmosphere is:
A) the Ionosphere.
B) the Mesosphere.
C) the Stratosphere.
D) the Troposphere.

The tropopause at 50N is:
A) higher in the winter, lower in the summer.
B) lower in the winter, higher in the summer.
C) higher in the winter than at the Equator.
D) higher in the summer than at the Equator.

Which feature is associated with the tropopause?
A) Abrupt change of temperature lapse rate.
B) None of the above.
C) Absolute upper limit of cloud formation.
D) Absence of wind and turbulence.

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61. When the altimeter indicated 0 (zero) ft when the aircraft was parked for the night, and 1000 ft the following morning, this shows that:
A) a formation of fog has most probably taken place.
B) the barometric pressure has increased by approx. 37 hPa.
C) the barometric pressure is constant, but the temperature has fallen during the night.
D) the barometric pressure has decreased by approx. 37 hPa.

The height of the tropopause varies with the seasons and in the N Hemisphere is:
A) higher in winter.
B) higher in summer.
C) higher in spring and autumn.
D) lower in summer.

What is the average height of the Tropopause at the equator?
A) 11000m.
B) 16000m.
C) 5000m.
D) 3000m.

In spite of a constant altimeter reading your aircraft is loosing altitude. This could be caused by:
A) Flying towards low pressure.
B) Increased temperature.
C) The standard air pressure has fallen.
D) Flying towards high pressure.

The troposphere is the:
A) boundary between the stratosphere and the mesosphere.
B) boundary between the mesosphere and thermosphere.
C) part of the atmosphere below the tropopause.
D) part of the atmosphere above the stratosphere.

Clear ice is most often experienced, when the outside temperature is:
A) 0° to minus 20° C.
B) 0° to minus 5° C.
C) Minus 5° to minus 10° .
D) Minus 5° to plus 5° .

Which layer of the atmosphere contains more than 90 per cent of all water vapour?
A) Ionosphere.
B) Lower stratosphere.
C) Upper stratosphere.
D) Troposphere.

Atmospheric water can exist at temperatures between:
A) +100° C to -5° C
B) +3° C to -5° C
C) +100° C to -40° C
D) +100° C to 0° C

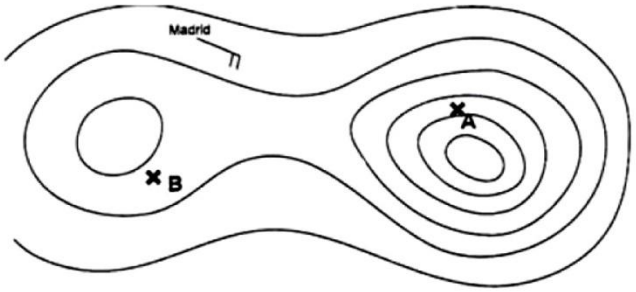
The maximum water in the air depends on the following:
A) None of the above
B) Density
C) Cloud type
D) Temperature

Which layer of the atmosphere contains more than 90 % of the total amount of water vapour?
A) Lower stratosphere.
B) Ionosphere.
C) Troposphere.
D) Higher stratosphere.

You are cruising at FL 200, OAT -40° C, sea level pressure 1033 hPa. Calculate the true altitude:
A) 20660 ft.
B) 18260 ft.
C) 19340 ft.
D) 21740 ft.

Where do you find the majority of the air within atmosphere?
A) Troposphere.
B) Mesosphere.
C) Tropopause.
D) Stratosphere.

Flight path A - B, altimeter setting 1013,2 hPa:



A) Your true altitude is greater in B than in A.
B) The wind speed is greater in B than in A.
C) The wind speed is equal in A and in B.
D) Your true altitude is greater in A than in B.

Why are indications about the height of the tropopause not essential for flight documentation in the tropics?

A) The meteorological services are unable to provide such a chart.
B) The tropopause is generally well above the flight level actually flown.
C) The temperatures of the tropical tropopause are always very cold and therefore not important.
D) Tropopause information' s are of no value.

Which statement is true?

A) Air density generally decreases as altitude increases.
B) Air density generally stays the same as altitude increases.
C) None of the above.
D) Air density generally increases as altitude increases.

Which of the following statements is true:

A) the dew point can only be higher than, or equal to the air temperature.
B) the dew point remains constant if no water vapour is added or subtracted.
C) the dew point of a sample of air varies with the temperature of the sample.
D) air cooled without vapour being added or subtracted will never reach its dew point.

Which of the following is untrue regarding the importance of the tropopause:

A) clear air turbulence is often most severe there.
B) air temperature starts to fall severely above the tropopause.
C) it is the upper limit of most visible weather.
D) maximum winds are found there.

What enhances the growth rate of precipitation?

A) Temperature inversions.
B) Advective action.
C) Upward currents.
D) Cyclonic movement.

FL 80, an OAT +06° C is measured. What will the temperature be at FL 130, if you consider the temperature gradient of the Standard Atmosphere?

A) -4° C
B) +2° C
C) 0° C
D) -6° C

Which conditions result in the formation of frost?

A) Temperature of the collecting surface is below the dew point of surrounding air and the dew point is colder than freezing.
B) The temperature of the collecting surface is at or below freezing and small droplets of moisture are falling.
C) None of the above is correct.
D) When dew forms and the temperature is below freezing.

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81. The atmosphere is composed of some 20 different gases. They are part of the troposphere everywhere in fixed proportions with one important exception, namely:

A) Water vapour.
B) Nitrogen.
C) Oxygen.
D) Hydrogen.

A line on a chart joining places of equal sea level pressure is called an:

A) Isobar.
B) Agonic line.
C) Isagona.
D) Isogonal.

An aircraft cruises at FL 100 in an airmass, which is 10° C warmer than the Standard Atmosphere. The OAT is therefore...

A) +5° C.
B) +15° C.
C) -10° C.
D) -15° C.

While mountain flying on a warm summer day under high pressure conditions, you circle a mountain of known height at peak elevation. Comparing to the indication of your altimeter, the peak elevation will therefore be...

A) lower.
B) can not be determined.
C) equal.
D) higher.

When ice changes directly to water vapour, latent heat is ... and is called...

A) released; vaporization.
B) absorbed; vaporization.
C) absorbed; sublimation.
D) released; sublimation.

What is the approximate composition of the dry air by volume in the troposphere?

A) 88 % oxygen, 9 % nitrogen, and the rest other gasses.
B) 21 % oxygen, 78 % nitrogen, and the rest other gasses.
C) 50 % oxygen, 40 % nitrogen, and the rest other gasses.
D) 10 % oxygen, 89 % nitrogen, and the rest other gasses.

What can be said about isobars?
A) Isobars show wind speeds around a jet stream area.
B) Isobars are lines of equal temperature.
C) Certain information can be depicted with the isobars on upper level charts.
D) Isobars appear on meteorological surface charts.

What is the ISA temperature at FL 110?
A) -7° C.
B) +7° C.
C) 0° C.
D) -5° C.

The main constituents of the atmosphere are:
A) Oxygen, Hydrogen, Carbon Dioxide, Xenon.
B) Nitrogen, Oxygen, Carbon Dioxide, Argon.
C) Sulphur Dioxide, Carbon Dioxide, Particulates.
D) Nitrogen, Oxygen, Carbon Dioxide, Ozone.

How is wind measured?
A) 2 m above the ground on a mast with an anemometer.
B) 2 m above the ground in a weather shelter.
C) 8-10 m above the ground on a mast with a pluviometer.
D) 8-10 m above the ground on a mast with an anemometer.

A temperature increase with altitude through a layer is called:
A) An inversion.
B) Unstable air.
C) Heating aloft.
D) An extension.

If you fly into rain which freezes on impact?
A) Temperatures are above freezing at some higher altitude.
B) You have flown through a cold front.
C) You have flown into an area of thunderstorms.
D) If you descend, you will fly out of the icing condition.

What feature is associated with a temperature inversion?
A) Air mass thunderstorms.
B) An unstable layer of air.
C) A stable layer of air.
D) Turbulence.

While flying at FL 120, you notice an OAT of -2° C. At which altitude do you expect the freezing level to be?

A) FL 130
B) FL 110
C) FL 150
D) FL 90

The layer of the atmosphere above the tropopause is known as the:

A) stratosphere.
B) ionosphere.
C) troposphere.
D) mesosphere.

The majority of troposphere heating is the result of:

A) Re-radiation from the clouds.
B) Radiation of the sun.
C) Heating from the ground below.
D) Re-radiation of the sun's rays from the surface of the earth.

The layer of the Earth’ s atmosphere which most concerns aviators is called the:

A) Troposphere.
B) Equatorial zone.
C) Stratosphere.
D) Tropopause.

The observed temperature at the surface is 11° C. This can be described as:

A) ISA -4.
B) ISA +11.
C) ISA.
D) ISA +4.

A wind that has changed clockwise in direction can be said to have:

A) Veered.
B) Shifted.
C) Backed.
D) Reduced.

The average height of the tropopause at 50° N is about:

A) 16 km.
B) 14 km.
C) 11 km.
D) 8 km.

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101. In the northern hemisphere, the Coriolis force deflects air to:

A) The left.
B) none of the above
C) Does not deflect the air at all.
D) The right.

How does the height of the tropopause normally vary with latitude in the northern hemisphere?

A) It decreases from south to north.
B) It increases from south to north.
C) It remains constant throughout the year.
D) It remains constant from north to south.

An air mass is a body of air that:
A) has extensive turbulence associated with it.
B) has similar cloud formations associated with it.
C) covers an extensive area and has fairly uniform properties of temperature and moisture.
D) creates a wind shift as it moves across the Earth's surface.

An aircraft cruises at FL 300 in an airmass, which is 15° C warmer than the Standard Atmosphere. The OAT is therefore...
A) -60° C.
B) -45° C.
C) -15° C.
D) -30° C.

A parcel of air is said to be saturated if it has a relative humidity of:
A) 100 %.
B) Greater than 90 %.
C) 50 %.
D) Greater than 80 %.

The tropopause is a level at which:
A) pressure remains constant.
B) water vapour content is greatest.
C) vertical currents are strongest.
D) temperature ceases to fall with increasing height.

An OAT of -55° C at the 200 hPa pressure level:
A) is high.
B) is low.
C) is almost impossible.
D) equals approximately (+/-5° C) ISA.

The rate at which descending unsaturated air is heated is about:
A) 1.5° C per 100 m.
B) 1.5° C per 1000 ft.
C) 3° C per 100 m.
D) 3° C per 1000 ft.

At sea level, the pressure of the atmosphere on a standard day will cause the mercury in the column to rise to:
A) 92.29 inches.
B) 19.19 inches.
C) 29.92 inches.
D) 29.29 inches.
What is dynamic pressure?

A) Pressure caused by movement.
B) Turbulence.
C) Acceleration force.
D) Centrifugal force.

In relation to air density which of the following responses are correct?
A) Cold air is less dense than warm air.
B) If the temperature is decreasing the air density will decrease.
C) Dry warm air is less dense than cold air.
D) Air density is not influenced of air humidity.

Half the mass of the atmosphere is found in the first:
A) 11 km
B) 8 km
C) 5 km
D) 3 km

What of the following is the most important constituent in the atmosphere from a weather stand-point?
A) Water vapour.
B) Hydrogen.
C) Nitrogen.
D) Oxygen.

The region of the atmosphere which is normally stable and has few clouds is known as the:
A) Troposphere.
B) Tropopause.
C) Stratosphere.
D) Jet stream.

FL 160, an OAT -22° C is measured. What will the temperature be at FL 90, if you consider the temperature gradient of the Standard Atmosphere?
A) -8° C
B) +4° C
C) -4° C
D) 0° C

Relative humidity relates to:
A) both b and c.
B) the amount of water vapour present in warm air compared to cold air.
C) the degree of saturation.
D) actual water vapour present to what could be present.

You are cruising at FL 160 and notice an OAT of -27° C. The sea level pressure is 1003 hPa. Your true altitude therefore is...
A) 16370 ft.
B) 15630 ft.
C) 16910 ft.
D) 15090 ft.

Temperature:

What is 32Â° F in K?
A) 305K
B) 241K
C) 0K
D) 273K

The time of maximum temperature is:
A) early evening.
B) late morning.
C) approximately 2 hours after local noon.
D) local noon.

From which of the following pieces of information can the stability of the atmosphere be derived?
A) Dry adiabatic lapse rate.
B) Pressure at the surface.
C) Environmental lapse rate.
D) Surface temperature.

What do the Met Service mean by the term subsidence?
A) Adiabatic cooling.
B) Horizontal motion of air.
C) Vertical down draught of air
D) Vertical up draught of air.

When in the upper part of a layer warm air is advected the:
A) wind speed will always decrease with increasing height in the northern hemisphere.
B) wind will back with increasing height in the northern hemisphere.
C) stability decreases in the layer.
D) stability increases in the layer.

It is possible for temperature to increase with height. This is know as:
A) a steep lapse rate.
B) an isothermal layer.
C) a temperature conversion.
D) an inversion.

Which cloud, normally found in the medium level, may extend to the low and high levels?
A) CI.
B) NS.
C) CU.
D) AC.

What will be the classification of high level clouds and where will the base be:
A) above 16 500ft, Nimbus.
B) above 16 500ft, Cirriform.
C) above 14 000ft, Nimbus.
D) above 16 500ft, Cumuliform.

The temperature at the surface is 15 C, the temperature at 1000m is 13 C. Is the atmosphere...
A) cannot tell.
B) conditionally unstable.
C) stable.
D) unstable.

If one kilo of a substance has a higher specific heat than one kilo of another substance, then after the same time exposure to direct sunlight the first substance will be at:
A) a higher temperature.
B) a lower temperature.
C) it will be impossible to forecast.
D) the same temperature.

Which cloud type may extend from low to high level (vertical development)?
A) CB
B) CI
C) NS
D) AC

A characteristic of a stable air mass is:
A) Lapse rate of 0.3 C/100m.
B) Good visibility and showers.
C) Lapse rate of 1 C/100m.
D) Rising air slows down and dissipates.

The sun emits ... radiation at ... intensity and the earth emits ... at relatively ... intensity.
A) longwave, low, shortwave, high
B) longwave, high, shortwave, low
C) shortwave, high, longwave, low
D) longwave, low, shortwave, high

The temperature at FL 160 is -22° C. What will the temperature be at FL 90 if the ICAO standard lapse rate is applied?
A) -4° C.
B) +4° C.
C) -8° C.
D) 0° C.

A temperature of 15° C is recorded at an altitude of 500 metres above sea level. If the vertical temperature gradient is that of a standard atmosphere, what will the temperature be at the summit of a mountain, 2500 metres above sea level?
A) +4° C.
B) -2° C.
C) +2° C.
D) 0° C.

The value of the saturated adiabatic lapse rate is closest to that of the dry adiabatic lapse rate in:
A) cumulus.
B) cirrus.
C) freezing fog.
D) stratus.

While forming rime ice in flight, water droplets freeze...
A) rapidly and spread out extensively.
B) rapidly and do not spread out.
C) on impact, at temperatures near the freezing level.
D) slowly and do not spread out.

What is indicated about an air mass if the temperature remains unchanged or decreases slightly as altitude is increased?
A) The air is stable.
B) A temperature inversion exists.
C) None of the above - unable to determine with the given information.
D) The air is unstable.

The average change of pressure with height in the lower atmosphere is:
A) 1 hPa/60ft.
B) 1 hPa/50ft.
C) 1 hPa/20ft.
D) 1 hPa/27ft.

If a stable air mass is forced to rise, what type of cloud is most likely:
A) CU.
B) CB.
C) NS.
D) TCU.

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21. An inversion is characterized by:
A) The tendency to increase relative humidity with increasing altitude.
B) Increasing temperature with increasing altitude.
C) Parts of the air mass at each level is warmer than surrounding air.
D) Constant temperature with increasing altitude.

The diurnal variation in temperature is largest when the sky is:
A) clear and winds are weak.
B) overcast and winds are strong.
C) clear and winds are strong.
D) overcast and winds are weak.

Which of the following statements concerning the thermal wind component (TWC) is true?
A) the greater the TWC, the greater the reduction in the upper wind.
B) TWC decreases as the horizontal mean temperature gradient increases.
C) TWC increases as the horizontal mean temperature gradient increases.
D) the greater the TWC, the greater the surface wind.

Which air masses do most often contribute to the weather situation in Western Europe?
A) Continental tropical air, continental arctic air.
B) Maritime tropical air, maritime polar air.
C) Maritime equatorial air, maritime polar air.
D) Maritime tropical air, continental polar air.

What type of cloud is pertinent for showers?

A) CI
B) AS
C) NS
D) CB

With regard to the diurnal variation of temperature, which one of the following statements is correct?

A) The diurnal variation of temperature is greater in strong winds than in light winds.
B) The lowest temperature tends to occur one hour before sunrise and the highest between 1400 and 1500.
C) The lowest temperature occurs at midnight and the highest at midday.
D) The diurnal variation of temperature is greater on a clear day than it is on a cloudy day.

Which of the following formulae is incorrect?

A) F = (C x 9/5) +32
B) C = 5/9 x (F – 32)
C) K = F + 273
D) K = C + 273

A significant inversion at low height is a characteristic of:

A) advection fog.
B) nocturnal radiation.
C) cumulus clouds.
D) the passage of cold front.

Which condition is present when a local parcel of air is stable?

A) The parcel of air resists convection.
B) None of the above
C) As the parcel of air moves upward, its temperature becomes warmer than the surrounding air.
D) The parcel of air cannot be forced uphill.

The radiation of the sun heats:

A) the surface of the earth, which heats the air in the troposphere.
B) the water vapour in the air of the troposphere.
C) the air in the troposphere only directly if no clouds are present.
D) the air in the troposphere directly.

When a rain shower approaches and passes an airfield, the following will happen:

A) The temperature remains unchanged and dew point drops.
B) The temperature rises and dew point remains unchanged.
C) The temperature drops and dew point rises.
D) The temperature rises and dew point drops.

While forming clear ice in flight, water droplets freeze ...

A) on impact, at temperatures lower than -10° C.
B) slowly and do not spread out.
C) and spread out extensively.
D) rapidly and do not spread out.

The dry adiabatic lapse rate has a value of:
A) 1° C/100m.
B) 0.65° C/100m.
C) 0.5° C/100m.
D) 2° C/1000FT.

Which of the following are low level clouds? State the most complete answer:
A) AS, AC.
B) NS, CI.
C) ST, NS.
D) CI, ST.

The dry adiabatic lapse rate:
A) is greater during the night than during the day.
B) has a constant fixed value.
C) is greater in summer than in winter.
D) has a variable value.

The isohypse 2960 m can be expected at the constant pressure chart for the following pressure level:
A) 850 hPa.
B) 700 hPa.
C) 300 hPa.
D) 500 hPa.

Which of the following types of cloud is most likely to be associated with prolonged and continuous moderate rain?
A) NS
B) CS
C) ST
D) CU

Absolute instability in a layer of air is characterized by the vertical temperature gradient in the layer being:
A) Less than 0.6° /100 m.
B) Greater than 0.5° /100 m.
C) Less than 0.65° /100 m.
D) Greater than 1° /100 m.

How can the stability of the atmosphere be determined?
A) Atmospheric pressure at various levels.
B) Ambient temperature lapse rate.
C) Surface pressure.
D) Surface temperature/dewpoint spread.

Under normal conditions the temperature in the troposphere changes with increasing height in the following manner:
A) decreases by 2° C per 1.000 ft.
B) increases by 3° C per 1.000 ft.
C) increases by 2° C per 1.000 ft.
D) decreases by 3° C per 1.000 ft.

41. Why is the visibility generally good in a cold air mass?

A) The air is unstable.
B) Stability does not influence the visibility.
C) It is cold.
D) The air is stable.

If the depth of the troposphere increases, the temperature at the tropopause must:

A) increase.
B) stay the same.
C) decrease.
D) impossible to say.

What is the height and temperature of Tropopause?

A) 8 km and -75 deg C at Pole.
B) 16km and -40 deg C at Equator.
C) 8km and -40 deg C at Pole.
D) 16km and -65 deg C at Equator.

Horizontal differences in the mean temperature of a layer are caused by:

A) deferential heating of the earths surface.
B) change of air mass.
C) insolation.
D) advection.

Convective activity over land in mid-latitudes is greatest in:

A) summer during the night and early morning.
B) winter in the afternoon.
C) summer in the afternoon.
D) winter during the night and early morning.

How does temperature vary with increasing altitude in the ICAO standard atmosphere below the tropopause?

A) Increases.
B) At first it increases and higher up it decreases.
C) Remains constant.
D) Decreases.

At which average height can the 300 hPa pressure level in moderate latitudes be expected?

A) 12,0 km AMSL.
B) 9,0 km AMSL.
C) 3,0 km AMSL.
D) 1,5 km AMSL.

Which one of the following describes normal conditions?

A) Temperature decreases at a similar rate in the troposphere as in the stratosphere.
B) Temperature increases with height in the troposphere.
C) Temperature decreases with height in the stratosphere.
D) Temperature decreases with height in the troposphere.

Minimum land surface temperatures normally occur... and the diurnal variation of surface temperature is... in overcast conditions.

A) just after sunrise, less
B) at sunrise , less
C) just before sunrise, more
D) at 0300hr, less

Snow reflects up to ... of solar radiation while rock, sand and concrete reflect...

A) 80%; 20% - 30%
B) 90%; 20% - 30%
C) 90%; 10% - 20%
D) 80%; 10% - 20%

The type of cloud formed when warm, light air rises rapidly into cooler air is a:

A) Cumulus-type.
B) Strato-cumulus type.
C) Nimbo-status type.
D) Stratus-type.

An Inversion is a layer of air in which the temperature:

A) increases with height.
B) remains constant with height.
C) decreases with height more than l° C/l00m.
D) increases with height more than 1° C/100m.

The isohypse 5700 m can be expected at the constant pressure chart for the following pressure level:

A) 500 hPa.
B) 700 hPa.
C) 200 hPa.
D) 300 hPa.

The isohypse 8760 m can be expected at the constant pressure chart for the following pressure level:

A) 700 hPa.
B) 300 hPa.
C) 200 hPa.
D) 500 hPa.

Which of the following is a common result of subsidence?

A) Clear air turbulence at higher altitudes .
B) Wide spread NS and AS clouds and intense precipitation.
C) CB-clouds and thunderstorms over a large area.
D) An inversion over a large area with haze, mist.

The environmental lapse rate in an actual atmosphere:

A) has a fixed value of 2° C/1000 FT.
B) has a fixed value of 0.65° C/100m.
C) varies with time.
D) has a fixed value of 1° C/100m.

The measurement of surface temperature is made:
A) approximately 10 metres above ground level.
B) approximately 4 metres above ground level.
C) approximately 4 feet above ground level.
D) at ground level.

An isothermal layer is a layer of air in which the temperature:
A) increases with height at a constant rate.
B) increases with height.
C) remains constant with height.
D) decreases with height at a constant rate.

The rate of decrease of temperature with height per 100 m in the International Standard Atmosphere is:
A) variable.
B) 0.5° C.
C) 1° C.
D) 0.65° C.

A temperature of 233° K is equivalent to ... ° F and ... ° C:
A) +451; +233
B) +104; +40
C) -40; -40
D) +40; +451

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61. Which of the following is a common cause of ground or surface temperature inversion?
A) Terrestrial radiation on a clear night with no or very light winds.
B) Warm air being lifted rapidly aloft, in the vicinity of mountainous terrain.
C) The movement of colder air under warm air, or the movement of warm air over cold air.
D) Heating of the air by subsidence.

An inversion is:
A) an increase of temperature with height.
B) a decrease of temperature with height.
C) a decrease of pressure with height.
D) an increase of pressure with height.

What are the most common characteristics of a cold air mass moving over a warm surface?
A) Cumuliform clouds, turbulence, and good visibility.
B) Stratiform clouds, smooth air, and poor visibility.
C) Cumuliform clouds, turbulence, and poor visibility.
D) Stratiform clouds, smooth air, and good visibility.

At which average height can the 850 hPa pressure level in moderate latitudes be expected?
A) 1,5 km AMSL.
B) 9,0 km AMSL.
C) 12,0 km AMSL.
D) 3,0 km AMSL.

Which of the following options is the most effective way of heating the troposphere?

A) Outgoing short wave radiation from the Earth.
B) Outgoing long wave radiation from the Earth.
C) Incoming long wave radiation from the sun.
D) Incoming short wave radiation from the sun.

In the disturbed temperate regions:

A) the weather is mainly governed by travelling frontal depressions.
B) the wet season is normally from May to September.
C) winters are generally mild.
D) the surface winds are moderate weasterlies.

Earth heating by solar radiation is called:

A) conduction.
B) absorption.
C) reflection.
D) insolation.

When is clear ice formed?

A) When supercooled droplets freeze rapidly and do not spread out.
B) When supercooled droplets impact the structure and at a temperature well below -10° C.
C) When supercooled droplets are large and at a temperature just below freezing.
D) When supercooled droplets are small and at a temperature just below freezing.

What does a CB contain at moderate latitudes in summer?

A) Ice crystals, snow, and water droplets.
B) Ice crystals only.
C) A combination of ice crystals, water droplets and supercooled water droplets.
D) A combination of ice crystals and water droplets.

Which of the following are high level clouds? State the most complete answer:

A) AS, AC.
B) CI, CC.
C) ST, NS.
D) NS, CI.

Several physical processes contribute to atmospheric warming. Which of the following contribute the most?

A) Absorption and evaporation.
B) Absorption and vaporization.
C) Solar radiation and conduction.
D) Convection and condensation.

The environmental lapse rate in the real atmosphere:
A) varies with time.
B) is always 1.98 deg C / 1000ft.
C) has a fixed value of 0.65 deg C / 100Mtrs when dry.
D) has a fixed value of 1 deg C / 100Mtrs when wet.

The difference between air temperature and dew point temperature is popularly called the " spread" . As spread increases, relative humidity:
A) decreases.
B) increases.
C) stays the same.
D) first decreases and then increases.

A layer can be:
A) unstable for unsaturated air and neutral for saturated air.
B) unstable for unsaturated air and conditionally unstable.
C) stable for saturated air and unstable for unsaturated air.
D) stable for unsaturated air and unstable for saturated air.

Which of the following statements is incorrect?
A) Large land masses have greater seasonal temperature changes than islands.
B) None of the above.
C) Large land masses have greater diumal temperature changes than islands.
D) Concrete has a lower specific heat than grass.

Which clouds, normally found in the medium level, can extend to the other levels?
A) AS
B) ST
C) CU
D) NS

One of the reasons why land surfaces heat and cool more quickly than water is because:
A) water has a lower relative density than land.
B) land has a lower conductivity than water.
C) water has a higher specific heat than land.
D) land has a higher specific heat than water.

When is the coldest time of the day?
A) 1/2 hr after sunrise.
B) 1hr before sunrise.
C) at exact moment of sunrise.
D) 2 hr before sunrise.

On a clear sky, continental ground surface, wind calm, the minimum temperature is reached approximately:
A) one hour before sunrise.
B) at the moment the sun rises.
C) half an hour before sunrise.
D) half an hour after sunrise.

An inversion is a layer of air which is:
A) absolutely unstable.
B) conditionally unstable.
C) conditionally stable.
D) absolutely stable.

In which temperature range does clear ice most commonly occur?
A) below -15° C.
B) -5° C to -10° C.
C) 0° C to -6° C.
D) -10° C to -15° C.

The presence of wind will ... maximum day temperatures and ... night temperatures:
A) reduce; reduce
B) increase; reduce
C) increase; increase
D) reduce; increase

Air at T = +16° C and DP = +4° C is forced from sea level over a 10.000 ft mountain range and descends back to sea level on the other side. If the leeward condensation level is observed to be 8.000 ft, what will be the final temperature?
A) 22° C
B) 20° C
C) 18° C
D) 24° C

What would be the final temperature in question above if the Dew Point were 6° C?
A) +03° C
B) -06° C
C) 0° C
D) +06° C

For international aviation meteorological purposes, temperature is measured in degrees:
A) Kelvin.
B) Fahrenheit.
C) Celsius.
D) Absolute.

An air mass is called stable when:
A) the vertical motion of rising air tends to become weaker and disappears.
B) the temperature in a given air mass decreases rapidly with height.
C) the environmental lapse rate is high, with little vertical motion of air currents.
D) the pressure in a given area is constant.

What is the temperature decrease with height below 11km?
A) 0.6° C - 100m.
B) 0.65° C - 100m.
C) 0.5° C - 100m.
D) 1° C - 100m.

At which average height can the 200 hPa pressure level in moderate latitudes be expected?
A) 5,5 km AMSL.
B) 3,0 km AMSL.
C) 12,0 km AMSL.
D) 9,0 km AMSL.

The temperature at FL 110 is -5° C. What will the temperature be at FL 50 if the ICAO standard lapse rate is applied?
A) +7° C.
B) 0° C.
C) -3° C.
D) +3° C.

Where is a common location for an inversion?
A) In wake turbulence.
B) At the tropopause.
C) In the stratosphere.
D) At the base of cumulus clouds.

What characteristic is associated with a temperature inversion?
A) Stability.
B) Area of active storms.
C) Instability.
D) Clear ice.

What is meant by " inversion" ?
A) Temperature decreases as height increases.
B) Temperature increases as height increases.
C) Temperature remains constant as height increases.
D) Inversion denotes temperatures below freezing.

Insolation is maximum at:
A) late evening.
B) approximately 2 hours after local noon.
C) local noon.
D) early morning.

w would you characterise an air temperature of -55° C at the 200 hPa level over western Europe?
A) Low.
B) Very high.
C) High.
D) Within +/-5° C of ISA.

A warm air mass:
A) is cooled from below by the base layer.
B) is characterized by sea breeze.
C) originates at the equator.
D) is warmed from below by the base layer.

Why is a calm and clear-sky night cooler than a cloudy night?

A) The radiation from the earths surface slips into space.
B) The clouds prevent radiation from the atmosphere.
C) Due to contents of carbon dioxide.
D) There is radiation from the clouds.

In which temperature range does mixed ice most commonly occur:

A) -5° C to -10° C.
B) 0° C to -6° C.
C) -10° C to -15° C.
D) around freezing level.

High clouds are normally composed of:

A) Ice crystals.
B) Water droplets.
C) Hail.
D) Condensation nuclei.

The temperature at FL 140 is -12° C. What will the temperature be at FL 110 if the ICAO standard lapse rate is applied:

A) -15° C.
B) -9° C.
C) -18° C.
D) -6° C.

When temperature drops without changes of dew point temperature:

A) relative humidity will decrease.
B) relative humidity will increase.
C) the amount of water vapour will increase.
D) the amount of water vapour will decrease.

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101. At which average height can the 500 hPa pressure level in moderate latitudes be expected?

A) 5,5 km AMSL.
B) 3,0 km AMSL.
C) 12,0 km AMSL.
D) 9,0 km AMSL.

What is true about the dew point temperature?

A) Can be only lower than the temperature of the air mass.
B) Can be higher than the temperature of the air mass only.
C) Can be higher or lower than the air mass temperature.
D) Can be equal to or lower than the temperature of the air mass

Which of the following gives conditionally unstable conditions?

A) 0.49 deg C/100m.
B) 0.65 deg C/100m.
C) none of the above.
D) 1 deg C/100m.

The intensity of solar radiation received at the earths surface is directly related to:
A) season, time of day, latitude and longitude.
B) topography, time of day, season and latitude.
C) time of year, latitude, season and topography.
D) time of day, season, topography and longitude.

What can be said about supercooled water droplets?
A) They remain liquid at a below-freezing temperature.
B) They cool to a below-freezing temperature on impact.
C) They only occur in CB clouds.
D) They don't contribute to clear ice.

Absolute instability exists whenever the environmental lapse rate:
A) is less than the saturated adiabatic lapse rate.
B) exceeds the saturated adiabatic lapse rate.
C) is between the dry and saturated adiabatic lapse rate.
D) exceeds the dry adiabatic lapse rate.

The family of medium clouds include altostratus, altocumulus and nimbostratus. In moderate latitudes their height of base ranges from:
A) 6500 to 23000 feet.
B) 3000 to 5000 feet.
C) 2000 to 10000 feet.
D) 2000 to 12000 feet.

The stability of an air mass increases by:
A) decreasing dispersion.
B) supply of humidity.
C) heating of the lower and cooling of the upper layers.
D) cooling of the lower and heating of the upper layers.

The temperature at FL 80 is +6° C. What will the temperature be at FL 130 if the ICAO standard lapse rate is applied?
A) +2° C.
B) -4° C.
C) 0° C.
D) -6° C.

Where does a Polar Cold Airmass has its origin?
A) Over the Siberian Landmass.
B) Over the Baltic Sea.
C) Over the North Pole.
D) Over the Atlantic Ocean.

A wide body takes off on a clear night in Dhahran, Saudi Arabia. Shortly after take off the aircrafts rate of climb drops to zero. This can be due to:
A) low relative humidity.
B) sand/dust in the engines.
C) very pronounced downdrafts.
D) a very strong temperature inversion.

What determines the structure or type of clouds which will form as a result of air being forced to ascend?

A) The stability of the air before lifting occurs.
B) The method by which air is lifted.
C) The temperature of the air before lifting occurs.
D) The relative humidity of the air after lifting occurs.

When is diurnal variation at a maximum?

A) Clear sky, no wind.
B) Clear sky, strong wind.
C) OVC, windy.
D) OVC, still air conditions.

How would you characterise an air temperature of -30° c at the 300 hPa level over western Europe?

A) High.
B) Low.
C) Within +/-5° C of ISA.
D) Very low.

The atmosphere is heated primarily by:

A) long wave terrestrial radiation released by the earth.
B) earth bound electromagnetic radiation.
C) shortwave terrestrial radiation from the earth.
D) the suns insolation.

A parcel of air cooling by more than 1 deg C/100m is said to be?

A) Conditionally stable.
B) Conditionally unstable.
C) Unstable.
D) Stable.

The lowest layer of the atmosphere is heated during the day by:

A) the release of latent heat.
B) conduction.
C) convection.
D) solar radiation.

A temperature of 10° C above ISA is observed at FL 180. What is the effective distance between FL 60 and FL 120:

A) 6000 ft.
B) 5760 ft.
C) 6240 ft.
D) 3000 ft.

In still air the temperature decreases at an average of 1.2° C per 100 m increase in altitude. This temperature change is called:

A) normal lapse rate.
B) dry adiabatic lapse rate.
C) environmental lapse rate.
D) saturated adiabatic lapse rate.

The heat of the earth is transferred upwards largely by:
A) conduction.
B) convection.
C) radiation.
D) insolation.

---

121. An outside air temperature of -35° C is measured while cruising at FL 200. What is the temperature deviation from the ISA at this level?
A) 10° C warmer than ISA.
B) 10° C colder than ISA.
C) 5° C colder than ISA.
D) 5° C warmer than ISA.

The weather is clear and the temperature decreases uniformly and rapidly as you climb (approaching 3° C per 1000 ft), you have an indication of:
A) Unstable air.
B) Stable air.
C) Sublimation.
D) Saturation.

The rate of fall of pressure with height is:
A) Greater in cold air than in warm air.
B) Constant.
C) Inversely proportional to temperature.
D) Greater in warm air than in cold air.

The heat energy used to change water vapour into liquid water:
A) modifies the DALR to the SALR.
B) is then stored in the water vapour as latent heat.
C) is released to the atmosphere as latent heat.
D) is passed to the surface from which the water is evaporating.

Which of the following statements is correct:
A) The diurnal range of temperature is greatest in conditions of high humidity.
B) The diurnal range of temperature is least in tropical countries.
C) The diurnal variation of temperature is greatest when a moderate wind is blowing.
D) The diurnal range of temperature sees the lowest temperature at sunrise.

Why is frost considered hazardous to flight?
A) Frost changes the basic aerodynamic shape of the airfoil.
B) The increased weight requires a greater takeoff distance.
C) Frost decreases control effectiveness.
D) Frost causes early airflow separation resulting in a loss of lift.

How do you define Convection?

A) Same as conduction.
B) Horizontal movement of air.
C) Same as advection.
D) Vertical movement of air.

Which is true of the temperature at the tropopause?

A) There is no significant difference with change of latitude.
B) It is higher in equatorial regions than in polar regions.
C) It is highest in middle latitudes.
D) It is higher in polar regions than in equatorial regions.

From which of the following pieces of information can stability of the atmosphere be derived?

A) Pressure at the surface.
B) Dry adiabatic lapse rate.
C) Surface temperature.
D) Environmental lapse rate.

Advection is:

A) the same as convection.
B) horizontal motion of air.
C) vertical motion of air.
D) the same as subsidence.

In the lower part of the stratosphere the temperature:

A) increases with altitude.
B) decreases with altitude.
C) is almost constant.
D) increases at first and decreases afterward.

Temperature inversions in an air mass can be caused by:

A) radiation heating.
B) subsidence.
C) convergence.
D) high surface temperatures.

The sea level temperature of boiling water in degrees Fahrenheit / Celsius / Kelvin is:

A) 212 / 273 / 273
B) 323 / 100 / 373
C) 212 / 100 / 373
D) 232 / 100 / 373

In an air mass with no clouds the surface temperature is 15° C and 13° C at 1000m. This layer of air is:

A) unstable.
B) conditionally unstable.
C) a layer of heavy turbulence.
D) stable.

Polar maritime air is generally:
A) Cold, dry, unstable.
B) Cold, moist, stable.
C) none of the above.
D) Cold, moist, unstable.

In which temperature range does rime ice most commonly occur?
A) -10° C to -15° C.
B) 0° C to -6° C.
C) -5° C to -10° C.
D) Around freezing level.

The 0° isotherm is forecast to be at FL 50. At what FL would you expect a temperature of -6° C?
A) FL 20.
B) FL 110.
C) FL 80.
D) FL 100.

At a certain position, the temperature on the 300 hPa chart is -48° C; according to the tropopause chart, the tropopause is at FL 330. What is the most likely temperature at FL 350?
A) -50° C.
B) -54° C.
C) -56,5° C.
D) -58° C.

How would you characterise an air temperature of -15° C at the 700 hPa level over western Europe?
A) Low.
B) Within +/-5° C of ISA.
C) 20° C below standard.
D) High.

What is the technical term for an increase in temperature with altitude?
A) Advection.
B) Adiabatic.
C) Subsidence.
D) Inversion.

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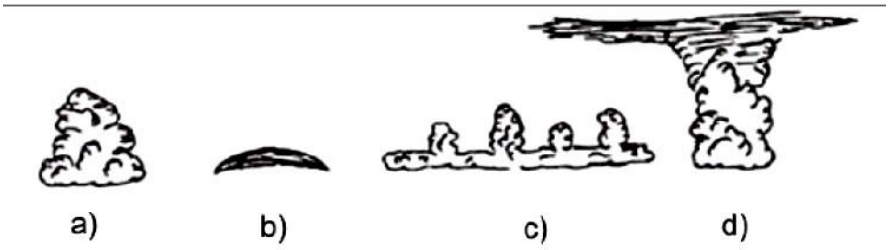
141. The average visibility as seen from the cockpit in flight is called:
A) Cockpit visibility.
B) Flight visibility.
C) RVR.
D) Slant visibility.

The inversion in the lower troposphere created by old high pressure system during day or night is called:
A) subsidence inversion.
B) terrestrial inversion.
C) radiation inversion.
D) frontal inversion.

Which cloud represent an altocumulus lenticularis?
A) D
B) C
C) B
D) A



The amount of suns heat absorbed by the earth depends on the suns:
A) elevation and duration.
B) distance from the earth.
C) strength and elevation.
D) solar strength and duration.

The isohypse 11880 m can be expected at the constant pressure chart for the following pressure level:
A) 500 hPa
B) 850 hPa
C) 700 hPa
D) 200 hPa

Which of the following are medium level clouds? State the most complete answer:
A) NS, CI.
B) AS, AC.
C) ST, CU.
D) CI, ST.

The two most important methods for transfer of heat from the surface to the troposphere are:
A) shortwave radiation and backscatter.
B) formation of convective cloud and longwave radiation.
C) convection of warm air and the formation of fog.
D) advection and convection of warm air.

What units of measurement are used in forecasts for winds aloft?
A) Magnetic direction and knots.
B) Magnetic direction and MPH.
C) True direction and MPH.
D) True direction and knots.

If the dew point stays the same, but the air temperature decreases, then:
A) the relative humidity will decrease.
B) the relative humidity will increase.
C) water vapour will decrease.
D) water vapour will increase.

Around Paris on January 3rd at 1800 UTC, the surface temperature, under shelter, is 3° C. The sky is covered by 8 oktas of stratus. QNH is 1033 hPa. If the sky is covered all night, the minimum temperature of the night of January 3rd to January 4th should be:
A) significantly above +3° C.
B) slightly above +3° C.
C) significantly below 0° C.
D) slightly below +3° C.

Atmospheric Pressure:

If you have a column of air limited by two isobaric surfaces at a pressure difference of 100 hPa, the distance between the pressure surfaces will change if mean temperature and mean pressure of the column of air change.
In which of the following alternatives will the change of temperature and pressure interact to shorten the distance as much as possible?

A) The temperature decreases and pressure decreases.
B) The temperature increases and pressure decreases.
C) The temperature increases and pressure increases.
D) The temperature decreases and pressure increases.

At an airport in California (69 m below MSL), a QFF of 1030 hPa and a temperature 10° C lower than standard is observed:

A) The QNH equals 1030 hPa.
B) The QNH is higher than 1030 hPa.
C) The QNH is lower than 1030 hPa.
D) The QNH cannot be determined.

You are making a long-distance flight and have chosen a suitable cruising altitude for the whole flight. Towards the end of your flight, you have descended. What may be to reason for this?

A) you are approaching a region of high pressure.
B) you are approaching a region of low pressure.
C) standard pressure has dropped.
D) temperature has increased.

Which of the following is true concerning atmospheric pressure?

A) It always decreases with height at a rate of 1 hPa per 8m.
B) It is higher in winter than in summer.
C) It decreases with height.
D) It is higher at night than during the day.

Assume that an aircraft is flying in the northern hemisphere at the 500 hPa pressure surface on a heading of 270 degrees. Which of the following statements is correct?

A) If in this pressure surface the wind comes from the direction 360 degrees, then true altitude is increasing.
B) If in this pressure surface the wind comes from the direction 270 degrees, then true altitude is increasing.
C) If in this pressure surface the wind comes from the direction 180 degrees, then true altitude is increasing.
D) If in this pressure surface the wind comes from the direction 090 degrees, then true altitude is increasing.

What positions are connected by isobars on the surface weather chart?

A) Positions with the same air pressure at a given level.
B) Positions with the same temperature at a given level.
C) Positions with the same relative pressure heights.
D) Positions with the same wind velocity at a given level.

Isobars on a surface chart are lines of equal:
A) QNH.
B) QFE.
C) QFF.
D) QNE.

When the barometric subscale of the altimeter is adjusted to 1013,2 hPa, what type of altitude is being measured?
A) Indicated altitude.
B) Relative height.
C) Pressure altitude.
D) True altitude.

Between which latitudes are you most likely to find the region of travelling low pressure systems?
A) 55° - 75°
B) 10° - 15°
C) 25° - 35°
D) 35° - 55°

In the atmosphere the 450mb level occurs at approximately:
A) 30,000 ft.
B) 39,000 ft.
C) 34,000 ft.
D) 20,000 ft.

What is the approximate vertical interval which is equal to a pressure change of 1 hPa at an altitude of 5.500 m?
A) 32 m (105 FT).
B) 8 m (27 FT).
C) 64 m (210 FT).
D) 15 m (50 FT).

If you fly across the isobars towards a region of high pressure in the Northern Hemisphere, you will:
A) experience no drift but experience a headwind.
B) drift to the right.
C) experience no drift but experience a tailwind.
D) drift to the left.

At altitude, the atmospheric pressure in a column of warm air is likely to be:
A) higher than at the same height in a column of cold air.
B) lower than at the same height in a column of cold air.
C) the same irrespective of the temperature.
D) depends on the relative humidity.

State the definition for QFF:
A) QNH reduced to MSL, using standard temperature gradient.
B) QFE reduced to MSL, using actual temperature gradient.
C) QNE reduced to MSL, using standard temperature gradient.
D) QFE reduced to MSL, using standard temperature gradient.

At an altitude of 25000ft when the temperature is -40C and the pressure is 375 mb, the height interval corresponding to 1mb decrease in pressure is:

A) 62ft.
B) 60ft.
C) 65ft.
D) 56ft.

At an airport (400 m AMSL), a QFF of 1016 hPa and a temperature 10° C lower than ISA is observed:

A) The QNH is higher than 1016 hPa.
B) The QNH cannot be determined.
C) The QNH equals 1016 hPa.
D) The QNH is lower than 1016 hPa.

Ground level pressure is 1000hPa and the temperature 13C. At a certain height the temperature is 10C and pressure equals 975hPa. The value of " feet per hPa" in this atmosphere is:

A) 28.76 ft per hPa.
B) 27.67 ft per hPa.
C) 26.76 ft per hPa.
D) 29.87 ft per hPa.

In the troposphere the decrease of pressure per 100 m increase in height:

A) remains constant at all levels.
B) is in the order of 27 hPa near MSL.
C) is smaller at higher levels than at lower levels.
D) is greater at higher levels than at lower levels.

Select the correct statement regarding the wind directions in connection with the high and low pressure systems in the Northern Hemisphere:

A) the winds blow counter-clockwise around a high a clockwise in a low.
B) the winds blow clockwise in a high and counter clockwise in a low.
C) the winds blow counter-clockwise in both highs and lows.
D) the winds blow clockwise in both highs and lows.

Pressure falls as height increases in the atmosphere. The rate of fall is ... and is ... in cold air than in warm air.

A) linear, higher.
B) logarithmic, higher.
C) logarithmic, lower.
D) linear, lower.

21.In general, if the air mass temperature is higher than ISA, the pressure at any given height will be ... and the tropopause will be...

A) low, high.
B) high, high.
C) high, low.
D) low, low.

When flying from high to low contour values, which of the following is incorrect?
A) the pressure altimeter will indicate a constant value.
B) the indicated height of the aircraft will be constant.
C) the indicated height of the aircraft will only be true if 1013,25 mb is set.
D) the true height of the aircraft will be falling.

A rising parcel of air which has no heat entering or leaving it, will:
A) reduce in pressure, decrease in density, increase in volume
B) reduce in pressure, rise in temperature, decrease in density.
C) maintain pressure, reduce in density, increase in volume.
D) maintain volume, decrease in density, reduce in pressure.

According to definition, flight levels are surfaces with constant air pressure determined from a certain pressure value. Which is this value?
A) 1025,13 hPa
B) 1013,25 hPa
C) Actual QNH
D) Actual QFE

The station pressure used in surface weather charts is:
A) QFF.
B) QNE.
C) QNH.
D) QFE.

A pressure difference of 10 hPa close to the ground corresponds to a height difference of:
A) about 300 ft.
B) about 30 ft.
C) about 150 m.
D) about 50 m.

An isohypse (contour):
A) is the limit between two air masses of different temperature.
B) is the longest slope line of a frontal surface.
C) indicates the true altitude of a pressure level.
D) indicates the altitude of the zero degree isotherm.

Contour heights are:
A) do not indicate heights at all.
B) true heights AMSL.
C) indicated heights above 1013,25 mb.
D) true heights AGL.

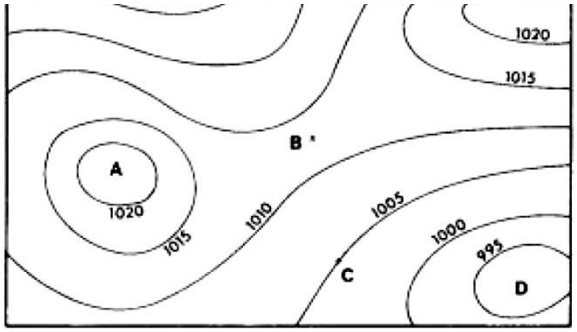
Pressure altitude is:
A) the height indicated on a pressure altimeter when the sub-scale is set to QFE.
B) the standard pressure prevailing at official airfield level.
C) the height indicated on a pressure altimeter when the sub-scale is set to QNH.
D) the height in the standard atmosphere at which the aircraft ambient pressure would be experienced.

Which of altimeter settings is used when flying in flight levels?
A) 1025,13 hPa.
B) QFF.
C) 1013,25 hPa.
D) QFE.

When flying towards high contour values an aircraft will experience:
A) headwind.
B) tailwind.
C) starboard drift.
D) port drift.

Lines joining points of equal pressure are known as:
A) Isotachs
B) Isopleths.
C) Isotherms.
D) Isobars.

The pressure distribution located mainly at point B is a:



A) ridge of high pressure.
B) col.
C) depression.
D) trough of low pressure.

The altimeter is connected to:
A) The elevator.
B) The pitot tube.
C) The dynamic system.
D) The static system.

The isobars drawn on a surface weather chart represent lines of equal pressure:
A) reduced to sea level.
B) at flight level
C) at a determined density altitude.
D) at height of observatory.

Without readjusting the barometric setting of the altimeter, it will under-read when:
A) flying in headwind with constant barometric pressure.
B) flying from a high pressure area into a low pressure area.
C) flying from a low pressure area into a high pressure area.
D) flying in tailwind with constant barometric pressure.

Which of the following statements is true?
A) High contour values are equivalent to low pressure.
B) Low contour values are equivalent to high pressures.
C) High contour values are equivalent to high pressure.
D) There is not direct relationship between contour values and pressure.

Atmospheric Density:

The lift of the air depends on its density. Consequently take-off runs vary with density. In what situation do you have the longest take-off run?

A) High elevated airport in the summer.
B) Low elevated airport in the winter.
C) Low elevated airport in the summer.
D) High elevated airport in the winter.

Density altitude:

A) is the altitude shown on the altimeter when 1013 mb is set on the sub-scale.
B) may be found on the navigation computer by setting outside air temperature against pressure altitude in the altitude window.
C) is the altitude in the standard atmosphere to which the observed density corresponds.
D) increases with a decrease in temperature compared with ISA.

In which one of the following cases does the density of the air decrease most rapidly with increasing altitude?

A) In stratified unstable air.
B) At the isotherms.
C) At an inversion.
D) In stratified standard atmosphere.

At FL 180, the air temperature is -35° C.The air density at this level is:

A) unable to be determined without knowing the QNH.
B) less than the density of the ISA atmosphere at FL 180.
C) greater than the density of the ISA atmosphere at FL 180.
D) equal to the density of the ISA atmosphere at FL 180.

What happens if density altitude is 3.000 ft at an airport whose elevation is 1.000 ft?

A) Take-off and landing performance will be unaffected.
B) Indicated speed at 50 kt on take-off and landing will be higher than in a standard atmosphere
C) The altimeter will indicate 3.000 ft when the aircraft is on the ground.
D) Take-off and landing performance will be about the same as for an airport with an elevation of 3.000 ft.

Which of the following combinations contain the greatest air density?

A) High pressure and low temperature.
B) Low pressure and low temperature.
C) High pressure and high temperature.
D) Low pressure and high temperature.

Atmospheric density at 40.000 ft is approximately:

A) the same as the mean sea level.
B) four times the mean sea level value.
C) one quarter of the sea level value.
D) half the mean sea level value .

Stratiform clouds indicate stable air. Flight generally will be:
A) Smooth with moderate turbulence and good visibility.
B) Smooth with good visibility.
C) Smooth with low ceiling and visibility.
D) Rough with good visibility.

A temperature increase with increasing altitude is called:
A) Inversion.
B) Subsidence.
C) Adiabatic.
D) Advection.

Which of the following statements regarding the density of the air is correct?
A) Density decreases when the temperature is constant and the air pressure falls.
B) Density increases when the temperature rises and the air pressure falls.
C) Density decreases when the temperature is constant and the air pressure increases.
D) Density decreases when the temperature falls and the air pressure is constant.

On the Earth's surface, points of nil variation are:
A) isoclinals.
B) isogonal.
C) agonic.
D) aclinic.

What do you expect with fair weather Cumulus clouds?
A) Smooth flight below the cloud level.
B) Turbulence in and above the clouds up to approximately FL 250.
C) Continuous rain.
D) Turbulence at and below the cloud level.

Flying conditions associated with cumulonimbus (cb) at summertime are:
A) Bad visibility, continuous rain and little turbulence.
B) Hazy weather combined with drizzle and turbulence.
C) Good visibility, intervals of fine weather and little turbulence.
D) Bad visibility in showers and pronounced turbulence.

What is the cause for a surface temperature inversion?
A) By heavy radiation cooling at night of the lowest layer of air, or if warm air moves in over a colder surface.
B) Moist, unstable air, and a lifting action.
C) The presence of a polar front depression.
D) The presence of a high pressure area.

Which of the following statements regarding density is correct?

A) A decrease in density will result from an increase in humidity.
B) Relative density at 20,000 ft is about 20%.
C) A rise in pressure will result in a fall in density.
D) A fall in temperature will cause a fall in density.

How can the minimum safe altitude be converted to the lowest usable flight level?

A) With the highest value of the QNH and the lowest negative temperature deviation.
B) With the highest value of the QNH and the highest negative temperature deviation from ISA.
C) With the lowest value of the QNH and the highest negative temperature deviation from ISA.
D) With the lowest value of the QNH and the lowest negative temperature deviation.

The density of the air decreases:

A) when the temperature falls and the air pressure is constant.
B) more slowly with increasing altitude in an inversion than in unstable stratified air.
C) when the temperature falls and the air pressure rises.
D) more rapidly with increasing altitude in an inversion than in stable stratified air.

Under what condition does pressure altitude have the same value as density altitude?

A) At standard temperature.
B) When the altimeter setting is 1013,2 hPa.
C) When the altimeter has no position error.
D) At sea level when the temperature is 0° C.

Cumulus clouds often indicate:

A) Turbulence at and below the cloud level.
B) Smooth flying conditions.
C) Rain and strong winds.
D) Fog.

International Standard Atmosphere (ISA):

If you are flying at FL 100 in an air mass that is 10° C warmer than a standard atmosphere, what is the outside temperature likely to be?

A) +5° C.
B) -15° C.
C) +15° C.
D) -10° C.

If you are flying at FL 300 in an air mass that is 15° C warmer than a standard atmosphere, what is the outside temperature likely to be?

A) -15° C.
B) -45° C.
C) -30° C.
D) -60° C.

The minimum temperature in the International Standard Atmosphere is:

A) -273.
B) -117.
C) -100.
D) -56.5.

What is the approximate height of the 250hPa level?

A) 39,000ft.
B) 32,000ft.
C) 30,000ft.
D) 34,000ft.

If the same sample of air is heated, it immediately becomes:

A) unsaturated.
B) saturated.
C) visible water vapour (steam).
D) super-saturated.

ISA specification for mean tropopause conditions are:

A) T= -56,5° C, height = 36.090 ft
B) T=-56° C, height = 36.000 ft
C) T=-56,5° C, height= 36.000 ft
D) T=+56° C, height = 36.090 ft

Dry air is air which:

A) is unsaturated.
B) is not super-saturated.
C) contains no water vapour.
D) will not condense into water-droplets at room temperature.

A 300 hPa pressure level can vary in height. In temperate regions which of the following average heights is applicable?

A) FL 100.
B) FL 300.
C) FL 50.
D) FL 390.

A 200 hPa pressure altitude level can vary in height. In temperate regions which of the following average heights is applicable?

A) FL 300.
B) FL 50.
C) FL 100.
D) FL 390.

In ISA conditions:

A) the tropopause occurs at 36,090 ft AMSL.
B) temperature decreases by 2 deg C per km.
C) the tropopause occurs at 10 km AMSL.
D) pressure decreases by 1 millibar every 30 ft above mean sea level.

Temperature variation during 24 hours is least over:

A) Forest.
B) Sea.
C) Grass.
D) Mountain.

What is the minimum atmospheric temperature according to ISA?

A) -100 deg C.
B) -56.5 deg C.
C) -273 deg C.
D) 215K.

In Standard ISA conditions:

A) temperature decreases by 2 deg C per km.
B) the tropopause occurs at 36,000 ft AGL.
C) pressure decreases by 1 millibar every 30 ft above mean sea level.
D) the tropopause occurs at 11 km AMSL.

You are flying in an atmosphere which is warmer than ISA, what might you expect?

A) True altitude to be higher than Indicated altitude.
B) True altitude to be the same as Indicated altitude.
C) True altitude to be the decreasing.
D) True altitude to be lower than Indicated altitude.

The lowest assumed temperature in the International Standard Atmosphere (ISA) is:

A) -273° C
B) -56.5° C
C) -100° C
D) -44.7° C

A 850 hPa pressure level can vary in height. In temperate regions which of the following average heights is applicable?

A) FL 390.
B) FL100.
C) FL 300.
D) FL 50.

What is the vertical temperature lapse rate, up to 11 km, in the standard ICAO atmosphere?

A) 3° C per 1000 m.
B) 2° C per 1000 m.
C) 4.5° C per 1000 m.
D) 6.5° C per 1000 m.

The temperature at 10000 FT in the International Standard Atmosphere is:

A) 0° C.
B) -35° C.
C) -20° C.
D) -5° C.

Which statement is correct regarding the International Standard Atmosphere?

A) At MSL pressure is 1013.25 hPa and the decrease of temperature with height is 1° C per 100m.
B) At MSL temperature is 15° C and pressure is 1013.25hPa.
C) At MSL temperature is 10° C and the decrease in temperature with height is 1° C per 100m.
D) At MSL temperature is 15° C and the decrease in temperature with height is 1° C per 100m.

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21. If you are flying at FL 120 and the outside temperature is -2° C, at what altitude will the freezing level be?

A) FL 150
B) FL 110
C) FL 130
D) FL 90

In the International Standard Atmosphere the decrease in temperature with height below 11 km is:

A) 0.5° C per 100m.
B) 0.6° C per 100m.
C) 0.65° C per 100m.
D) 1° C per 100m.

Over which of the following surface types would you expect the greatest diurnal range of temperature to occur?

A) A desert area.
B) Polar regions.
C) An extensive forest area.
D) An ocean.

ISA specification for MSL conditions are:

A) T=+13° C, pressure = 1013,25 hPa
B) T=+15° C, pressure= 1013,25 hPa
C) T=+13° C, pressure = 1013 hPa.
D) T=+15° C, pressure= 1013 hPa

Where is the 300mb level approx. in ISA?

A) 10,000ft.
B) 30,000ft.
C) 39,000ft.
D) 18,000ft.

A 700 hPa pressure level can vary in height. In temperate regions which of the following average heights is applicable?

A) FL 390
B) FL 100
C) FL 300
D) FL 180

A 500 hPa pressure level can vary in height. In temperate regions which of the following average heights is applicable?

A) FL 390
B) FL 160
C) FL 180
D) FL 100

Altimetry:

You are flying at a constant altitude according to your altimeter. Your altimeter setting is unchanged. Which of the following interact to give a minimum a true altitude?

1. Flying from an area of low pressure to that an area of high pressure.
2. Flying from an area of high pressure to that an area of low pressure.1,
3. Flying from a warm air mass to a cold air mass.
4. Flying from a cold air mass to a warm air mass.

A) 2, 3
B) 1, 3
C) 1, 4
D) 2, 4

When is pressure altitude equal to true altitude?
A) When the temperature is standard.
B) In standard conditions.
C) When the indicated altitude is equal to the pressure altitude.
D) When surface pressure is 1013.25hPa.

An aircraft is flying through the Alps on a warm summers day. The weather is fine, and there is a high pressure system in the area. During the flight, a mountain is passed at an altitude of its summit. What reading will the aneroid altimeter give, compared to the summits elevation?
A) The same altitude as the elevation of the summit.
B) A higher altitude than the elevation of the summit.
C) There is insufficient information to come to a conclusion.
D) A lower altitude than the elevation of the summit.

The QNH at an airfield located 200 metres above sea level is 1022 hPa. The air temperature is not available.
What is the QFF?
A) More than 1022 hPa.
B) Less than 1022 hPa.
C) 1022 hPa.
D) It is not possible to give a definitive answer.

After landing at an aerodrome (QNH 993 hPa) it is noticed that the altimeter is still set to 1013,2 hPa and that it reads 1.200 feet. What is the elevation of the aerodrome above mean sea level?
A) 1.200 feet.
B) 2.280 feet.
C) 660 feet.
D) 1.740 feet.

If an altimeter setting is not available before flight, to which altitude should the pilot adjust the altimeter?
A) Pressure altitude corrected for non-standard temperature.
B) The elevation of the departure area.
C) The elevation of the nearest airport corrected to mean sea level.
D) So that the altimeter reads zero.

The QNH at an airfield located 0 metres above sea level is 1022 hPa. The air temperature is not available. What is the QFF?

A) More than 1022 hPa.
B) It is not possible to give a definitive answer.
C) Less than 1022 hPa.
D) 1022 hPa.

For a given airfield the QFE is 980 hPa and the QNH is 1000 hPa. The approximate elevation of the airfield is:

A) 120 metres.
B) 160 metres.
C) 540 metres.
D) 600 metres.

An aircraft is flying at FL 75 over point A where the QNH is 1013 hPa, enroute to B where the QNG is 979 hPa.
Assuming that 1hPa equals 30 ft and that point B is 823 metres amsl the terrain clearance over B is:

A) 3.780 ft
B) 4,280 ft
C) 5.680 ft
D) 6,480 ft

QFE 980 hPa at an altitude of 200 m AMSL: What will the approximate QNH be?

A) 1000 hPa.
B) 1005 hPa.
C) 1015 hPa.
D) 1010 hPa.

What happens to an aircrafts altimeter on the ground at the approach of a cold front?

A) Increases then decreases.
B) Remains the same.
C) Decreases then increases.
D) Increases.

After landing at an aerodrome (aerodrome elevation 1715 FT), the altimeter indicates an altitude of 1310 FT.
The altimeter is set to the pressure value of 1013 hPa. What is the QNH at this aerodrome?

A) 1013 hPa.
B) 1015 hPa.
C) 1028 hPa.
D) 998 hPa.

During the climb after takeoff, the altimeter setting is adjusted at the transition altitude. If the local QNH is 1023 hPa, what will happen to the altimeter reading during the resetting procedure?

A) It is not possible to give a definitive answer.
B) It will increase.
C) It will decrease.
D) It will remain the same.

The barometric pressure at the airfield datum point is:
A) QNH.
B) QFE.
C) QFA.
D) QNE.

Which statement is true?
A) QNH is lower than 1013.25 hPa at any time.
B) QNH can be lower as well as higher than 1013.25 hPa.
C) QNH can be 1013.25 only for a station at MSL.
D) QNH can not be 1013.25 hPa.

If an aircraft, without changing altimeter reference, flies so that the altimeter all the time indicates the same altitude, this always means that:
A) the air pressure at sea level is unchanged.
B) the actual height above the mean ground level is unchanged.
C) the air pressure around the aircraft is unchanged.
D) the actual altitude above sea level is unchanged.

You are flying over an airport at an indicated altitude of 5.600 ft. Airport elevation = 2.785 ft. The altimeter is set at the correct aerodrome QNH value of 993 hPa and the instrument error is zero, you are crossing the airport at a height above ground of:
(standard pressure setting = 1013 hPa, 1 hPa = 30 ft)
A) 2.215 ft
B) 5.000 ft
C) 2.815 ft
D) 5.600 ft

You are flying at FL 200. Outside air temperature is -40° C, and the pressure at sea level is 1033 hPa. What is the true altitude?
A) 21740 feet.
B) 18260 feet.
C) 20660 feet.
D) 19340 feet.

The QNH of an airport at sea level is 983 hPa and the temperature deviation from ISA is -15° C below FL 100.
What is the true altitude of FL 100?
A) 11410 FT.
B) 8590 FT.
C) 10210 FT.
D) 9790 FT.

During a flight over the sea at FL 100 from Marseille (QNH 1016 hPa) to Palma de Mallorca (QNH 1016 hPa), the true altitude is constantly decreasing. What is the probable reason for this?
A) The aircraft is being blown off track to the left.
B) The altimeter is faulty.
C) One of the QNH values must be wrong.
D) The air at Marseille is warmer than that at Palma de Mallorca.

21. After landing at an aerodrome (aerodrome elevation 1715 FT), the altimeter indicates an altitude of 1310 FT.
The altimeter is set to the pressure value of 1013 hPa. What is the QNH at this aerodrome?
A) 998 hPa.
B) 1013 hPa.
C) 1028 hPa.
D) 1015 hPa.

An aircraft lands at an airport (airport elevation 540 FT, QNH 993 hPa) with the altimeter set to 1013 hPa. What will it indicate?
A) 700 FT.
B) 1080 FT.
C) 0 FT.
D) 380 FT.

You have landed at an airport, local QNH 993 hPa. After landing, you notice, that your altimeter subscale is still set to 1013,2 hPa. Your altimeter indicates 1200 ft. What is the airport elevation?
A) 660 ft AMSL.
B) 1200 ft AMSL.
C) 2280 ft AMSL.
D) 1740 ft AMSL.

Your altimeter indicates 3600 ft, while set to standard pressure. You now adjust the subscale to the local QNH of 991 hPa. What will the indication than be:
A) 3600 ft.
B) 3320 ft.
C) 4194 ft.
D) 3006 ft.

At an airport in California (69 m below MSL), a QNH of 1018 hPa and a temperature 10° C higher than standard is observed:
A) The QFF is lower than 1018 hPa.
B) The QFF equals 1018 hPa.
C) The QFF is higher than 1018 hPa.
D) The QFF cannot be determined.

The QFF at an airfield located 400 metres above sea level is 1016 hPa. The air temperature is 10° C lower than a standard atmosphere. What is the QNH?
A) 1016 hPa.
B) More than 1016 hPa.
C) It is not possible to give a definitive answer.
D) Less than 1016 hPa.

In which of the following cases will the altimeter always indicate the airport elevation when landing?
A) If QFF on the airport is set as reference.
B) If QNH of the airport is set as reference.
C) If QFE of the airport is set as reference.
D) At standard setting.

An aeroplane takes off from A (elevation 800 ft, QFE 1000mb) and flies to B (elevation 80 ft, QFE 1020mb). The highest ground between points A & B is 2550 ft. If the aeroplane flew from A to B at 3 000 ft indicated with A' s QFE on the sub-scale, and if the regional QNH was 1026mb, the aircraft would have (assuming that 1mb = 30 ft):

A) flown over the hill at least 1.230 ft above the top.
B) crashes on the hill 240 ft below the top.
C) crashes on the hill 690 ft below the top.
D) flown over the hill at least 690 ft above the top.

What is the relationship between QFE and QNH at an airport 50ft below MSL?

A) QFE > QNH.
B) QFE = QNH.
C) QFE < QNH.
D) There is no clear relationship.

Aerodrome QFF is the:

A) aerodrome pressure converted to msl assuming ISA conditions between the levels.
B) aerodrome pressure converted to msl assuming actual conditions between the levels.
C) atmospheric pressure at aerodrome level converted to ISA conditions.
D) QFE converted to msl assuming constant temperature between the levels.

You are flying from Madrid (QNH 1012) to Paris (QNH 1015) at FL 80. If your true altitude and indicated altitude remain the same then...

A) the air at Madrid is warmer than Paris.
B) the air at Paris is warmer than Madrid.
C) your indicated altitude must be changing.
D) the altimeters are incorrect.

Your pressure altimeter is set at 1000 HPa. You have been cleared to join the traffic circuit at 2600 ft and received current QNH = 1010 h Pa. You join the circuit at 2600 ft bud forget to reset your altimeter. Other aircraft with correct altimeter settings indicating 2600 ft in the circuit will, compared to you, be flying:

A) 100 ft above.
B) 300 ft below.
C) 100 ft below.
D) 300 ft above.

A vertical spacing of 1000 FT, is the standard required separation between two FL. Under conditions of cold air advection (ISA -15° C), what would the true vertical separation be?

A) It remains 1000 FT.
B) Without QNH information, it can not be determined.
C) Less than 1000 FT.
D) More than 1000 FT.

State the definition for QNH:

A) QNE reduced to MSL, using standard temperature gradient.
B) QFF reduced to MSL, using standard temperature gradient.
C) Pressure reduced to sea level, using the standard temperature gradient.
D) QFE reduced to MSL, using actual temperature gradient.

If the QFE at Locarno (200 metres above sea level) is 980 hPa, what is the approximate QNH?

A) 1000 hPa.
B) 1010 hPa.
C) 1005 hPa.
D) 1015 hPa.

You intend to overfly a mountain ridge. The recommended minimum altitude for over flight according to your ICAO chart is 12000 ft AMSL. The average air temperature is 10° C higher than ISA, your altimeter is set to the local QNH of 1023 hPa. Which altimeter indication is needed to maintain the recommended minimum altitude?

A) 11250 ft.
B) 12210 ft.
C) 11520 ft.
D) 11790 ft.

Which value has to be known to calculate the QNH out of the QFE?

A) The density altitude of the field.
B) Field elevation.
C) Actual temperature.
D) The relative humidity of the air.

If flying Norht with easterly drift, an aircrafts altimeter will progressively:

A) impossible to say – it depends on the atmospheric pressure.
B) under-read.
C) remain correct.
D) over-read.

During the climb after takeoff, the altimeter setting is adjusted at the transition altitude. If the local QNH is 966 hPa, what will happen to the altimeter reading during the resetting procedure?

A) It will decrease.
B) It is not possible to give a definitive answer.
C) It will remain the same.
D) It will increase.

What altimeter reading would you expect when landing at an airfield 3.000 ft above MSL, altimeter setting is QFE for the field and local temperature is +25° C?

A) 3.000 ft.
B) 3.300 ft.
C) 2.700 ft.
D) 0 ft.

41. Which of these would cause your true altitude to decrease with a constant indicated altitude?

A) Cold/High.
B) Cold/Low.
C) Hot/Low.
D) Hot/High.

The QNH at an airfield located 200 metres above sea level is 1009 hPa. The air temperature is 10° C lower than a standard atmosphere. What is the QFF?

A) Less than 1009 hPa.
B) More than 1009 hPa.
C) 1009 hPa.
D) It is not possible to give a definitive answer.

Suppose that you want your altimeter on landing to indicate airport elevation. Which of the following pressures will you use as reference?

A) Standard (1013,25)
B) QFE
C) QFF
D) QNH

The QNH is 1030Hpa and at the Transition Level you set the SPS. What happens to your indicated altitude?

A) Rises but not much.
B) Drops by approximately 510ft.
C) Rises by approximately 510ft.
D) Drops but not much.

QNH 1025 hPa at an altitude of 200 m AMSL: What will the approximate QFE be?

A) 1025 hPa.
B) 1005 hPa.
C) 995 hPa.
D) 1000 hPa.

If you are flying on a QNH 1009 on very cold day and you circle the top of a peak in the Alps, your altimeter will read:

A) the same as the elevation of the peak.
B) lower than the elevation of the peak.
C) not enough information to tell.
D) higher than the elevation of the peak.

What is density altitude?

A) The vertical distance of the aircraft above the surface corrected for pressure.
B) The height above the standard datum plane.
C) The altitude read directly from the altimeter.
D) The pressure altitude corrected for non-standard temperature.

The barometric reading of pressure must be corrected for the following errors:

A) index, temperature, pressure.
B) instrument, temperature, pressure.
C) instrument, gravity, temperature.
D) temperature, index, instrument.

An aircraft is flying through the Alps on a very cold winters day. The regional QNH is 1013 hPa. During the flight, you circle around a mountain at an altitude of its summit. What reading will the aneroid altimeter give, compared to the elevation of the summit?

A) There is insufficient information to come to a conclusion.
B) The same altitude as the elevation of the summit.
C) A lower altitude than the elevation of the summit.
D) A higher altitude than the elevation of the summit.

A pressure altimeter indicates:

A) actual altitude above MSL.
B) the distance between two isobaric surfaces in the actual atmosphere.
C) actual altitude above the terrain below.
D) the distance between two isobaric surfaces in the standard atmosphere.

During a flight at FL 100 from Marseille (QNH 1012 hPa) to Palma de Mallorca (QNH 1015 hPa), an aircraft remains at a constant true altitude. The reason for this is that:

A) the air at Marseille is warmer than that at Palma de Mallorca.
B) the altimeters are erroneous, and need to be tested.
C) one of the two QNH values may be incorrect.
D) the air at Marseille is colder than that at Palma de Mallorca.

An aircraft is flying at FL 80. The local QNH is 1000 hPa. After the second altimeter has been adjusted to the local QNH, the reading will be approximately:

A) 8350 FT.
B) 8600 FT.
C) 7650 FT.
D) 8000 FT.

You are flying from Marseilles (QNH 1012 hPa) to Palma de Mallorca (QNH 1012 hPa) at FL100. You notice that the effective height above MSL (Radio Altitude) increases constantly. Hence.

A) The air mass above Palma is warmer than that above Marseilles.
B) You have the altimeters checked, as their indications are obviously wrong.
C) You have to adjust for a crosswind from the right.
D) One of the QNH values must be wrong.

Which one of the following conditions gives the shortest take off run, if the airports have the same QNH?

A) Low temperature and low airport elevation.
B) High temperature and low airport elevation.
C) Low temperature and high airport elevation.
D) High temperature and high airport elevation.

What information is required to convert a minimum safe altitude into a lowest usable flight level?

A) Highest value of QNH and the highest negative temperature deviation from ISA.
B) Lowest value of QNH and the lowest negative temperature deviation from ISA.
C) Lowest value of QNH and the highest negative temperature deviation from ISA.
D) Highest value of QNH and the highest positive temperature deviation from ISA.

You have landed on an airport (elevation 540 ft, QNH 993 hPa). Your altimeter subscale is erroneously set to 1013 hPa. Therefore, the indication will be:

A) 0 ft.
B) 700 ft.
C) 1080 ft.
D) 380 ft.

Flying from Marseilles (QNH 1012) to Palma (QNH 1015) at FL100. You do not reset the altimeter, why would true altitude be the same throughout the flight?

A) Air at Palma is warmer than air at Marseilles.
B) Not possible to tell.
C) Air at Marseilles is warmer than air at Palma.
D) Blocked static vent.

You are planning to fly across a mountain range. The chart recommends a minimum altitude of 12000 feet above mean sea level. The air mass you will be flying through is an average 10° C warmer than ISA. Your altimeter is set to 1023 hPa (QNH of a nearby airport at nearly sea level). What altitude will the altimeter show when you have reached the recommended minimum altitude?

A) 11520 feet.
B) 11790 feet.
C) 11250 feet.
D) 12210 feet.

An aircraft, flying so that the altimeter indicates 2500 ft with the current regional QNH set in the subscale, is flying towards an area of lower pressure. If the pilot fails to revise the subscale setting as the QNH changes, then the aircraft will:

A) unable to answer this question without temperature information.
B) gradually climb.
C) gradually descend.
D) maintain 2500ft AMSL.

An aircraft is flying over the sea at FL 90; the true altitude is 9100 feet; local QNH is unknown. What assumption, if any, can be made about the air mass in which the aircraft is flying?

A) There is insufficient information to make any assumption.
B) It is warmer than ISA.
C) Its average temperature is the same as ISA.
D) It is colder than ISA.

61. On takeoff, your altimeter is set to the local QNH of 1023 hPa. While passing the Transition Altitude, you adjust the subscale accordingly:

A) Your indicated altitude decreases.
B) A statement is not possible without the knowledge of the exact OAT.
C) Your indicated altitude increases.
D) The altimeter setting must remain at 1023 hPa.

If it is necessary to set the altimeter from 29.15 to 29.85, what change will occur?

A) 70-foot increase in indicated altitude.
B) 70-foot increase in density altitude.
C) 700-foot increase in indicated altitude.
D) 7000-foot increase in indicated altitude.

QNH is defined as:

A) QFE reduced to MSL using the standard atmosphere.
B) The pressure at MSL obtained using the actual conditions.
C) The pressure at MSL obtained using the standard atmosphere.
D) QFE reduced to MSL using the actual conditions.

At an airport (200 m AMSL), a QNH of 1022 hPa is observed and the temperature is unknown:

A) The QFF equals 1022 hPa.
B) The QFF is lower than 1022 hPa.
C) The QFF is higher than 1022 hPa.
D) The QFF cannot be determined.

The pressure altitude is equal to the true altitude if:

A) the air pressure is 1013.25 hPa at the surface.
B) standard atmospheric conditions occur.
C) the indicated altitude is equal to the pressure altitude.
D) the outside air temperature is standard for that height.

An aircraft takes of from airfield A, elevation 270ft, with the QFE of 994mb correctly set. Without re-setting the altimeter the pilot lands at airfield B, 405ft higher than A, with a QNH of 1000mb. Use 27ft/mb for calculations.
On landing the altimeter will read:

A) 405ft.
B) 513ft.
C) 405ft below zero.
D) 513ft below zero.

Suppose that you are flying at FL 40 and that you reset the altimeter to reference pressure 993 hPa. The altimeter then indicates:

A) about 3.700 ft.
B) about 4.600 ft.
C) about 3.400 ft.
D) about 4.300 ft.

An airfield has an elevation of 540ft with a QNH of 993mb. An aircraft descends and lands at the airfield with 1013mb set. What will its altimeter read on landing?

A) 0ft.
B) 380ft.
C) 540ft.
D) 1080ft.

An aircraft is to fly at an indicated altitude of 5000 ft from X(elevation 850 ft, QNH 984 hPa) to Y (elevation 2300 ft QNH 1024 hPa). Assuming that the altimeter sub-scale is set to 984 mb and 1 hPa=30 ft, the height of the aircraft over X and Y will be:

A) 5.000 ft; 1.500 ft
B) 4.150 ft; 1.500 ft
C) 5.000 ft; 3.900 ft
D) 4.150 ft; 3.900 ft

What is pressure altitude?

A) The altitude indicated when the barometric pressure scale is set to 29.92.
B) The indicated altitude corrected for non-standard temperature and pressure.
C) The indicated altitude corrected for position and installation error.
D) The absolute pressure which is corrected for altitude.

The QNH at an airfield 200m AMSL is 1009 hPa, air temperature is 10 C lower than standard. What is the QFF?

A) 1009.
B) More than 1009.
C) Less than 1009.
D) Not possible to give a definite answer.

Flying at FL135, the Radio Altimeter indicates a true altitude of 13,500 ft. The local QNH is 1019 hPa. Hence the crossed air mass is, on average:

A) Warmer than ISA.
B) Colder than ISA.
C) At ISA standard temperature.
D) There is insufficient information to determine the average temperature deviation.

An altimeter adjusted to 1013 hPa indicates an altitude of 3600 FT. Should this altimeter be adjusted to the local QNH value of 991 hPa, the altitude indicated would be:

A) 3006 FT.
B) 4278 FT.
C) 4194 FT.
D) 2922 FT.

The QNH at an airfield in California located 69 metres below sea level is 1018 hPa. The air temperature is 10° C higher than a standard atmosphere. What is the QFF?

A) More than 1018 hPa.
B) It is not possible to give a definitive answer.
C) 1018 hPa.
D) Less than 1018 hPa.

You are departing an aerodrome (600 ft AMSL, QNH 1012 hPa) and proceed to another airfield (195 ft AMSL) with the same QNH. After landing, which barometric setting on the altimeter makes it again indicate 600 ft?

A) 1027
B) 997
C) 1032
D) 992

If the QNH at Locarno (200 metres above sea level) is 1015 hPa, what is the approximate QFE? (Assume lhPa = 8m)

A) 1005 hPa
B) 1000 hPa
C) 995 hPa
D) 990 hPa

If atmospheric conditions exist such that the temperature deviation is ISA 10° C in the lower troposphere up to 18000 FT, what is the actual layer thickness between FL 60 and FL 120?

A) 5900 FT.
B) 5760 FT.
C) 6000 FT.
D) 6240 FT.

An aircraft flying at FL 100 from Marseille (QNH 1012 hPa) to Palma de Mallorca (QNH 1006 hPa) experiences no change to true altitude. The reason for this is that:

A) the air at Palma de Mallorca is warmer than that at Marseille.
B) one of the two QNH values may be incorrect.
C) the altimeters are erroneous, and need to be tested.
D) the air at Palma de Mallorca is colder than that at Marseille

An aircraft is flying over the sea at FL 120, with a true altitude of 12.000 feet, local QNH is 1013 hPa. What assumption, if any, can be made about the air mass in which the aircraft is flying?

A) Its average temperature is the same as ISA.
B) There is insufficient information to come to any conclusion.
C) It is colder than ISA.
D) It is warmer than ISA.

An aircraft lands at an airport (airport elevation 1240 FT, QNH 1008 hPa). The altimeter is set to 1013 hPa. The altimeter will indicate:

A) 1280 FT.
B) 1375 FT.
C) 1200 FT.
D) 1105 FT.

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81. An aircraft is in level flight at FL100 over a mountain range, which extends up to 2400 metres AMSL. If the regional QNH is 998 hPa, what is the approximate terrain clearance?

A) 7821 feet.
B) 1636 feet.
C) 2536 feet.
D) 405 feet.

The barometric compensator of an altimeter is locked on reference 1013.2 hPa. The aircraft has to land on a point with an elevation of 290 feet where the QNH is 1023 hPa. Assuming that 1 hPa corresponds to 27 FT, the reading on the altimeter on the ground will be:

A) 560 FT.
B) 11 FT.
C) -10 FT.
D) 20 FT.

At an airport (200 m AMSL), a QNH of 1009 hPa and a temperature 10° C lower than ISA is observed:

A) the QFF equals 1009 hPa.
B) the QFF cannot be determined.
C) the QFF is higher than 1016 hPa.
D) the QFF is lower than 1016 hPa.

Which weather condition lowers true altitude as compared to pressure altitude to a position where flight over mountains could be dangerous?

A) Warm depression.
B) Cold high.
C) Cold low.
D) Warm high.

You intend to overfly a mountain range. The recommended minimum flight altitude is, according to the aviation chart, 15000 FT/AMSL. The air mass that you will fly through is on average 15° C warmer than the standard atmosphere. The altimeter is set to QNH (1023 hPa). At what altimeter reading will you effectively be at the recommended minimum flight altitude?

A) 13830 FT.
B) 14100 FT.
C) 15900 FT.
D) 14370 FT.

During a flight over the sea at FL 100 from Marseille (QNH 1012 hPa) to Palma de Mallorca (QNH 1012 hPa), the true altitude is constantly increasing. What action, if any, should be taken?

A) Have your altimeter checked, because its readings are obviously wrong.
B) None, the reason for the change is that the air around Palma is warmer than the air around Marseille.
C) Recheck the QNH because one of the QNH values must be wrong.
D) Compensate by heading further to the left.

The difference between QNH and QFE at an airport is:

A) dependent on the (ambient) air temperature of the airport.
B) dependent on the air pressure as well as the air temperature of the airport.
C) dependent on the air pressure at the airport.
D) always the same.

When landing at an airport you have correctly set QNH = 1023 hPa as reference pressure on your altimeter. The altimeter indicates 1200 ft after landing. Suppose that you change the pressure reference to standard setting (1013hPa). What will your altimeter indicate?

A) 0 ft
B) 1.200 ft
C) 1.500 ft
D) 900ft

QFE 1000 hPa at an altitude of 200 m AMSL. What will the approximate QNH be?

A) 985 hPa.
B) 990 hPa.
C) 1035 hPa.
D) 1025 hPa.

Aerodrome QNH is the:

A) aerodrome pressure converted to msl assuming actual conditions between the levels.
B) aerodrome pressure converted to msl assuming ISA conditions between the levels.
C) atmospheric pressure at aerodrome level.
D) aerodrome QFE converted to msl assuming constant temperature between the levels.

Which of the following conditions gives the highest value of the QNH?

A) QFE = 1003 hPa, elevation = 1200 FT (366m).
B) QFE = 1000 hPa, elevation = 1200 FT (366m).
C) QFE = 995 hPa, elevation = 1600 FT (488m).
D) QFE = 995 hPa, elevation = 1200 FT (366m).

Your altimeter is blocked at 1000 hPa. You have to overfly a mountain (8000 ft) with a terrain clearance of at least 1500 ft. What will be your indicated altitude when the QNH of a nearby airport is 990 hPa and the temperature is 10C colder than ISA?

A) 8850 ft.
B) 10501 ft.
C) 10150 ft.
D) 9500 ft.

When the subscale is set to the QNH of an airfield the pressure altimeter indicates:

A) elevation while landing.
B) zero while landing.
C) zero while landing only if conditions are as in the International Standard Atmosphere.
D) elevation while landing only if conditions are as in the International Standard Atmosphere.

What is the relationship, if any, between QFE and QNH at an airport situated 5O FT below sea level?

A) QFE equals QNH.
B) QFE is smaller than QNH.
C) No clear relationship exists.
D) QFE is greater than QNH.

You are flying at FL 130, and your true altitude is 12000 FT. What is the temperature deviation from that of the standard atmosphere at FL 130 (QNH 1013,2 hPa)?

A) ISA -20° C
B) ISA +12° C
C) ISA +20° C
D) ISA +/-0° C

Landing at an airfield with QNH set the pressure altimeter reads:
A) Zero feet on landing only if ISA conditions prevail.
B) Zero.
C) The elevation of the airfield.
D) Pressure Altitude.

You must make an emergency landing at sea. The QNH of a field on a nearby island with an elevation of 4000 FT is 1025 hPa and the temperature is -20° C. What is your pressure altimeter reading when landing if 1025 hPa is set in the subscale?
A) 0 FT.
B) Less than 0 FT.
C) 4.000 FT.
D) More than 0 FT, but less than 4.000 FT.

At the official measuring level for a specific airport, an aircraft altimeter, set at QNH for the airport, should read:
A) the elevation of the airport, regardless of temperature.
B) zero, regardless of temperature.
C) the elevation of the airport, but only at standard ISA temperature.
D) zero, only at standard ISA temperature.

Which of the following statements is true?
A) QNH is always higher than QFE.
B) NH is always equal to QFE.
C) QNH is always lower than QFE.
D) QNH can be equal to QFE.

An aircraft must clear an obstacle at 2000ft elevation by 1000ft. Regional QNH is correctly set at 998mb, the OAT at 3000ft indicated is -10& #351;C. At what indicated altitude will the 1000ft clearance be achieved:
A) 3160ft.
B) 2240ft.
C) 3120ft.
D) 3240ft.

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101. What is absolute altitude?
A) The altitude read directly from the altimeter.
B) The vertical distance of the aircraft above the surface.
C) The height above the standard datum plane.
D) The vertical distance of the aircraft above the surface corrected for temperature and density.

You are flying in the Alps at the same level as the summits on a hot day. What does the altimeter read?
A) Same altitude as the summit.
B) Lower altitude as the summit.
C) Impossible to tell.
D) Higher altitude as the summit.

An aircraft is flying at FL 180 on the northern hemisphere with a crosswind from the left. Which of the following is correct concerning its true altitude?

A) It remains constant.
B) Without knowing temperatures at FL 180 this question can not be answered.
C) It increases.
D) It decreases.

In order to calculate QFE from QNH, which of the following must be known?

A) Elevation of the airfield.
B) Temperature at the airfield.
C) Elevation of the airfield and the temperature at MSL.
D) Elevation and the temperature at the airfield.

The definition of QNE is:

A) the pressure at the airfield.
B) the pressure altitude at msl.
C) the pressure at msl.
D) the pressure altitude at touchdown.

Consider the following statements about altimeters, which is correct?

A) A subscale setting of 1013.2 mb is the same as one of 29.53 ins
B) Pressure altimeters are calibrated to indicate true altitude under ISA conditions.
C) When temperatures are lower than ISA, the altimeter will indicate a lower reading than the true altitude.
D) When QNE is set the altimeter will read altitude levels.

Which factors below increase density altitude for a given aerodrome:

1. Decreasing air pressure.
2. Increasing air pressure.
3. Decreasing temperature.
4. Increasing temperature.

A) 1, 2
B) 2, 4
C) 2, 3
D) 1, 4

If the QNH at Locarno (200 metres above sea level) is 1025 hPa, what is the approximate QFE?

A) 1000 hPa.
B) 1005 hPa.
C) 1025 hPa.
D) 995 hPa.

You are flying at FL 160. Outside air temperature is -27° C, and the pressure at sea level is 1003 hPa. What is the true altitude?

A) 15090 feet.
B) 15630 feet.
C) 16370 feet.
D) 16910 feet.

At an airport (400 m AMSL), a QFF of 1016 hPa and a temperature 10° C higher than ISA is observed:
A) The QNH is lower than 1016 hPa.
B) The QNH is higher than 1016 hPa.
C) The QNH cannot be determined.
D) The QNH equals 1016 hPa.

What temperature and pressure conditions would be safest to ensure that your flight level clears all the obstacles by the greatest margin?
A) Cold temp/low pressure.
B) Temp less than or equal to ISA and a QNH less than 1013.
C) Temp more than or equal to ISA and a QNH greater than 1013.
D) Warm temp/high pressure.

The following temperatures have been observed over a station at 1200 UTC. Assume the station is at MSL.
Height in feet. Temperature in degrees C. 20000.-12 18000.-11 16000.-10 14000.-10 12000.-6 10000.-2 8000.
+2 6000. +6 4000. +12 2000. +15 surface+15.
A) The layer between 16000 and 18000 FT is absolutely unstable.
B) Assuming that the MSL pressure is 1013.25 hPa the true altitude of an aircraft would actually be higher than the indicated altitude.
C) The height of the freezing level over the station is approximately 12000 FT.
D) The temperature at 10000 FT is in agreement with the temperature in the International Standard Atmosphere.

The QNH is equal to the QFE if:
A) T actual < T standard.
B) the elevation = 0.
C) T actual > T standard.
D) T actual = T standard.

At an airport 1.700 ft above sea level the temperature reading is +10° C . from the barometer readings made at the same time QFE, QFF and QNH are computed. Which of the following statements concerning air pressure in correct?
A) QFF is equal to QNH.
B) QFF is equal to QFE.
C) QNH is equal to QFE.
D) QFF is higher than QNH.

An aircraft is flying over the sea at FL 100, with a true altitude of 10000 feet; local QNH is 1003 hPa. What assumption, if any, can be made about the air mass in which the aircraft is flying?
A) There is insufficient information to come to any conclusion.
B) Its average temperature is about ISA.
C) It is colder than ISA.
D) It is warmer than ISA.

The QFF at an airfield in California located 69 metres below sea level is 1030 hPa. The air temperature is 10° C lower than a standard atmosphere. What is the QNH?
A) 1030 hPa.
B) It is not possible to give a definitive answer.
C) More than 1030 hPa.
D) Less than 1030 hPa.

Flying over mountains in an air temperature 9 deg C, the QNH is set as 1023 (obtained from a nearby airfield).
What will the true altitude be when 12,000ft is indicated on the altimeter?

A) 11,148.
B) 11,940.
C) 12,864.
D) 12,210.

An aircraft is flying at FL 75 over point A where the QNH is 1013mb, en-route to B where the QNH is 979mb.
Assuming that 1mb = 30ft and that the elevation of B is 823 metres, the terrain clearance over B is:

A) 3780ft.
B) 5680ft.
C) 6480ft.
D) 7500ft.

Which of the following conditions would cause the altimeter to indicate a lower altitude than that actually flown?

A) Air temperature lower than standard.
B) Air temperature higher than standard.
C) Pressure altitude the same as indicated altitude.
D) Atmospheric pressure lower than standard.

While passing the Transition Level, you set the subscale on your altimeter to the local QNH of 1009 hPa:

A) Your indicated altitude decreases.
B) Your indicated altitude increases.
C) Your setting is wrong, the subscale must be set to 1013,2 hPa.
D) A statement is not possible without the knowledge of the exact OAT.

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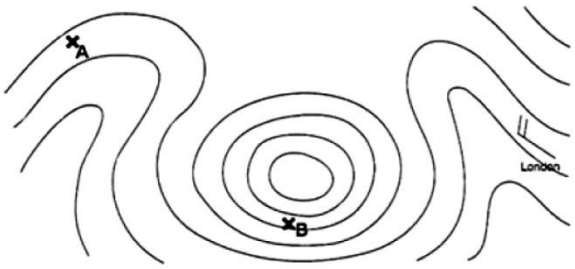
121. An aircraft is flying from Point A to Point B on the upper level contour chart. The altimeter setting is 1013,2 hPa.
Which of these statements is correct?



A) Wind speed at A is higher than at B.
B) Wind speed at A and at B is the same.
C) The true altitude will be higher at B than at A.
D) The true altitude will be higher at A than at B.

In order to reduce QFE to QNH, which of the following item(s) must be known?

A) Elevation of the airfield and the temperature at the airfield.
B) Elevation of the airfield.
C) Elevation of the airfield and the temperature at MSL.
D) Temperature at the airfield.

In Geneva, the local QNH is 994 hPa. The elevation of Geneva is 1411 FT. The QFE adjustment in Geneva is:

A) 948 hPa.
B) 942 hPa.
C) 967 hPa.
D) 961 hPa.

You are flying at FL160 with an OAT of -27 deg C. QNH is 1003 hPa. What is your true altitude?

A) 15,540 ft.
B) 16,330 ft.
C) 15,730 ft.
D) 15,090 ft.

Under what condition is indicated altitude the same as true altitude?

A) Never.
B) When at sea level under standard conditions.
C) If the altimeter has no mechanical error.
D) When at 18,000 feet MSL with the altimeter set at 29.92.

The QNH at Timbuktu (200m AMSL) is 1015 hPa. What is the QFE? (assume 1 hPa = 8m)

A) 995.
B) 1020.
C) 990.
D) 1000.

Up to FL180 ISA Deviation is ISA +10 deg C. What is the actual depth of the layer between FL60 and FL120?

A) 6240ft.
B) 6000ft.
C) 5760ft.
D) 5700ft.

An aerodrome is 300m above sea level with a station pressure of QNH of 1034. If the temperature is 12.5 deg C, what would the QFF most likely be:

A) less than 1034.
B) impossible to determine.
C) more than 1034.
D) the same as QNH.

You are flying from airfield A, elevation 540 ft where the QNH is 1010 hPa. You fly to airfield B, elevation 540 ft where the QNH is 1023 hPa. If you do not reset your altimeter on the descent what will the altimeter read on landing at B? (1 hPa = 27 ft)

A) 150 ft.
B) 189 ft.
C) 351 ft.
D) 891 ft.

On the ground, an altimeter will read ... ft if QFE is set and ... if QNH is set:

A) airfield elevation; airfield altitude
B) zero ft; airfield height
C) zero ft; airfield altitude
D) zero ft; airfield elevation

An aircraft is descending to land under IFR. If the local QNH is 1009 hPa, what will happen to the altitude reading when the altimeter is reset at the transition level?

A) It will decrease.
B) It will increase.
C) It will remain the same.
D) It will not be affected.

During a flight over the sea at FL 135, the true altitude is 13500 feet; local QNH is 1019 hPa. What information, if any, can be gained about the air mass in which the aircraft is flying?

A) It is colder than ISA.
B) It is warmer than ISA.
C) There is insufficient information to make any assumption.
D) Its average temperature is the same as ISA.

What pressure is defined as QFE?

A) The pressure reduced to sea level using ISA temperatures.
B) The pressure at field elevation.
C) The pressure reduced to sea level using actual temperatures.
D) The pressure of the altimeter.

Prior to takeoff, the altimeter should be set to which altitude or altimeter setting?

A) The corrected pressure altitude for the departure airport.
B) The current local altimeter setting, if available, or the departure airport elevation.
C) Departure airport elevation.
D) The corrected density altitude of the departure airport.

You fly over the sea at FL 90, TA 9100ft, QNH unknown. What can be assumed?

A) It is colder than ISA.
B) No assumption is possible, because the information is not sufficient.
C) It is warmer than ISA.
D) The QNH is lower than 1013 hPa.

QNH 1015 hPa at an altitude of 200 m AMSL: What will the approximate QFE be:

A) 1000 hPa.
B) 1005 hPa.
C) 995 hPa.
D) 990 hPa.

You are flying at FL 100 in an airmass which is 15° C colder than ISA, local QNH 983. What would the true altitude be?

A) 11.410 ft.
B) 8.590 ft.
C) 10.210 ft.
D) 10.000 ft.

If the QFE at Locarno (200 metres above sea level) is 1000 hPa, what is the approximate QNH?

A) 985 hPa.
B) 1035 hPa.
C) 1025 hPa.
D) 990 hPa.

An aerodrome is 10m below sea level with a QNH of 1034. If the temperature is 12.5 deg C, what would the QFF most likely be:

A) impossible to determine.
B) less than 1034.
C) more than 1034.
D) the same as QNH.

A barometric altimeter always indicates:

A) altitude to the set altitude reference.
B) correct altitude to the terrain below.
C) standard altitude.
D) the dynamic pressure.

---

141. An aircraft takes off from Doha (elevation 30f ft) with the correct airfield QNH of 1020mb set on the altimeter.
The aircraft then lands at Al Ain (elevation 500 ft) but without re-setting the altimeter sub-scale. If the QNH at Al Ain at the time of landing was 1015mb, what would the aircrafts altimeter read on touch-down (1mb = 30 ft).

A) 450 ft
B) zero
C) 950 ft
D) 650 ft

If the Bahrain QNH = 1003mb, how thick is the Transition Layer assuming that 1mb = 40 ft at altitude; the Bahrain TA = 13.000 ft and the TL is FL 150?

A) 1.600 ft
B) 600 ft
C) 1.210 ft
D) 1.500 ft

At an airport (0 m AMSL), a QNH of 1022 hPa is observed and the temperature is unknown:

A) the QFF is higher than 1022 hPa.
B) the QFF cannot be determined.
C) the QFF equals 1022 hPa.
D) the QFF is lower than 1022 hPa.

The diagram below shows positions A and B on an aircrafts planned route. The aircraft is flying at FL 100 and H1 at position A is 9.610 ft using a radar altimeter. If QNH at B (4 000 ft AMSL) is 996 hPa and assuming 1hPa =30ft, the change is both aircraft height AMSL and QNH between A and B can be described as:

A) height AMSL is increasing and pressure is decreasing.
B) height AMSL is decreasing and pressure is increasing.
C) height AMSL is increasing and pressure is increasing.
D) height AMSL is is decreasing and pressure is decreasing.

You plan a flight over a mountain range at a true altitude of 15000 FT/AMSL. The air is on an average 15° C colder than ISA, the pressure at sea level is 1003 hPa. What indication must the altimeter (setting 1013.2 hPa) read?

A) 13830 FT.
B) 16230 FT.
C) 15690 FT.
D) 14370 FT.

Before landing, an altimeter set to QFE indicates:

A) the aircraft's altitude above the mean sea level.
B) in standard atmosphere, the height of the aircraft above the official airport elevation.
C) the height of the aircrafts wheels above the runway.
D) the flight level.

Flying over mountains in ISA +9, QNH set as 1023 (obtained from a nearby airfield). What will the true altitude be when 6,000ft is reached?

A) 6,075 ft.
B) 5,784 ft.
C) 6,216 ft.
D) 5,925 ft.

At which pressure and temperature conditions may you safely assume that the minimum usable flight level at least lies at the same height, as the minimum safe altitude?

A) At a temperature greater than or equal to that of the ISA and where the QNH is greater than or equal to 1013 hPa.
B) In a cold low pressure region.
C) In a warm high pressure region.
D) At a temperature less than or equal to that of the ISA and where the QNH is less than 1013 hPa.

Standard altimeter setting is:

A) 1015,25 hPa
B) 1010,25 hPa
C) 1018,25 hPa
D) 1013,25 hPa

Wind

Definition and measurement:

What cloud type is prone to +RA?

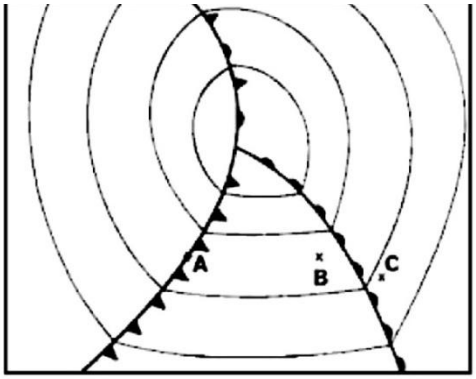
A) CC.
B) ST.
C) AS.
D) NS.

Evaporation is the change of:

A) Invisible water vapour to liquid water.
B) Liquid water to water vapour.
C) Water vapour to ice.
D) Ice directly to water vapour.

What temperature does an observer at point C encounter in the next hour?

A) The temperature increases.
B) No substantial temperature change.
C) The temperature first increases and then decreases.
D) The temperature decreases.



A V-shaped extension of a low pressure area is called a:

A) Occlusion.
B) Trough.
C) Col.
D) Ridge.

Winds at 5.000 ft AGL on a particular flight are south-westerly while most of the surface winds are southerly.
The difference in direction is primarily due to:

A) A stronger pressure gradient at higher altitudes.
B) Stronger Coriolis force at the surface.
C) Friction between the wind and the surface.
D) The influence of pressure systems at the lower altitudes.

Which force, in the Northern Hemisphere, acts at a right angle to the wind and deflects it to the right until parallel to the isobars?

A) Coriolis.
B) Centrifugal.
C) Pressure gradient.
D) Advection.

There is a natural tendency for air to flow from areas of:

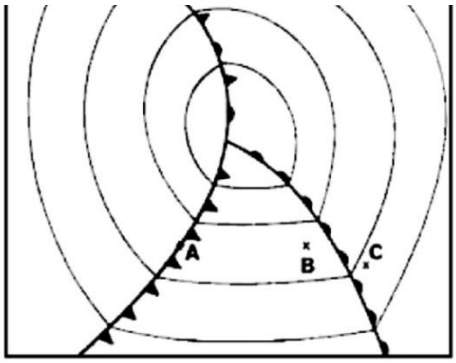
A) low pressure to high pressure.
B) mountainous areas to flat areas.
C) high pressure to low pressure.
D) flat terrain towards the sea.

In a low pressure:

A) The isobars are found in closed and more or less oval circles around the lowest pressure.
B) The isobars are often closer to each other than around a high pressure.
C) a) , b) and c) are all correct.
D) The wind will tend to be stronger with increasing altitude and also blow more parallel to the isobars.

What pressure does an observer at point A encounter in the next hour?

A) No substantial pressure change.
B) A pressure rise first, then an immediate pressure drop.
C) Rising pressure.
D) Falling pressure.



Which statement is true for condensation?

A) Latent heat is transformed into pure energy.
B) Precipitation forms.
C) Latent heat is released to the atmosphere.
D) Latent heat is absorbed from the surrounding air by the water droplet.

11.

What term describes an elongated area of low pressure?

A) Ridge.
B) Isobar.
C) Hurricane or typhoon.
D) Trough.

The general circulation of air associated with a high pressure area in the northern hemisphere is:

A) Inward, upward and clockwise.
B) Outward, upward and clockwise.
C) Inward, downward and counter clockwise.
D) Outward, downward and clockwise.

Which statement is true, when isobars stand close together on a surface chart?

A) Lights winds prevail.
B) Westerly winds prevail.
C) Strong winds are present.
D) A high pressure area is approaching.

15.

What happens when you descend from 2000 ft to the surface, when no fronts are present?

A) The wind veers and decreases.
B) The wind backs and the wind speed remains more or less constant.
C) The wind veers and increases.
D) The wind backs and decreases.

In the Northern Hemisphere the surface wind is blowing around a low pressure:

A) anti-clockwise, oblique to the isobars towards the low pressure centre.
B) parallel to the isobars.
C) across the isobars.
D) opposite the situation described in a)

The direction of the gradient force is:

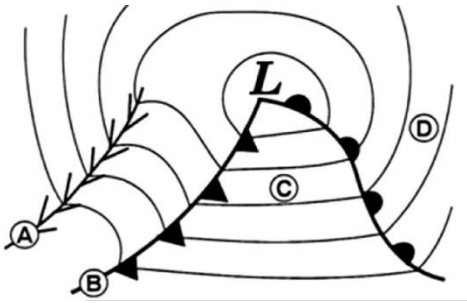
A) Parallel to the isobars.
B) Same direction as the friction force.
C) Towards high pressure.
D) Towards low pressure.

Thermal wind in the Northern Hemisphere blows with:

A) Cold air to the right.
B) Warm air to the right.
C) Cold air to the left.
D) Warm air to the left.

What does zone A depict?

A) The cold front.
B) A ridge.
C) A trough.
D) The warm sector.



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21. What is sublimation?

A) The change of state from water vapour to water.
B) The change of state from ice to water.
C) The change of state from ice to water vapour or from water vapour to ice.
D) The change of state from water to water vapour.

22.

If the wind at altitude is 240/35 KT, the most likely wind on the surface at an inland airfield is:

A) 270/40 KT.
B) 220/20 KT.
C) 220/40 KT.
D) 270/20 KT.

What is the approximate speed of a 90 km/h wind, expressed in knots:

A) 50 kt.
B) 55 kt.
C) 60 kt.
D) 70 kt.

In an anticyclone in the Northern Hemisphere, with curved isobars, the speed of the gradient wind...

A) is greater than the geostrophic wind.
B) depends on Coriolis force only.
C) is lower than the geostrophic wind.
D) equals the cyclostrophic wind.

What prevents air from flowing directly from a high to a low pressure?

A) Pressure force.
B) Centripetal force.
C) Coriolis force.
D) Centrifugal force.

The wind tends to follow the contour lines (isohypses) above the friction layer because:

A) the Coriolis force acts perpendicular on a line that connects high and low pressure system.
B) the friction of the air with the earth's surface gives the airflow a diversion perpendicular to the gradient force.
C) the Coriolis force tends to balance with the horizontal pressure gradient force.
D) contour lines are lines that connect points with the same windspeed in the upper air.

28.

Wind at 2000 ft 06045KT. What would you expect at the surface over the sea approximately?

A) 04540KT.
B) 07512KT.
C) 04512KT.
D) 07540KT.

In contrast to brief showers, prolonged precipitation preceding a front is most likely to be related to:

A) Stratiform clouds with moderate turbulence.
B) Cumuliform clouds with moderate turbulence.
C) Cumuliform cloud with little or no turbulence.
D) Shallow Stratiform clouds with little or no turbulence.

A Foehn wind is:

A) a warm wind which flows down the leeside of a mountain due to the pressure distribution.
B) a wind which flows down the leeside of a mountain due to its greater density.
C) a dry wind which blows through a mountain gap or valley.
D) a warm dry wind which blows down the leeside of a mountain.

Define high pressure:
A) An area with higher pressure than that of the environments.
B) A high pressure ridge.
C) Non of the above.
D) An area of divergence.

What is evaporation?
A) The change of state from water vapour to water.
B) The change of state from ice to water.
C) The change of state from ice to water vapour or from water vapour to ice.
D) The change of state from water to water vapour.

32

What values are used for the forecasted wind at higher levels?
A) Direction relative to grid north and speed in km/h.
B) Direction relative to true north and speed in knots.
C) Direction relative to magnetic north and speed in km/h.
D) Direction relative to magnetic north and speed in knots.

Assuming a generalised zonal system of world wind circulation, the NE trade winds are applicable to zone?
A) Easterly wave.
B) Trade winds.
C) Low level jet stream.
D) Monsoon.

The effect of wind is to ... the difference in temperature between ground level and 4 ft:
A) increase
B) decrease
C) cancel
D) equalise

Wind at 2000 ft 20040KT. What would you expect at the surface over the sea approximately?
A) 22020KT.
B) 18515KT.
C) 18540KT.
D) 22040KT.

If the wind is from the north, wind direction is reported as:
A) 360°
B) 180°
C) 270°
D) 090°

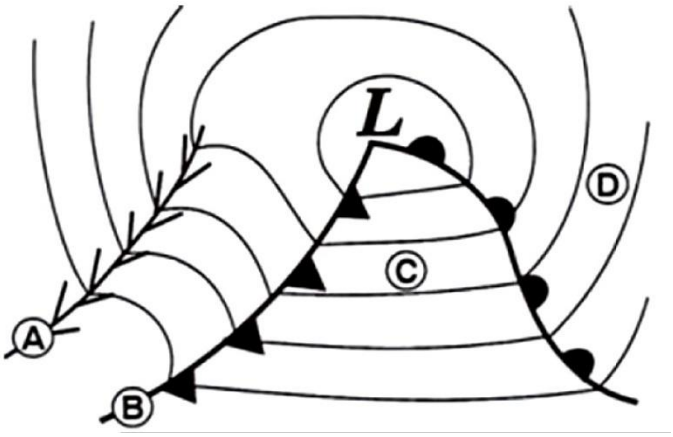
What can you expect at FL 180, when the wind is geostrophic and your true altitude is 18.000 ft?
A) Crosswind from the right.
B) No crosswind.
C) Crosswind from the left.
D) None of the above.

41. What prevents air from flowing directly from high-pressure areas to low-pressure areas?

A) The pressure gradient force.
B) Coriolis force.
C) Katabatic force.
D) Surface friction.

What does zone C depict?

A) The cold front.
B) A trough.
C) The warm sector.
D) A ridge.



What causes surface winds to flow across the isobars at an angle rather than parallel to the isobars?

A) Coriolis force.
B) Surface friction.
C) The greater density of the air at the surface.
D) The greater atmospheric pressure at the surface.

Which of the following statements is untrue?

A) The Coriolis force deflects the wind to the right in the Northern hemisphere only.
B) The geostrophic force deflects the wind to the left in the Southern hemisphere.
C) The Coriolis force deflects the wind to the right in both hemispheres.
D) The geostrophic force is the same as the Coriolis force.

What can on a Significant Weather Chart be depicted?

A) The amount of rain in a certain area.
B) The speed and direction of a surface front.
C) The actual weather situation.
D) The speed and direction of an upper front.

During periods of prolonged clear skies associated with anticyclonic conditions, the:

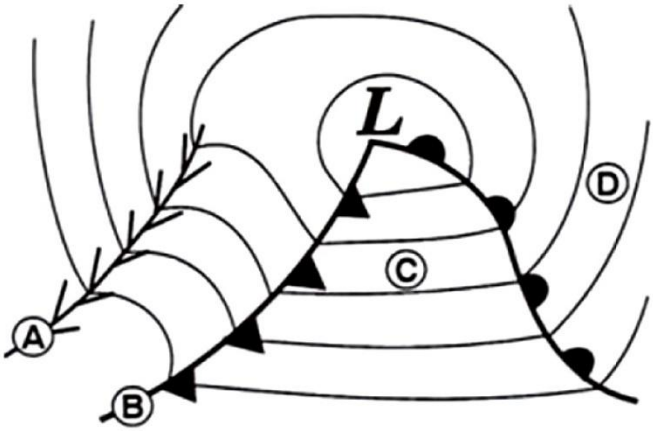
A) surface wind speed tends to be highest during the early afternoon.
B) surface wind speed tends to be highest at night.
C) wind tends to back from early morning until early afternoon.
D) angle between isobars and surface wind direction tends to be greatest in the early afternoon.

Buys Ballots Law implies that:

A) the wind blows clockwise round a depression in the southern hemisphere only.
B) the wind blows anti-clockwise round depressions in both hemispheres.
C) the wind blows clockwise round an anticyclone in the southern hemisphere.
D) the wind blows anti-clockwise round anti-cyclones in the Northern hemisphere.

What does zone B depict?

A) The cold front.
B) A ridge.
C) The warm sector.
D) A trough.



Characteristic of a cold air mass is:

A) strong and smooth winds.
B) precipitation (drizzle).
C) showers and gusty winds.
D) extensive fog.

Water droplets often condense or persist at temperature colder than 0° C. What are water droplets called which are colder than 0° C?

A) Super-heated water droplets.
B) None of the above.
C) Ice.
D) Supercooled water droplets.

51. Which of the following statements is true?

A) A gust is a squall which lasts for several minutes.
B) A gust is a squall which lasts for several minutes.
C) The more stable the atmosphere, the less turbulence.
D) A gale has an average speed of 33 Kts or more.

A trough of low pressure on a surface synoptic chart...

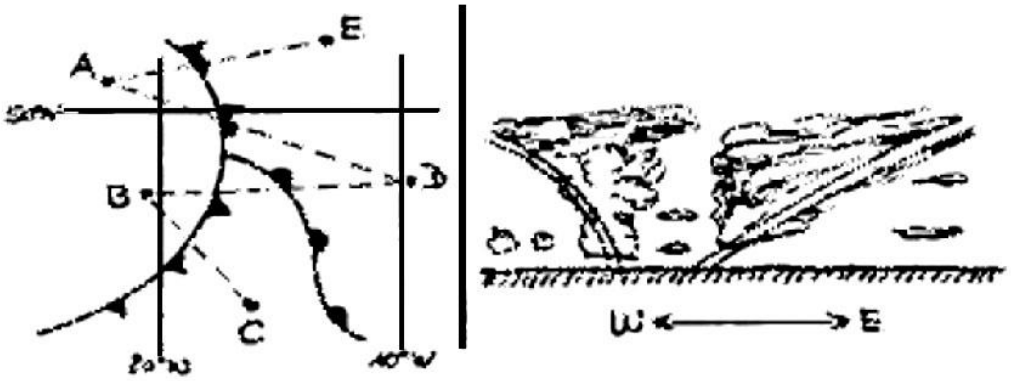
A) leads to descending air masses.
B) is a narrow band of ascent.
C) is an area of convergence and widespread ascent.
D) is an area of divergence and widespread ascent.

The mechanical turbulence will increase when:

A) temperature falls.
B) pressure rises.
C) the wind increases.
D) flying from land to sea.

On which route do you expect the cross section below?

A) C-A
B) D-B
C) B-A
D) B-C



Due to the diurnal variations of temperature the following types of wind arise:

A) Sea and land breeze.
B) Anabatic winds.
C) Trade-winds.
D) Monsoon winds.

What is a feature of air movement in a high pressure area?

A) Ascending from the surface high to lower pressure at higher altitudes.
B) Descending to the surface and the inward.
C) Moving outward from the high at high altitudes and into the high at the surface.
D) Descending to the surface and the outward.

Which statement is true?

A) The general visibility associated with a cold front is worse than the visibility associated with a warm front.
B) The general visibility associated with a cold front is the same than the visibility associated with a warm front.
C) None of the above - more factors are involved.
D) The general visibility associated with a cold front is better than the visibility associated with a warm front.

Wind is caused by?
A) Earth rotation.
B) Surface friction.
C) Horizontal pressure difference.
D) Mixing of fronts.

Name the conditions for the formation of radiation fog:
A) over the sea with a 20KT wind.
B) mountainous terrain with winds of approx. 10 KT, overcast skies.
C) flat landscape, a clear night, winds of 10-20KT.
D) flat landscape, a clear night, no wind conditions.

At which location does Coriolis force have the least effect on wind direction?
A) At the Equator.
B) It is almost constant everywhere on earth.
C) At the poles.
D) Middle latitudes (30° to 60°).

61.

The difference between geostrophic wind and gradient wind is caused by:
A) horizontal temperature gradients.
B) slope of pressure surfaces.
C) curvature of isobars.
D) friction.

You fly from east to west at the 500 hPa level in the Northern hemisphere:
A) You fly towards an area of low pressure, and, therefore, experience a loss in altitude.
B) If the wind is from the North, there is a gain in altitude.
C) If you encounter a northerly drift, there is a gain in altitude.
D) If the wind is from the South, there is a gain in altitude.

If the wind is from the East, the wind direction is reported as:
A) 090°
B) 360°
C) 180°
D) 270°

What is the term used to describe streamers of precipitation trailing beneath clouds, but evaporating before reaching the ground:
A) Foehn.
B) None of the above.
C) Virga.
D) Dissipation trails.

What relationship exists between the winds at 2000 ft above the surface and the surface winds?

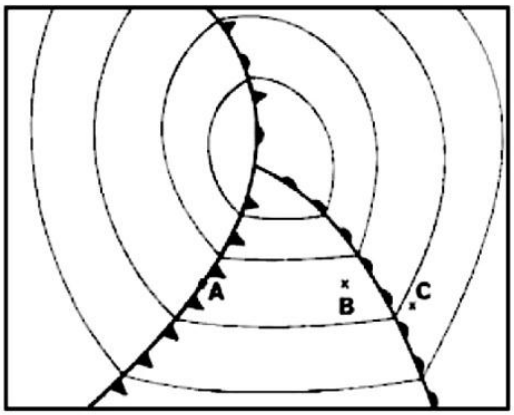
A) The winds at 2000 ft and the surface winds flow in the same direction, but the surface winds are weaker due to friction.
B) The winds at 2000 ft tend to parallel the isobars while the surface winds cross the isobars at an angle toward lower pressure and are weaker.
C) The winds at 2000 ft and the surface winds are approximately the same except when eddies form due to obstructions.
D) The surface winds tend to veer to the right of the winds at 2000 ft and are visually weaker.

Which precipitation type normally indicates freezing rain at some altitude above the ground?

A) Snow.
B) Hail.
C) Ice crystals.
D) Ice pellets.

What pressure does an observer at point C encounter in the next hour?

A) Rising pressure.
B) Falling pressure.
C) No substantial pressure change.
D) A pressure rise first, then an immediate pressure drop.



How does Coriolis force affect wind direction in the Southern Hemisphere?

A) Causes clockwise rotation around a low.
B) Causes wind to flow out of a low toward a high.
C) Causes anti-clockwise rotation around a low.
D) Has exactly the same effect as in the Northern Hemisphere.

Why are there no or very few clouds, when a high pressure area is present?

A) Because of rising air, cooling adiabatically at the saturated adiabatic lapse rate.
B) Because of subsiding air, subject to adiabatic heating.
C) The air is warmed from below.
D) Warm air moves over a cold surface, thus, generating stability.

Which of the following is most likely to occur after passage of a cold front?

A) A fall in pressure, a fall in temperature and dew point.
B) A rise in pressure, a fall in temperature and a rise in dew point.
C) A rise in pressure, a fall in temperature and dew point.
D) A fall in pressure, a rise in temperature and dew point.

72.

A high pressure (or anticyclone) is characterized by:
A) The wind is blowing anticlockwise around the high pressure on the Northern Hemisphere.
B) The wind in the friction layer is blowing at an oblique angle and out from the high pressure in relation to the isobars.
C) The wind is blowing anticlockwise around the high pressure on the Southern Hemisphere.
D) Both b) and c) are correct.

When is heavy precipitation unlikely?
A) In spring and autumn, with NS and CB clouds.
B) In summer, with CB and CU clouds.
C) In winter, with CB clouds.
D) In summer, with SC and AC clouds.

Of which air mass does the warm sector of a polar front depression consist?
A) Continental tropical air.
B) Maritime tropical air.
C) Continental equatorial air.
D) Maritime polar air.

Which atmospheric factor causes rapid movement of surface fronts?
A) Upper winds blowing across the front.
B) The cold front overtaking and lifting the warm front.
C) Lower winds blowing parallel to the front.
D) Upper low located directly over the surface low.

What prevents air from flowing directly from high to low pressure areas over western Europe?
A) The presence of occlusions.
B) Surface friction.
C) Pressure gradient force.
D) Coriolis force.

The wind which results from air cooling on the side of a valley is known as:
A) a katabatic wind.
B) an anabatic wind.
C) a mountain breeze.
D) a valley wind.

A trough is a:
A) tropical thunderstorm.
B) kind of low pressure.
C) tropical wind.
D) high pressure ridge.

Which event usually occurs after an aircraft passes through a front into the colder air?
A) Atmospheric pressure increases.
B) Atmospheric pressure decreases.
C) Temperature/dewpoint spread decreases.
D) Wind direction shifts to the left.

81. What relationship exists between the wind at 3.000 feet and the surface wind?

A) The wind at 3.000 feet is parallel to the isohypses and the surface wind direction is across the isobars toward the low pressure and the surface wind is weaker.

B) They are practically the same except when eddies exist, caused by obstacles.

C) The surface wind is veered compared to the wind at 3.000 feet and is usually weaker.

D) They have the same direction, but the surface wind is weaker, caused by friction.

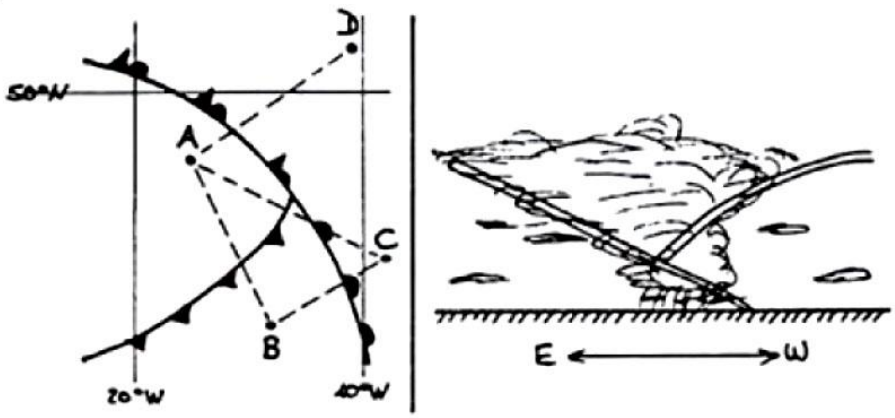
On which route do you expect the cross section below?

A) A-E

B) B-D

C) B-C

D) A-D



What is condensation?

A) The change of state from water to water vapour.

B) The change of state from water vapour to water.

C) The change of state from ice to water vapour or from water vapour to ice.

D) The change of state from ice to water.

The precipitation form +TSRA is most probably related to the following cloud type:

A) CB

B) CC

C) CU

D) NS

When flying in a sub-zero 0° C airmass, into which rain is falling, which of the following is most likely?

A) Rime ice.

B) Hoar frost.

C) Hail.

D) Freezing rain.

In an area of Converging air:

A) clouds can not be formed.
B) clouds can be formed.
C) convective clouds can be dissolved.
D) stratified clouds can be dissolved.

What is the approximate speed of a 25-knot wind, expressed in kilometres per hour?

A) 45 km/h.
B) 55 km/h.
C) 35 km/h.
D) 60 km/h.

What are trade winds?

A) The westerly wind zones.
B) The polar easterly winds.
C) Foen winds in alpine valleys.
D) The wind zones towards the Intertropical Convergence Zone.

Fog which reaches only 2 metres above ground or 10 metres above the sea is called:

A) Mist.
B) Drifting fog.
C) Smog.
D) Shallow fog.

With respect to high and low pressure systems:

A) A low pressure area or trough is an area of descending air.
B) A high pressure area or ridge is an area of rising air.
C) A high pressure area or ridge is an area of descending air.
D) A high pressure area or trough is an area of rising air.

If you are flying into an area of low pressure, what drift would you expect to experience in the northern hemisphere?

A) None.
B) Ice directly to water vapour.
C) Left drift.
D) Right drift.

92.

The gradient wind blows parallel to curved isobars:

A) due to a combination of pressure gradient force, geostrophic force and cyclostrophic force.
B) when pressure gradient force and geostrophic force are in balance.
C) in low latitudes when the geostrophic force is small.
D) due to a combination of pressure gradient force and cyclostrophic force.

Possible mountain wave turbulence should be anticipated in cases where wind speeds of:

A) 25 kts. or greater blow parallel to a mountain peak, and the air is stable.
B) 20 kts. or greater blow across a mountain ridge, and the air is unstable.
C) 25 kts. or greater blow across a mountain ridge, and the air is stable.
D) 25 kts. or greater blow down a mountain valley, and the air is unstable.

For a given pressure gradient the strongest wind will be the ... wind, around a ... pressure region at ... latitude.

A) geostrophic, low, 60N
B) gradient, high, 60N
C) gradient, high, 30N
D) geostrophic, low, 30N

What is the approximate speed of a 40-knot wind, expressed in m/sec?

A) 25 m/sec.
B) 30 m/sec.
C) 15 m/sec.
D) 20 m/sec.

What is the difference between Gradient and Geostrophic winds?

A) Curved isobars and straight isobars.
B) Different latitudes and densities.
C) A lot of friction.
D) Difference in temperatures.

Primary cause of wind:

Which forces are balanced with geostrophic winds?

A) Pressure gradient force, Coriolis force.
B) Pressure gradient force, Coriolis force, centrifugal force.
C) Friction force, pressure gradient force, Coriolis force.
D) Pressure gradient force, centrifugal force, friction force.

The wind which results from the warming on the side of a valley is known as:

A) a valley wind.
B) a katabatic wind.
C) an anabatic wind.
D) a Foehn wind.

A large pressure gradient is shown by:

A) widely spaced isobars - high temperature.
B) closely spaced isobars - light winds.
C) closely spaced isobars - low temperature.
D) closely spaced isobars - strong winds.

The gradient wind:

A) blows parallel to curved isobars due to a combination of the pressure gradient force, geostrophic force, and cyclostrophic force.
B) is the surface wind affected by friction.
C) is the 2.000 ft geostrophic wind.
D) blows across the isobars when there is a surface pressure gradient.

What characteristics will the surface winds have in an area where the isobars on the weather map are very close together?

A) Moderate and parallel to the isobars.
B) Strong and flowing across the isobars.
C) Very weak but gusty and flowing across the isobars.
D) Strong and parallel to the isobars.

The error introduced in geostrophic or gradient wind calculations when the pressure is changing rapidly is the:

A) geothermal effect.
B) convergence correction.
C) Foehn effect.
D) isallobaric effect.

The wind, which blows when the gradient and geostrophic forces are in balance, is:

A) the geostrophic wind.
B) the gradient wind.
C) the Coriolis wind.
D) the surface.

Select the true statement concerning isobars and wind flow patterns around high and low pressure systems that are shown on a pressure chart:

A) When the isobars are close together, the pressure gradient force is stronger, and wind velocities are higher.
B) When the isobars are far apart, crests of standing waves may be marked by lenticularis clouds.
C) When the isobars are close together, the pressure gradient force is weaker, and wind velocities are lower.
D) Surface winds flow perpendicular to the isobars.

A land breeze blows:

A) always from the sea.
B) from the sea by day.
C) from the sea by night.
D) from the land by night.

Where are you likely to find the strongest winds close to the ground?

A) At the centre of a low-pressure system.
B) Where there is little variation in pressure over a large area during the winter months.
C) At the centre of a high-pressure system.
D) In the transition zone between two air masses.

In a warm front, a freezing level of 10.000 ft in the warm air and 2.000 ft in the cold air is observed. Where is the probability for FZRA the lowest?

A) 1000 ft.
B) 10.000 ft.
C) 12.000 ft.
D) 5.000 ft.

In the southern hemisphere what wind effect would you expect when flying from a high pressure area towards a low pressure area at FL 100?

A) Headwind with no drift.
B) Tailwind with no drift.
C) Wind from the right.
D) Wind from the left.

The geostrophic wind speed is directly proportional to the:

A) curvature of isobars.
B) density of the air.
C) horizontal pressure gradient.
D) sine of latitude.

When flying at FL 180 in the Northern Hemisphere you experience a right drift:

A) your TA increases.
B) not enough information is provided to determine the TA.
C) your TA decreases.
D) your TA remains unchanged.

The Thermal Wind in a layer is defined as:

A) that wind which must be added vectorialy to the geostrophic wind at the lower level in order to obtain the geostrophic wind at the upper level.
B) the wind caused by the pressure gradient which tries to move air from high pressure to low pressure.
C) the wind resulting from an horizontal temperature gradient.
D) the vector difference between the wind at the same height in warm and cold air.

Select the true statement concerning isobars and wind flow patterns around high- and low-pressure systems that are shown on a surface weather chart.

A) Isobars connect contour lines of equal temperature.
B) When the isobars are far apart, crest of standing waves may be marked by stationary lenticularis clouds.
C) Surface winds flow perpendicular to the isobars.
D) When the isobars are close together, the pressure gradient force is greater and wind velocities are stronger.

A geostrophic wind is a true wind only under the following conditions:

A) parallel isobars, constant pressure field, no friction.
B) circular isobars, slack pressure gradient, no friction.
C) uniformly curved isobars, constant pressure field, 2.000 ft wind.
D) straight and parallel isobars, unchanging pressure field, no friction.

The geostrophic wind is greater than the gradient wind around a low pressure system because the:

A) centrifugal force is added to the pressure gradient.
B) Coriolis force is added to the pressure gradient.
C) Coriolis force opposes to the centrifugal force.
D) centrifugal force opposes the pressure gradient.

Which of the following statements is untrue?

A) The steeper the pressure gradient, the less marked the nocturnal effect.
B) At night the surface wind is lighter in speed and more inclined towards low pressure.
C) At night, the wind can be geostrophic down to 1.000 ft or less.
D) Over land, the surface wind is backed by 15° to the isobars and is 2/3 geostrophic speed.

The effect of curved isobars on geostrophic wind speed correction is:

A) greater at low altitudes.
B) less at high latitudes.
C) greater at high latitudes.
D) no effect.

21. With balanced flow, which of the following statements is untrue?
A) The geostrophic force is non-existent at the equator.
B) The geostrophic force decreases near the poles.
C) The pressure gradient force is a maximum at the poles.
D) The geostrophic force varies in direct proportion to the wind speed.

What is the geostrophic wind?
A) It blows parallel to straight isobars when there are no gradient forces present.
B) It blows along curved isobars when frictional forces are present.
C) It blows parallel to straight isobars, when no friction is present.
D) It blows along curved isobars, and is affected by Coriolis force and centrifugal force.

Divergence in the upper air results, near the surface, in:
A) falling pressure and likely dissipation of clouds.
B) falling pressure and likely formation of clouds.
C) rising pressure and likely dissipation of clouds.
D) rising pressure and likely formation of clouds.

How does the geostrophic wind force change with latitude?
A) Increase with increasing latitude to a certain latitude.
B) Increase with decreasing latitude.
C) Latitude does not affect wind force.
D) Decrease with increasing latitude to a certain latitude.

The greater the pressure gradient the:
A) further the isobars will be apart and the higher the temperature.
B) closer the isobars and the lower the temperatures.
C) further the isobars will be apart and the weaker the wind.
D) closer the isobars and the stronger the wind.

Assuming a constant pressure gradient, the gradient wind speed would be slowest:
A) at 50 N around an anticyclone.
B) at 30 N around an anticyclone.
C) at 30 N around a depression.
D) at 50 N around a depression.

Under anticyclone conditions in the northern hemisphere, with curved isobars the speed of the gradient wind is:
A) the same as the thermal component.
B) proportional only to the Coriolis force.
C) less than the geostrophic wind.
D) greater than the geostrophic wind.

The wind speed in a system with curved isobars compared to a system with straight isobars is (other conditions being the same):

A) higher if curvature is anticyclonic.
B) higher if curvature is cyclonic.
C) always lower.
D) always higher.

For a similar pressure gradient, the geostrophic wind speed will be?

A) greater at 60° N than at 30° N.
B) greater at 30° N than at 60° N.
C) equivalent to gradient wind ± thermal component.
D) the same at all latitudes north or south of 15° .

An aircraft flying in the southern hemisphere at 2000 feet, has to turn to the right in order to allow for drift. In which direction, relative to the aircraft, is the centre of low pressure?

A) To the right.
B) Behind.
C) In front.
D) To the left.

The pressure gradient force acts:

A) parallel to the isobars and towards the low pressure.
B) perpendicular to the isobars with low pressure behind it.
C) perpendicular to the isobars and away from the high pressure.
D) parallel to the isobars with low pressure on its left (in the Northern hemisphere).

The geostrophic wind depends on:

A) earths rotation, geographic latitude, centripetal force.
B) geographic latitude, centripetal force, height.
C) centripetal force, height, pressure gradient.
D) density, earths rotation, geographic latitude.

In the Northern hemisphere, surface friction causes the geostrophic wind to:

A) veer and increase.
B) back and increase.
C) back and decrease.
D) veer and decrease.

The gradient wind is:

A) more than the geostrophic wind around a low.
B) less than the geostrophic wind around a high.
C) less than the geostrophic wind around a low.
D) none of the above.

Whilst flying at FL 180 on the northern hemisphere an aircraft experiences right drift. What effect, if any, will this have on the aircrafts true altitude?

A) It increases.
B) It remains constant.
C) It decreases.
D) Without knowing the pressure change this question cannot be answered.

In the Northern Hemisphere, if the wind at the surface overland in mid-afternoon is 240/20, the wind at 3000ft is most likely to be:

A) 270/40.
B) 260/30.
C) 230/20.
D) 220/10.

When isobars, for an area in the mid-latitudes on a weather map, are close together, the wind is most likely to be:

A) blowing perpendicular to the isobars.
B) light.
C) changing direction rapidly.
D) strong.

Geostrophic wind is the wind when isobars are:

A) curved lines and no friction is involved.
B) straight lines and friction is involved.
C) straight lines and no friction is involved.
D) curved lines and friction is involved.

Geostrophic wind:

A) always increases with increasing height.
B) is directly proportional to the density of the air.
C) veers with height if cold air is advected in the northern hemisphere.
D) is perpendicular to the horizontal pressure gradient force.

Within a depression, two air masses meet so that a warm front is formed. In relation to a typical warm front:

A) Cold air will be replaced by warm air, the frontal slope will be around 1:150.
B) Warm air will be replaced by cold air, the frontal slope will be around 1:150.
C) Cold air will be replaced by warm air, the frontal slope will be around 1:50.
D) Warm air will be replaced by cold air, the frontal slope will be around 1:50.

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41. For a given latitude, which of the following statements is true:

A) Geostrophic force acts at right angels to the wind and affects its speed and direction.
B) Geostrophic force acts at right angels to the wind and affects speed but not direction.
C) non of the above since the geostrophic force is only an apparent force/
D) Geostrophic force acts at right angels to the wind and affects direction but not speed.

A pressure gradient is said to exist when:

A) two points at the same level have a different atmospheric pressure.
B) surface pressure is compared at two different points on the earths surface
C) two points on the earth' s surface have the same isobar passing through them.
D) two columns of air have different temperatures.

For the same pressure gradient at 60° N, 50° N and 40° N the speed of the geostrophic wind will be:

A) greatest at 60° N.
B) greatest at 40° N.
C) least at 50° N.
D) the same at all latitudes.

State the altitude at which the core of the Arctic Jet Stream can be found:

A) 40000 ft.
B) 30000 ft.
C) 20000 ft.
D) 50000 ft.

General Circulation:

At a coastal airfield, with the runway parallel to the coastline. You are downwind over the sea with the runway to your right. On a warm summer afternoon, what would you expect the wind to be on finals?
A) Tailwind.
B) Crosswind from the left.
C) Headwind.
D) Crosswind from the right.

With all other things being equal with a high and a low having constantly spaced circular isobars. Where is the wind the fastest?
A) Cyclonic.
B) Wherever the PGF is greatest.
C) Anticyclonic.
D) Where the isobars are closest together.

The average slope of a cold front is approximately:
A) 1:80
B) 1:150
C) 1:250
D) 1: 500

Flying away from a low in the Southern Hemisphere at low altitudes, where is the wind coming from?
A) From the left and slightly on the nose.
B) From the right and slightly on the nose.
C) From the rear and slightly on the right.
D) From the rear and slightly on the left.

5/146.
6/147.

Which of the following alternatives is the correct one, regarding the surface wind in relation to the air pressure in the Northern Hemisphere?
A) The wind blows counter-clockwise around a high and clockwise around a low.
B) The wind blows counter-clockwise around a low and slants across the isobars towards lower pressure.
C) The wind around a high pressure blows clockwise and slants across the isobars towards higher pressure.
D) The wind over land blows parallel to the isobars.

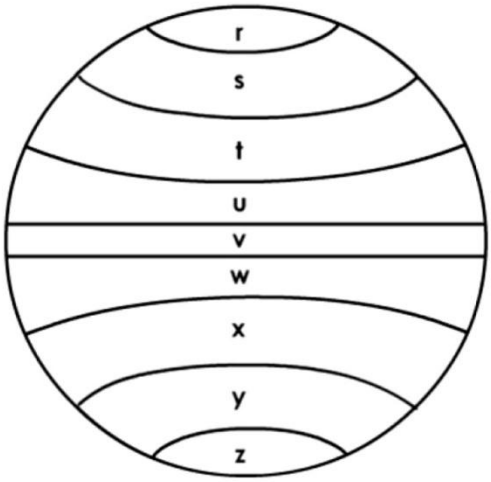
What can be said about showers at a cold front?
A) Unstable air is present.
B) NS clouds are present.
C) They occur mostly in stable air.
D) It is a sign for a cold occlusion.

9/150.

Which upper level chart do you use when preparing a flight at a cruising altitude of FL 170?
A) 700 hPa.
B) 850 hPa.
C) 500 hPa.
D) 300 hPa.

The general circulation of air associated with a high pressure area in the northern hemisphere is:
A) Difference in temperatures.
B) Different latitudes and densities.
C) Curved isobars and straight isobars.
D) A lot of friction.

Assuming a generalised zonal system of world climatic and wind circulation, zone T is an area of:
A) travelling low pressure systems.
B) subtropical high pressure systems.
C) NE trade winds.
D) SE trade winds.



Assuming a generalised zonal system of world climatic and wind circulation, zone U is in area of:
A) travelling depressions.
B) subtropical high pressure.
C) NE trade winds.
D) SW trade winds.

Assuming a generalised zonal system of world climatic and wind circulation, zone Y is an area of:
A) travelling low pressure systems.
B) NE trade winds.
C) SE trade winds.
D) subtropical high pressure systems.

What is meant by an area of divergence?
A) A high pressure area.
B) An area where air masses are moving out.
C) A frontal zone.
D) An area where air masses are moving in.

14/155.

Considering Melbourne (C) in July, the weather is predominantly influenced by the zone of:
A) equatorial low pressure due to the proximity of the Intertropical convergence zone over central Australia.
B) disturbed temperate low pressure, bringing an almost continuous succession of fronts resulting in strong winds, low cloud and rain.
C) Antarctic high pressure due to the absence of any protective land mass between south Australia and Antarctica.
D) subtropical high pressure, with the occasional passage of fronts originating in the adjacent zone of disturbed temperate low pressure.

Between which latitudes are you most likely to find the subtropical high-pressure belt?
A) 35° - 55° .
B) 25° - 35° .
C) 55° - 75° .
D) 10° - 15° .

17/158.

Name the jetstream(s) which appear all year round:
A) polar front jetstream only.
B) arctical jetstream.
C) subtropical and polar front jetstream.
D) subtropical jetstream only.

19/160.

In the idealised world circulation, upper air moving out of the equatorial regions will be turned to the … in the … hemisphere and … in the … hemisphere:
A) right; northern; right; southern
B) right; southern; left; northern
C) right; northern; left; southern
D) left; northern; left; southern

You are flying from east to west in the northern hemisphere at the 500 hPa pressure surface. Which of the following statements is correct?
A) If the wind is from the north you are gaining altitude.
B) If you have a tail wind you are losing altitude.
C) If the wind is from the south you are gaining altitude.
D) If you have a head wind you are gaining altitude.

In the central part of the Atlantic Ocean between 10° N and 20° N the prevailing winds are:
A) SE trade winds.
B) SW winds throughout the whole year.
C) NE trade winds.
D) NE monsoon in winter and SW monsoon in summer.

23/164.

When a cold front has passed over an airfield, the wind will:
A) veer.
B) become laminar.
C) not change.
D) reverse.

27/168

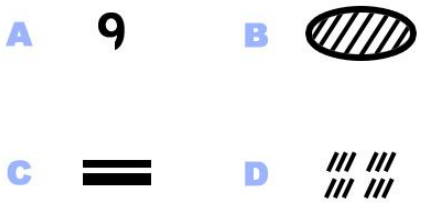
Turbulence:

On a clear summer day, turbulence caused by solar heating is most pronounced:
A) about midmorning.
B) immediately after sunset.
C) during the early afternoon.
D) during early morning hours before sunrise.

Which cloud type may indicate the presence of severe turbulence?
A) Stratocumulus.
B) Nimbostratus.
C) Altocumulus lenticularis.
D) Cirrocumulus.

What degree of turbulence, if any, is likely to be encountered while flying through a cold front in the summer over Central Europe at FL 100?
A) Light turbulence in CB cloud.
B) Light turbulence in ST cloud.
C) Moderate turbulence in NS cloud.
D) Severe turbulence in CB cloud.

Which of the following symbols show a hazard for IFR flights, according to ICAO?



A) B
B) A, C
C) C
D) A, D

On a weather chart an occlusion is indicated by a coloured line of:
A) Green.
B) Violet.
C) Yellow.
D) Black.

Fair weather cumulus often is an indication of:
A) smooth flying conditions below the cloud level.
B) turbulence at and below the cloud level.
C) a high risk of thunderstorms.
D) poor visibility at surface.

If a strongly wind perpendicular to a ridge decreases or reverses in direction at medium and high levels the likely result is:
A) stationary rotors with light turbulence.
B) travelling rotors with very severe turbulence.
C) stationary rotors with very severe turbulence.
D) travelling rotors with light turbulence.

Which degree of aircraft turbulence is determined by the following ICAO description? There may be moderate changes in aircraft attitude and/or altitude but the aircraft remains in positive control at all times. Usually, small variations in air speed. Changes in accelerometer readings of 0.5 to 1.0 g at the aircrafts center of gravity.
Occupants feel strain against seat belts. Loose objects move about. Food service and walking are difficult.

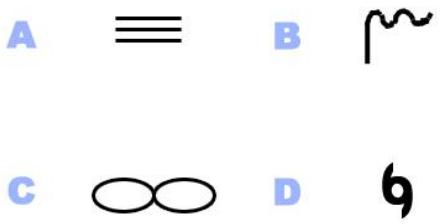
A) Moderate.
B) Light.
C) Violent.
D) Severe.

Turbulence at low level is more likely to be associated with:

A) heavy rainfall.
B) an anticyclone over the ocean.
C) a temperature inversion.
D) steady drizzle.

which of the following symbols show a hazard for IFR flights, according to ICAO?

A) D
B) A, B
C) A, C
D) A



Variation in winds with height:

Generally northern hemisphere winds at 5.000 ft AGL are south-westerly while most of the surface winds are southerly. What is the primary reason of difference between these two wind directions?

A) A strong pressure gradient at higher altitudes.
B) Stronger Coriolis force at the surface.
C) The influence of warm air at the lower altitude.
D) Friction between the wind and the surface.

In the northern hemisphere, if the wind at the surface in mid-afternoon is 240/20 the wind at midnight is most likely to be:

A) 260/30.
B) 230/20.
C) 270/10.
D) 220/10.

What is the relationship between the 2000 ft wind and the surface wind in the Northern Hemisphere:

A) surface winds blow parallel to isobars.
B) surface winds have laminar flow.
C) surface winds blow across isobars towards a high.
D) surface winds blow across isobars towards a low.

If Paris reports a wind of 16020KT on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground:

A) 14020KT.
B) 19040KT.
C) 16030KT.
D) 17015KT.

Of the forces that act on low level winds, the pressure gradient force acts ... and the geostrophic force acts...

A) across the isobars; at right angles to the wind vector.
B) along the isobars; at right angles to the wind vector.
C) across the isobars; along the isobars.
D) at right angles to the wind vector; along the wind vector.

In the northern hemisphere the gradient wind of a cyclonic pressure distribution is 350/24, over the sea the surface wind would approximate:

A) 340/28.
B) 340/20.
C) 030/28.
D) 030/20.

If the gradient wind at 2000 ft above a cyclonic pressure system over the sea in the northern hemisphere is 350 /24 kt. The surface wind velocity would be:

A) 335 /12 kt.
B) 340 /16 kt.
C) 005 /16 kt.
D) 325 /12 kt.

The wind in the Northern Hemisphere at the surface and above the friction layer at 2000 ft would be?
A) Veered at the surface, backed above the friction layer.
B) Backed at the surface, veered above the friction layer.
C) Veered at the surface, veered above the friction layer.
D) Backed at the surface, backed above the friction layer.

The geostrophic wind is less than the gradient wind around an anticyclone because the:
A) centrifugal force is added to the pressure gradient.
B) effect of Coriolis is added to friction.
C) Coriolis effect opposes the centrifugal force.
D) centrifugal force opposes the pressure gradient.

If Paris reports a wind of 08010KT on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground?
A) 08005KT.
B) 05020KT.
C) 11020KT.
D) 08015KT.

If Paris reports a wind of 19015KT on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground?
A) 22030KT.
B) 25025KT.
C) 22010KT.
D) 16020KT.

The wind at the surface is 240/15KT. What is it most likely to be at 2000 ft?
A) 260/25 KT.
B) 280/15 KT.
C) 220/30 KT.
D) 220/25 KT.

If the wind at London Heathrow airport at midday is 090/15 KT, then by 1600 LMT it could be expected to have become:
A) 050/20 KT.
B) 090/10 KT.
C) 120/20 KT.
D) 090/30 KT.

At the approach of a warm front (northern hemisphere) the wind direction changes from the surface up to the tropopause. The effect of this change is that the wind:
A) backs in the friction layer and backs above the friction layer.
B) veers in the friction layer and veers above the friction layer.
C) backs in the friction layer and veers above the friction layer.
D) veers in the friction layer and backs above the friction layer.

You are flying at 2.500 ft AGL, with a southerly wind, and intend to land at an airport at sea level directly below.
From approximately which direction would you expect the surface wind (mid-latitude, northern hemisphere)?

A) South-southeast.
B) South-southwest.
C) South.
D) Southwest.

The vertical extent of the friction layer depends primarily on:

A) temperature, local time, environmental lapse rate.
B) roughness of surface, temperature, local time.
C) stability, wind speed, roughness of surface.
D) wind speed, roughness of surface, temperature.

You are flying at 2.500 FT/AGL, with a southerly wind, and intend to land at an airport, at sea level directly below. From approximately which direction would you expect the surface wind (mid-latitude, northern hemisphere)?

A) Southwest.
B) South-southwest.
C) South-southeast.
D) South.

An aircraft is approaching under visual flight rules an airfield whose runway is parallel to the coast. When downwind over the sea, the airfield is on the left. What wind effect should be anticipated on final approach and landing during a sunny afternoon?

A) Headwind.
B) Crosswind from the right.
C) Crosswind from the left.
D) Tailwind.

During a descent from 2.000 FT above the surface to the surface (no frontal passage) the wind normally:

A) backs and increases.
B) backs and decreases.
C) veers and increases.
D) veers and decreases.

Comparing the surface wind to the 3000ft wind:

A) they are the same.
B) surface wind blows along the isobars and is less than the 3000ft wind.
C) surface wind veers and is less then the 3000ft wind.
D) surface wind blows across the isobars and is less than the 3000ft wind.

The magnitude of the geostrophic force:

A) increases with decrease of wind speed.
B) increases with increase of wind speed.
C) decreases with an increase of latitude.
D) is not affected by the windspeed.

In a low pressure system the convergence at the surface is caused by:

A) centripetal forces.
B) the imbalance of the horizontal gradient force and the Coriolis force.
C) the curvature of the isobars.
D) frictional forces.

The thermal wind component is:

A) generally stronger with a higher level or greater thickness.
B) greatest when the temperature gradient is least.
C) the resultant of the lower level wind and the upper level wind.
D) generally weaker with a higher level or greater thickness.

In the northern hemisphere the wind at the surface blows:

A) counter-clockwise around, and toward the centre of, a low pressure area.
B) from a low pressure area to a high pressure area.
C) counter-clockwise around, and away from the centre of, a high pressure area.
D) clockwise around, and away from the centre of, a low pressure area.

The wind blowing at the surface, at an airfield in the U.K. at night will have... when compared to that which existed there during the day.

A) backed and increased
B) backed and decreased
C) veered and decreased
D) veered and increased

A METAR for Paris gave the surface wind at 260/20. Wind at 2000ft is most likely to be:

A) 290/40.
B) 260/15.
C) 175/15.
D) 210/30.

If Paris reports a wind of 30012KT on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground?

A) 23030KT.
B) 27020KT.
C) 33025KT.
D) 30025KT.

In the lower layers of the atmosphere due to friction the wind changes direction towards the low pressure area because:

A) wind speed decreases and therefore Coriolis force decreases.
B) turbulence is formed and pressure increases.
C) the pressure gradient increases.
D) turbulence is formed and pressure decreases.

Local Winds:

In a polar maritime air stream the surface wind at midnight compared to the surface wind at midday has:

A) Backed and decreased.
B) Backed and increased.
C) Veered and decreased.
D) Veered and increased.

A high pressure area (shallow pressure gradient) covers an area of the Mediterranean Sea and its nearby airport. What surface wind direction is likely at the airport on a sunny afternoon?

A) Land to sea.
B) Parallel to the coastline.
C) Variable.
D) Sea to land.

An anabatic wind is a wind which:

A) flows down a hill or mountain mainly during the night.
B) flows down a hill or mountain mainly during the day.
C) flows up a hill or mountain mainly during the night.
D) flows up a hill or mountain mainly during the day.

Westerly waves are a feature of ... hemisphere winds, and easterly waves of the ... winds.

A) northern; polar
B) northern; tropical
C) southern; tropical
D) southern; mid-latitude

In a land- and sea-breeze circulation the land-breeze blows:

A) during the day and is stronger than the sea-breeze.
B) during the night and is weaker than the sea-breeze.
C) during the day and is weaker than the sea-breeze.
D) during the night and is stronger than the sea-breeze.

An katabatic wind is a wind which:

A) flows down a hill or mountain mainly during the day.
B) flows up a hill or mountain mainly during the day.
C) flows down a hill or mountain mainly during the night.
D) flows up a hill or mountain mainly during the night.

What is the relationship between the 5000 ft wind and the surface wind in the southern hemisphere?

A) Surface winds are veered from the 5000ft and have the same speed.
B) Surface winds are backed from the 5000ft and have a faster speed.
C) Surface winds are backed from the 5000ft and have a slower speed.
D) Surface winds are veered from the 5000ft and have a slower speed.

A katabatic wind is a wind which:

A) flows up a hill or mountain during the night.
B) flows down a hill or mountain during the night.
C) flows down a hill or mountain during the day.
D) flows up a hill or mountain during the day.

Which of the following is true concerning an aircraft that is flying at FL180 in the northern hemisphere, where wind is geostrophic and the true altitude remains constant?

A) There is a cross wind from the left.
B) There is a cross wind from the right.
C) There is no cross wind.
D) Without knowing temperature at FL 180 this question can not be answered.

The most frequent wind direction in a valley caused by thermal effects is toward the:

A) valley during daylight hours.
B) valley during daylight as much as at night.
C) mountain during daylight hours.
D) mountain at night.

An aircraft is approaching under visual flight rules an airfield whose runway is parallel to the coast. When downwind over the sea, the airfield is on the right. What wind effect should be anticipated on final approach and landing during a sunny afternoon?

A) Tailwind.
B) Crosswind from the right.
C) Headwind.
D) Crosswind from the left.

The atmospheric conditions required before a sea breeze starts are:

A) decrease in stability over the land due to insolation.
B) an increase in pressure for a given upper level due to surface heating by day.
C) a reduction in the decrease of pressure with height over land compared with the sea.
D) increase in stability over the sea due to nocturnal cooling.

Which of the following is true of a land breeze?

A) It blows from water to land.
B) It blows only at noon.
C) It blows from land to water.
D) It blows by day.

Which type wind flows down slope becoming warmer and dryer?

A) Land breeze.
B) Katabatic wind.
C) Mountain breeze.
D) Valley wind.

At an airfield in Australia the free-stream low level wind is 360/20kt. The thermal component to 30,000ft is 80kt, and the cold air is to the south. The wind at 30,000ft would be:

A) 090/80kt.
B) 070/85kt.
C) 290/85kt.
D) 270/75kt.

What is a land breeze?

A) Air moving from land over sea by day.
B) Air moving from land over water at night.
C) Air moving from sea over land by night.
D) Air moving from sea over land by day.

When otherwise calm and clear conditions exist a station on the shore of a large body of water will experience wind:

A) from the water in daytime and from the land at night.
B) from the land in daytime and from the water at night.
C) continually from land to water.
D) continually from water to the land.

A sea breeze blows:

A) From the sea by day.
B) Always from sea.
C) From the sea by night.
D) From the land by day.

When flying at FL 180 in the Northern Hemisphere you experience a left drift:

A) Your TA increases.
B) Your TA remains unchanged.
C) Your TA decreases.
D) Not enough information is provided to determine the TA.

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21. You are flying to an airfield on an east coast to arrive in the early afternoon and you suspect a sea breeze will be blowing when you arrive, what is the most likely direction of the surface wind just after the sea breeze has reached the airfield?

A) 350°
B) 260°
C) 190°
D) 100°

In the northern hemisphere with an anticyclonic pressure system the geostrophic wind at 2.000 FT over the sea is 060/15. At the same position the surface wind is most likely to be:

A) 075/12
B) 045/12
C) 060/12
D) 060/18

A mountain breeze (katabatic wind) blows:

A) up the slope during the day.
B) down the slope during the day.
C) up the slope during the night.
D) down the slope during the night.

In the northern hemisphere a pilot flying at 1000 FT/AGL directly towards the centre of a low pressure area, will find the wind blowing from:

A) right and behind.
B) about 45 degrees to the right of directly ahead.
C) directly ahead.
D) left and behind.

Friction between the air and the ground results in the northern hemisphere in:

A) veering of the wind and increase of wind speed at the surface.
B) veering of the wind and decrease of wind speed at the surface.
C) backing of the wind and decrease of wind speed at the surface.
D) backing of the wind and increase of wind speed at the surface.

In a mountain-valley wind circulation, the mountain wind blows:

A) during the day down from the mountains.
B) during the day up from the valley.
C) at night down from the mountains.
D) at night up from the valley.

Which of the following best describes the first stage of development of a sea breeze?

A) Pressure initially falls at the surface over the sea.
B) Pressure initially rises at height over the land.
C) Pressure initially falls at height over land.
D) Warm air rises over land so cold air moves in from the sea to replace it.

If the wind at Bondi Beach, Sydney, Australia, at midday is 090/15 kt, then by 1600 LMT it could be expected to have become:

A) 050/20 kt.
B) 140/20 kt.
C) 090/30 kt.
D) 090/10 kt.

The normal maximum height of the sea breeze in mid-altitudes is approximately:

A) 50 ft
B) 200 ft
C) 500 - 1.000 ft
D) 5.000 ft.

An aircraft is flying in the southern hemisphere at low altitude (less than 2000 feet) and going directly away from a centre of low pressure. What direction, relative to the aircraft, does the wind come from?

A) From the right and slightly on the nose.
B) From the left and slightly on the nose.
C) From the left and slightly on the tail.
D) From the right and slightly on the tail.

The sea breeze is a wind from the sea:

A) occurring only in the lower layers of the atmosphere in daytime.
B) that reaches up to the tropopause in daytime.
C) blowing at night in mid-latitudes.
D) occurring only in mid-latitudes and in daytime.

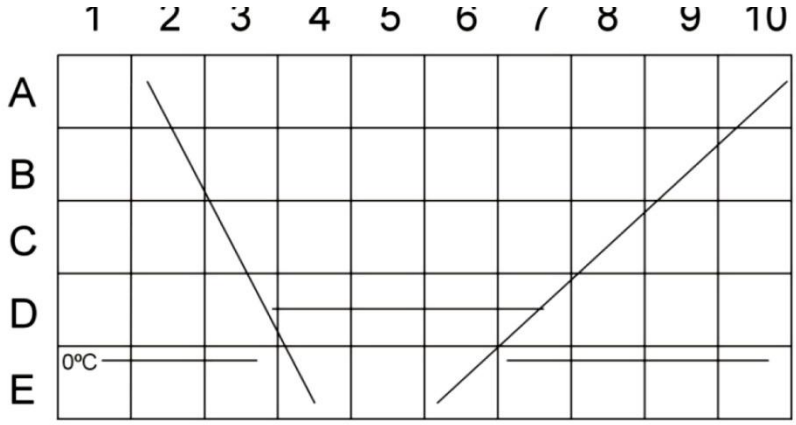
Jet Streams:

An aircraft is flying from south to north, above the polar front jet stream, at FL 400 in the southern hemisphere.
What change, if any, in temperature will be experienced?

A) It stays the same.
B) It rises.
C) It falls and then rises.
D) It falls.

Jetstreams may be found in:

A) C2 and C9.
B) A3 and A8.
C) B1 and B10.
D) B3 and B5.



Which of the following statements concerning jet streams is correct?

A) In the southern hemisphere no jet streams occur.
B) In the northern hemisphere only westerly jet streams occur.
C) In the southern hemisphere only easterly jet streams occur.
D) In the northern hemisphere both westerly and easterly let streams occur.

The Arctic Jet Stream core is at:

A) 40,000ft.
B) 30,000ft.
C) 20,000ft.
D) 50,000ft.

Which of the following types of jet streams can be observed all year round?

A) Equatorial jet stream / arctic jet stream.
B) Arctic jet stream / subtropical jet stream.
C) Subtropical jet stream / polar front jet stream.
D) Equatorial jet stream / polar front jet stream.

Arctic Front Jetstreams:

A) blow towards the west at speeds averaging 250kt.
B) occur at low level between 2000 and 0400 local time.
C) occur at high altitude and high latitudes during the winter months.
D) are formed along the arctic front where arctic air meets polar maritime air.

How could you visually identify a jet stream?

A) Contrails.
B) Cirrus stratus.
C) Impossible without radar.
D) Streaky cirrus.

Which of the following statements concerning the core of a polar front jet stream is correct?

A) It lies in the warm air; its pressure surfaces are horizontal at the height of the core.
B) It lies in the cold air; the thermal wind reverses direction at the height of the core.
C) It and its surface projection lie in the warm air.
D) It lies at a height where there is no horizontal temperature gradient; the slope of the pressure surfaces at the height of the core is at its maximum.

Which type clouds may be associated with the jetstream?

A) CI clouds on the equatorial side of the jetstream.
B) CI clouds on the polar side of the jetstream.
C) CS cloud band on the polar side and under the jetstream.
D) CB cloud line where the jetstream crosses the cold front.

Where, in central Europe, are the highest wind speeds to be found?

A) Just below the tropopause.
B) At about 5500 metres altitude.
C) Close to the ground.
D) In the stratosphere.

At approximately what altitude is the subtropical jet stream found over Europe?

A) FL 200.
B) FL300.
C) FL 500.
D) FL 400.

Which is true regarding a polar front jet stream?

A) It is found in the warm air and so does it is plan projection show this.
B) It is located where there is significant horizontal temperature difference but the pressure gradient is flat.
C) It is located where there is little temperature gradient but the horizontal pressure gradient is at it is steepest.
D) It is always in the colder of the air masses.

On a particular day part of a polar front jet stream runs from north to south in the northern hemisphere. This means that:

A) the polar air is on the eastern side and above the core of the jet.
B) below the core of the jet the horizontal temperature gradient runs from north to south.
C) above the core of the jet the horizontal temperature gradient runs from north to south.
D) the polar air is below and to the east of the core of the jet.

The approximate position of the polar jetstream is:

A) Over the north polar area.
B) approx. 30° N.
C) approx. 60° N.
D) approx. 80° N.

The core of a jet stream is located:

A) in cold air.
B) at the level where temperature change with altitude becomes little or nil and the pressure surface is at maximum slope.
C) in the warm air and directly beneath at the surface.
D) in the warm air where the pressure surface is horizontal.

You cross a jet stream in horizontal flight at approximately right angles. While crossing, in spite of a strong wind of 120 kt, you notice the temperature barely changes.

A) You assume the front associated with the jet stream to be very weak with practically no temperature difference between the two air masses.
B) This phenomenon is absolutely normal as you are crossing the jet core.
C) This phenomenon does not surprise you at all, since normally no large temperature differences are possible at these heights.
D) Since the result of such readings seems impossible, you will after landing have the instruments tested.

Which area of a polar front jet stream in the northern hemisphere has the highest probability of turbulence?

A) Above the core in the boundary between warm and cold air.
B) In the core of the jet stream.
C) Looking downstream, the area to the left of the core.
D) Looking downstream, the area to the right of the core.

How would you describe a jetstream?

A) A zone of winds in connection with a " squall line" .
B) The outflow airstream from a turbine engine.
C) Any wind force above 64 knots.
D) A zone of wind in the upper troposphere or lower stratosphere with wind forces at 60 knots minimum.

What is most different about the Equatorial Easterly jet stream?

A) It is height.
B) It is length.
C) It is direction.
D) It is speed.

21. What is the minimum speed for a wind to be classified as a jet stream?

A) 70 kt.
B) 60 kt.
C) 100 kt.
D) 50 kt.

What is the main cause for the formation of a polar front jet stream?

A) Strong winds in the upper atmosphere.
B) The north-south horizontal temperature gradient at the polar front.
C) The varied elevations of the tropopause in the polar front region.
D) The pressure difference, close to the ground, between a high over the Azores and a low over Iceland.

Which jet stream is connected with a surface front system?

A) The polar front jet stream.
B) The arctic jet stream.
C) The subtropical jet stream.
D) The equatorial jet stream.

The equatorial easterly jet is a jetstream that occurs:

A) during the whole year in the southern hemisphere
B) only in the winter of the northern hemisphere at approx. 30 000 FT
C) only in the summer of the northern hemisphere at approx. 45 000 FT
D) during the whole year in the northern hemisphere

Which jet stream blows all year round, over the northern hemisphere?

A) The equatorial jet stream.
B) The subtropical jet stream.
C) The arctic jet stream.
D) The polar night jet stream.

While crossing a jet stream at right angles in Western Europe (3000 FT below its core) and OAT is decreasing, what would be the prevailing wind?

A) A tailwind.
B) Crosswind from the right.
C) A headwind.
D) Crosswind from the left.

A wind speed of 350 kt within a jet stream core should be world-wide regarded as:

A) not unusual in polar regions.
B) not possible.
C) a common occurrence.
D) possible but a very rare phenomenon.

A jet stream with a wind speed of 350kts?
A) Possible in polar areas.
B) Possible but rare.
C) Impossible.
D) Common.

Where is the normal location of the jetstream relative to surface lows and fronts?
A) Over the low and crosses the warm front.
B) Over the low and crosses both the warm front and the cold front.
C) North of the surface systems.
D) South of the low and warm front.

Where, as a general rule, is the core of the polar front jet stream to be found?
A) Just below the cold-air tropopause.
B) Just above the warm-air tropopause.
C) In the warm air mass.
D) In the cold air mass.

The tropical easterly jet is also known as the:
A) easterly sub-tropical jet and found at 17 deg S.
B) easterly sub-tropical jet and found at 5 deg N.
C) equatorial easterly jet and found at 0 deg N.
D) equatorial easterly jet and found at 17 deg N.

The strongest upper winds will be found:
A) where the surface pressure gradient is high, below the tropopause.
B) where the air mass temperature gradient is high, near the tropopause.
C) where the air mass temperature gradient is high, in the stratosphere.
D) where the surface temperature gradient is high, at medium height.

What can be said about a wind speed of 350 KT in a jetstream?
A) It is possible, but rare.
B) A wind speed of 350 KT is common.
C) It is impossible.
D) It is only possible in a subtropical jetstream.

Which jetstream is more or less found continuously around the Earth?
A) The subtropical jetstream.
B) The artic front jetstream.
C) The polar front jetstream.
D) The equatorial jetstream.

In January, a mean sub-tropical jet appears at:
A) 30° S
B) 30° N
C) 60° S
D) 50° N

In which zone of a jet stream is the strongest CAT to be expected?

A) About 12000 FT above the core.
B) Exactly in the center of the core.
C) The cold air side of the core.
D) The warm air side of the core.

Where do the maximum winds associated with the jetstream usually occur?

A) In the vicinity of breaks in the tropopause on the polar side of the jet core.
B) On the equatorial side of the jetstream where moisture has formed cirriform clouds.
C) In the vicinity of breaks in the tropopause on the equatorial side of the jet core.
D) Below the jet core where a long straight stretch of the jetstream is located.

With a polar front jetstream (PFJ), the area with the highest probability of turbulence in the Southern Hemisphere is:

A) looking downstream, on your left hand side.
B) looking downstream, on your right hand side.
C) in the jet core.
D) above the jet core in the boundary of the warm and cold air.

What is the approximate ratio between height and width for a jet stream cross section?

A) 1/1000
B) 1/1
C) 1/10
D) 1/100

Where are Jetstreams normally located?

A) At the tropopause where intensified temperature gradients are located.
B) In areas of strong low pressure systems in the stratosphere.
C) In a single continuous band, encircling the Earth, where there is a break between the equatorial and polar tropopause.
D) In areas of strong high pressure systems in the stratosphere.

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41. In central Europe, where are the greatest wind speeds?

A) 5500m.
B) Where the air converges.
C) Above the Alps.
D) Tropopause level.

What is the most significant difference between an equatorial jet stream and all the other jet streams?

A) Horizontal dimension.
B) Windspeed.
C) Wind direction.
D) Vertical dimension.

If you fly at right angles to a jet stream in Europe with a decreasing outside air temperature, you will experience...

A) increasing tailwind.
B) wind from the left.
C) increasing headwind.
D) wind from the right.

What is the average height of the arctic jet stream core?

A) 40.000 ft.
B) 20.000 ft .
C) 30.000 ft.
D) 50.000 ft.

Which phenomenon is often associated with a jetstream?

A) Icing.
B) Windshear.
C) Clear air turbulence (CAT).
D) Both a and b.

A jet stream is:

A) a broad band of strong winds flattened and tubular in cross-section.
B) a narrow band of strong winds flattened and tubular in cross-section.
C) a narrow band of strong winds only found near fronts.
D) a band of strong winds only found near thunderstorms.

When and where does an Easterly Jet stream occur:

A) In Winter in Arctic Russia.
B) In Summer from the Middle East through N. Africa and the Mediterranean to S. Spain.
C) In Summer from SE Asia through S. India to Central Africa.
D) All year through the Equator.

An aircraft is flying through the polar front jet stream from south to north, beneath the core. How would the OAT change, in the northern hemisphere, during this portion of the flight?

A) It increases.
B) It decreases.
C) It first increases, then decreases.
D) It remains constant.

What jet streams are likely to be crossed during a flight from Stockholm to Rio de Janeiro (23° S) at FL 350 in July?

A) A subtropical jet stream followed by a polar front jet stream.
B) A polar front jet stream followed by one or two subtropical jet streams.
C) A polar front jet stream followed by a subtropical jet stream and later, a second polar front jet stream.
D) One subtropical jet stream.

What is the ratio of height to width in a typical Jet stream?
A) 1:10000.
B) 1:100.
C) 1:10.
D) 1:1000.

Which type frontal system is normally crossed by the jetstream?
A) Occluded front.
B) Cold front.
C) Warm front.
D) Cold front and warm front.

During the winter months in mid-latitudes in the northern hemisphere, the polar front jetstream moves toward the:
A) north and speed increases.
B) south and speed increases.
C) south and speed decreases.
D) north and speed decreases.

Under which of the following conditions is the most severe CAT likely to be experienced?
A) A curved jet stream near a deep trough.
B) A westerly jet stream at low latitudes in the summer.
C) A jet stream, with great spacing between the isotherms.
D) A straight jet stream near a low pressure area.

An aircraft over Western Europe is crossing a jet stream 2500 FT below its core at right angles. While crossing, the outside temperature is increasing. The prevailing wind is:
A) headwind.
B) from the left.
C) tailwind.
D) from the right.

Typically a Jet Stream is:
A) 1000nm long, 150nm wide and 5000ft to 10000ft deep.
B) 150nm long, 500nm wide and 5000ft deep.
C) 1000nm or more long, 5000ft to 10000ft wide and 1000ft deep.
D) 1000nm long, 150nm wide and 5nm deep.

In the month of August you prepare a flight (cruising level FL 370) from Bombay (19° N - 73° E) to Bangkok (13° N - 100° E). What wind conditions can you expect?
A) Headwinds.
B) Tailwinds.
C) Light winds diagonal to the route.
D) Strong northerly winds.

Most strong air currents at higher levels (jet streams) have a westerly direction. There is, however, an important easterly jet stream. When and where is it likely to be encountered?

A) In winter along the Russian coast facing the Arctic ocean.
B) Throughout the year to the south of the Azorian high.
C) In summer from the Middle East extending over the southern part of the Mediterranean to southern Spain.
D) In summer from south-east Asia extending over southern India to central Africa.

A wind sounding in the region of a polar front jet stream gives the following wind profile (Northern hemisphere).
900hPa 220/20kt 800hPa 220/25kt 700hPa 230/35kt 500hPa 260/60kt 400hPa 280/85kt 300hPa 300/100kt
250hPa 310/120kt 200hPa 310/80kt Which system is the jet stream associated with:

A) With a ITCZ.
B) With a warm front.
C) With a cold front.
D) With an easterly wave.

The normal maximum speeds of the Polar Front Jet are in the region of:

A) 150 kt in July / 135 kt in January
B) 150 kt in July / 50 kt in January
C) 135 kt in July / 135 kt in January
D) 150 kt in January / 135 kt in July

Where are easterly and westerly jets found?

A) Northern and southern hemisphere.
B) There are no easterly jets.
C) Northern hemisphere only.
D) Southern hemisphere only.

Standing waves:

At the top of orographic waves, in mountainous regions, the cloud most likely to be encountered is:

A) cumulus mediocris.
B) altocumulus lenticularis.
C) cirrostratus.
D) cirrus.

A mountain range is aligned in an East West direction. Select the conditions from the table below that could give rise to standing waves. 2.000 ft 5.000 ft 10.000 ft

A) 110/40kt 110/20kt 110/60kt.
B) 280/20kt 290/40kt 300/60kt.
C) 010/15kt 010/10kt 000/40kt.
D) 180/20kt 180/40kt 180/60kt.

Standing waves are likely when:

A) none of the above.
B) the wind direction is at 45° to the ridge of the hills.
C) wind speeds are uniform with height.
D) the atmosphere is uniformly stable.

A mountain range is aligned in a North/South direction. Select the conditions from the table below that could give rise to standing waves. 2.000 ft 5.000 ft 10.000 ft

A) 280/20kt 290/40kt 300/60kt
B) 180/20kt 180/40kt 180/60kt
C) 110/40kt 110/60kt 110/60kt
D) 010/15kt 010/20kt 000/40kt

Thermodynamics:

Humidity:

1.Water vapour is almost transparent to ... radiation but absorbs and re-radiates...

A) cosmic-ray X-ray.
B) long-wave short-wave.
C) ultra-violet infra-red.
D) short-wave long-wave.

Wind shear is experienced when:

A) gusts have been forecasted or reported.
B) neither wind direction nor force changes at altitude
C) there is a ground inversion and strong winds above the inversion layer.
D) the wind has been forecasted to be light and variable.

Which of the following statements is true?

A) The atmosphere is heated by short-wave radiation from the sun.
B) Ozone allows short-wave radiation to pass through to the earth's surface.
C) Water vapor and carbon dioxide gas both absorb long-wave radiation.
D) Water vapor absorbs short-wave radiation.

Unsaturated air moving downwards is heated at a certain rate of temperature change, called:

A) Chinook wind.
B) Dry adiabatic.
C) Saturated adiabatic.
D) Ambient lapse rate.

When air reaches its saturation vapour pressure it immediately becomes:

A) slightly colder.
B) remains at the same temperature.
C) it depends on the altitude and outside air temperature.
D) slightly warmer.

A parcel of fair is forced to rise and becomes saturated at 3.000 ft when it is at the same temperature as the surrounding dry air. The parcel of fair will subsequently.

A) Continue to rise.
B) Fall.
C) Remain at the same level.
D) It is impossible to say.

The relative humidity of a sample air mass is 50%. How is the relative humidity of this air mass influenced by changes of the amount of water vapour in it?

A) It is not influenced by changing water vapour.
B) It increases with increasing water vapour.
C) It is only influenced by temperature.
D) It decreases with increasing water vapour.

Hazardous wind shear is encountered near the ground:

A) near mountain valleys and on the windward side of hills or mountains.
B) during periods when the wind velocity is stronger than 35 knots.
C) during periods when the wind velocity is stronger than 35 knots and near mountain valleys.
D) during periods of strong temperature inversion and near thunderstorms.

Which of the following is the definition of relative humidity?

A) Ratio between air temperature and dewpoint temperature X 100.
B) Ratio between the actual mixing ratio and the saturation mixing ratio X 100.
C) Ratio between water vapour pressure and atmospheric pressure X 100.
D) Ratio between water vapour (g) and air (kg) X 100.

Relative humidity:

A) is not affected when air is ascending or descending.
B) does not change when water vapour is added provided the temperature of the air remains constant.
C) changes when water vapour is added, even though the temperature remains constant.
D) is not affected by temperature changes of the air.

Which of the following statements is true of the dew point of an air mass?

A) It can only be equal to, or lower, than the temperature of the air mass.
B) It can be used to estimate the air mass's relative humidity even if the air temperature is unknown.
C) It can be higher than the temperature of the air mass.
D) It can be used together with the air pressure to estimate the air mass's relative humidity.

The dewpoint temperature:

A) is always higher than the air temperature.
B) is always lower than the air temperature.
C) can not be equal to the air temperature.
D) can be equal to the air temperature.

If air is cooled to its dew point condensation occurs. If the temperature is further reduced:

A) the relative humidity increases.
B) the dew point temperature reduces.
C) condensation is replaced by osmosis.
D) the wet bulb temperature remains fixed.

When a given volume of air contains the maximum quantity of water vapour it is:

A) unsaturated.
B) saturated.
C) super-saturated.
D) vaporised.

The difference between temperature and dewpoint is greater in:
A) air with low temperature.
B) air with high temperature.
C) moist air.
D) dry air.

From which of the following can the stability of the atmosphere be determined?
A) Surface temperature.
B) ELR.
C) DALR.
D) Surface pressure.

Relative humidity increases in:
A) cold air at a constant vapour pressure.
B) warmer air compared to colder air.
C) colder air compared to warmer air.
D) warm air at a constant vapour pressure.

The inland climate is characterized by:
A) a warm winter and a cold summer.
B) a wet winter and a dry summer.
C) a cold winter and a warm summer.
D) a dry winter and a wet summer.

When a given mass of air descends, what effect will it have on relative humidity?
A) It increases up to 100%, then remains stable.
B) It decreases.
C) It increases.
D) It remains constant.

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21. List the characteristics of a typical coastal climate:
A) Chilly summer and mild winter.
B) Stable weather.
C) Small amounts of precipitation.
D) Warm summer and cold winter.

In a high relative humidity condition, which of the following sets of conditions is true?
A) Small wet/dry bulb difference; high evaporation rate; increased latent heat absorption.
B) Small wet/dry bulb difference; reduced latent heat absorption; low evaporation rate.
C) Increased latent heat absorption; low evaporation rate; large wet/dry bulb difference.
D) High evaporation rate; reduced latent heat absorption; small wet/dry bulb difference.

The moisture content or " absolute humidity" of the air refers to:

A) clouds.
B) precipitation.
C) water droplets.
D) water vapor.

How does relative humidity and the dewpoint in an unsaturated airmass change with varying temperature?

A) When temperature increases, the relative humidity decreases, and the dewpoint remains constant.
B) When temperature decreases, the relative humidity decreases, and the dewpoint increases.
C) When temperature decreases, the relative humidity and the dewpoint remain constant.
D) When temperature increases, the relative humidity increases, and the dewpoint decreases.

If Relative Humidity is low, you would expect a... cloud base. The cloud top would be when the... meets the...

A) high, ELR, DALR
B) low, SALR, ELR
C) high, SALR, ELR
D) low, SALR, DALR

Which statement is true for the lifting of an air parcel?

A) Saturated parcels cool more rapidly than unsaturated.
B) Unsaturated parcels cool more rapidly than saturated.
C) A stable air mass must be present.
D) An air parcel always cools at the dry adiabatic lapse rate.

An air parcel on the ground is not saturated. As it rises, the temperature reduces at the..., the wet bulb temperature reduces at the... and the dew point temperature...

A) DALR; SALR; rises
B) DALR; SALR; falls
C) SALR; DALR; falls
D) SALR; DALR; rises

If the relative humidity of a sample of air is 100%, then the actual amount of water vapour present would be:

A) greater at 10000ft than at mean sea level.
B) greater at the poles than at the Equator.
C) the same at the Equator as at the poles.
D) greater at the Equator than at the poles.

Describe how a cold high pressure changes at altitude:

A) impossible to predict.
B) weakens and may transfer into a low pressure.
C) strengthens.
D) no change.

Humidity is measured by means of a psychrometer. This compares dry bulb temperature with:

A) the latent heat of evaporation.
B) the Dew Point temperature.
C) the temperature of water in a container beside the dry bulb.
D) the lowest temperature to which air is cooled by the evaporation of water.

Relative humidity:

A) decreases if the air is cooled whilst maintaining the vapour pressure constant.
B) is higher in warm air than in cool air.
C) increases if the air is cooled whilst maintaining the vapour pressure constant.
D) is higher in cool air than in warm air.

What does dewpoint mean?

A) The temperature to which a mass of air must be cooled in order to reach saturation.
B) The temperature at which ice melts.
C) The freezing level (danger of icing).
D) The temperature at which the relative humidity and saturation vapour pressure are the same.

The maximum amount of water vapour that the air can contain depends on the:

A) air temperature.
B) dewpoint.
C) relative humidity.
D) stability of the air.

In still air a lapse rate of 1.2 deg C/100m refers to:

A) SALR.
B) DALR.
C) ELR.
D) ALR.

Which process causes adiabatic cooling?

A) Release of latent heat during the vaporization process.
B) Expansion of air as it rises.
C) Movement of air over a colder surface.
D) Expansion of air as it descends.

Relative humidity at a given temperature is the relation between:
A) dew point and air temperature
B) water vapour weight and humid air volume
C) actual water vapour content and saturated water vapour content
D) water vapour weight and dry air weight

Dew point is defined as:
A) the lowest temperature to which air must be cooled in order to reduce the relative humidity.
B) the temperature to which moist air must be cooled to become saturated at a given pressure.
C) the temperature below which the change of state in a given volume of air will result in the absorption of latent heat.
D) the lowest temperature at which evaporation will occur for a given pressure.

In an air mass, if the ... is higher than the ... and lower than the ... the air mass is conditionally unstable.
A) ELR, SALR, DALR
B) SALR, DALR, ELR
C) ELR, DALR, SALR
D) DALR; SALR; ELR

When air reaches its saturation vapour pressure it immediately becomes:
A) it depends on the altitude and outside air density.
B) remains at the same density.
C) slightly less dense.
D) slightly more dense.

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41. The dewpoint temperature
A) can not be lower than the air temperature.
B) can not be equal to the air temperature.
C) can be reached by cooling the air whilst keeping pressure constant.
D) can be reached by lowering the pressure whilst keeping temperature constant.

The following statement about atmospheric humidity is true:
A) the absolute humidity measures percentage of water vapor saturation
B) the relative humidity measures percentage of water vapor saturation
C) cold air can retain more water than hot air
D) the maximum absolute humidity at sea level is 100%

Relative humidity depends on:
A) moisture content and temperature of the air.
B) moisture content and pressure of the air.
C) moisture content of the air only.
D) temperature of the air only.

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The DALR is:
A) variable with time.
B) variable with latitude.
C) variable with temperature.
D) fixed.

With decreasing temperature and unchanged dew point:
A) Water Vapor will increase.
B) The relative humidity will decrease.
C) Water Vapor will decrease.
D) The relative humidity will increase.

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Dewpoint is defined as:
A) the lowest temperature at which evaporation will occur for a given pressure.
B) the temperature below which the change of state for a given volume of air will result in an absorption of latent heat
C) the temperature to which moist air must be cooled to reach saturation.
D) the lowest temperature to which air must be cooled in order to reduce the relative humidity.

When the upper part of a layer of warm air is advected:
A) stability increases within the layer.
B) wind will back with increase in height in the Northern Hemisphere.
C) stability decreases within the layer.
D) wind speed will always decrease with increase in height in the Northern Hemisphere.

During the late afternoon an air temperature of +12° C and a dew point of +5° C were measured. What temperature change must occur during the night in order to induce saturation?
A) It must decrease to +7° C.
B) It must decrease to +6° C.
C) It must decrease to +5° C.
D) It must decrease by 5° C.

The formation of a thermal low pressure is by:
A) a dynamic effect.
B) advection of warm air.
C) advection of cold air.
D) a temperature rise in an area in relation to the environment.

" Instability" low pressure means:
A) A lee low.
B) A low pressure receiving energy from released condensation heat.
C) Cold low pressure.
D) Orographic low pressure containing condensation heat.

Where is the usual location of a thermal low?

A) Over the arctic region.
B) Over the eye of a hurricane.
C) Over the surface of a dry, sunny region.
D) Over the poles.

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How, if at all, is the relative humidity of an unsaturated airmass influenced by temperature changes?

A) It is only influenced by the amount of water vapour.
B) It is not influenced by temperature changes.
C) It increases with increasing temperature.
D) It decreases with increasing temperature.

Change of State of aggregation:

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Supercooled droplets are always:
A) at a temperature below -60° C.
B) small and at a temperature below freezing.
C) at a temperature below freezing.
D) large and at a temperature below freezing.

Latent heat is defined in meteorology as:
A) the quantity of heat emitted which increases the lapse rate of saturated air.
B) the quantity of heat absorbed which decreases the lapse rate in dry air.
C) the quantity of head absorbed decreasing the lapse rate of saturated air.
D) the quantity of heat emitted which increases the temperature of the air.

Why does air cool as it rises?
A) The air is colder at higher altitudes.
B) It contracts.
C) The air is colder at higher latitudes.
D) It expands.

A certain amount of water vapor saturated air (i.e. intestinal gases) is transported from sea-level up to 34.000 ft.
In the same amount of dry air, the volume of this gas is:
A) first larger, then smaller.
B) constant.
C) larger.
D) smaller.

With regard to latent heat which of the following statements is true:
A) when water changes from a vapor to a solid latent heat is absorbed.
B) when water changes from a solid to a vapor latent heat is released.
C) when water changes from a solid to a liquid latent heat is released.
D) when water changes from a vapor to a liquid latent heat is released.

Sublimation is how material changes from...
A) liquid to solid.
B) solid to vapour.
C) vapour to liquid.
D) liquid to vapour.

As air is cooled to below its dew point temperature:
A) the actual water vapor content decreases to remain equal to the saturated water vapor content.
B) the saturated water vapor content increases as precipitation takes place when the temperature drops.
C) the saturated water vapor content remains constant as the air is at 100% relative humidity.
D) the actual water vapor content increases to remain equal to the saturated water vapor content.

When water vapor condenses into water droplets, there is a:

A) none of the above.
B) release of heat energy that increases density of the surrounding air.
C) release of heat energy that makes the surrounding air warmer.
D) sublimation.

What is the result when water vapor changes to the liquid state while being lifted in a thunderstorm?

A) Latent heat is released to the atmosphere.
B) Latent heat is absorbed from the surrounding air by the water droplet.
C) None of the above.
D) Latent heat is transformed into pure energy.

Supercooled droplets can occur in:

A) clouds but not in fog.
B) precipitation but not in clouds.
C) clouds, fog and precipitation.
D) clouds but not in precipitation.

A super-cooled droplet is one that:

A) has a shell of ice with water inside it.
B) is at an above freezing temperature in below freezing air.
C) has frozen to become an ice pellet.
D) remains liquid at a below freezing temperature.

Cloud base is at 5.000ft, and the temperature at cloud base is 10º C. The surface OAT and wet bulb temperatures that gave rise to this would be ... and ... and the surface dew point about...

A) 25º C; 19º C; 4º C.
B) 20º C; 18º C; 14º C.
C) 20º C; 18º C; 4º C.
D) 25º C; 19º C; 13º C.

What happens to the temperature of a saturated air mass when forced to descend?

A) It heats up more than dry because of sublimation.
B) It heats up more than dry because of expansion.
C) It heats up less than dry because of latent heat released during condensation.
D) It heats up less than dry because of evaporation.

Sublimation occurs when:

A) air is cooled below dewpoint temperature and fog forms.
B) air is unable to support any more water vapour
C) water droplets in suspension condense directly into ice.
D) water vapour in the air changes directly into ice.

When water evaporates into unsaturated air:

A) relative humidity is decreased.
B) relative humidity is not changed.
C) heat is released.
D) heat is absorbed.

In which of the following changes of state is latent heat released?

A) Gas to liquid.
B) Solid to liquid.
C) Liquid to gas.
D) Solid to gas.

What kind of weather conditions are most common in a stationary high pressure area?

A) Thunderstorm and showers in the summer.
B) Gusty winds and clear skies.
C) Calm winds and haze.
D) Light rain.

The stable layer at some height in the lower troposphere of an old high pressure area in the moderate latitudes is called:

A) Radiation inversion.
B) Subsidence inversion.
C) Friction inversion.
D) Trade wind.

Which of the following changes of state is known as sublimation?

A) Solid direct to vapour.
B) Liquid direct to vapour.
C) Liquid direct to solid.
D) Solid direct to liquid.

A super-cooled droplet is:

A) a small particle of water at a temperature below -50° C.
B) a droplet still in liquid state at a temperature below freezing.
C) a water droplet that is mainly frozen.
D) a water droplet that has been frozen during its descent.

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21. The process by which water vapour is transformed directly into ice is known as

A) sublimation.
B) super saturation.
C) supercooling.
D) radiation cooling.

A VOLMET broadcast is:

A) a recorded broadcast of METARs for about 10 airports.
B) a recorded broadcast of the METAR for a specific airfield.
C) a recorded broadcast of weather forecast (TAF) for a specific airfield.
D) a special ATC broadcast, to all aircraft on frequency, of a significant change in weather conditions.

You are at 12,000 ft (FL120) with an outside air temperature is -2 deg C. Where would you find the freezing level?

A) FL090.
B) FL140.
C) FL100.
D) FL110.

In the atmospheric water/water vapour system an increase in temperature leads to ... evaporation and an increase in pressure to ... evaporation:

A) more, more
B) more, less
C) less, less
D) less, more

What is meant by the expression " Low level windshear" ?

A) A change of wind direction and force during a limited period of time within a small area.
B) The effect of friction.
C) Turbulence containing whirling dust.
D) The wind when blowing across the isobars.

Supercooled water droplets are found in:

A) precipitation.
B) precipitation and clouds.
C) clouds only.
D) clouds, fog and precipitation.

The heat energy used to change liquid water into water vapour:

A) is passed to the surface from which the water is evaporating.
B) is then stored in the water vapour as latent heat.
C) modifies the DALR to the SALR.
D) is released to the atmosphere as latent heat.

Clouds, fog or dew will always be formed when:

A) water vapour is present.
B) water vapour condenses.
C) temperature and dew point are nearly equal.
D) relative humidity reaches 98%.

Supercooled droplets can be encountered:

A) only in winter above 10.000 FT.
B) in winter only in high clouds.
C) only in winter at high altitude.
D) at any time of the year.

How are high level condensation trails formed that are to be found occasionally behind jet aircraft?

A) Through a decrease in pressure, and the associated adiabatic drop in temperature at the wing tips while flying through relatively warm but humid air.
B) In conditions of low humidity, through the particles of soot contained in the exhaust gases.
C) Through water vapour released during fuel combustion.
D) Only through un-burnt fuel in the exhaust gases.

Adiabatic process:

A sample of moist but unsaturated air may become saturated by:
A) raising the temperature.
B) lowering the pressure, keeping temperature constant.
C) compressing it adiabatically.
D) expanding it adiabatically.

If a saturated air mass descends down a slope its temperature increases at:
A) the same rate as if the air mass were dry.
B) a lower rate than in dry air, as condensation gives out heat.
C) a higher rate than in dry air, as it gives up latent evaporation heat.
D) a lower rate than in dry air, as evaporation absorbs heat.

What is the dry adiabatic lapse rate per 1000 FT?
A) 1.5° C.
B) 3.0° C.
C) 2.0° C.
D) 3.5° C.

A layer in which the temperature decreases with 1° C per 100m is:
A) neutral for dry air.
B) absolutely unstable.
C) absolutely stable.
D) conditionally unstable.

The average value of the ELR is:
A) 3,0° C / 1.000 ft
B) 1,5° C / 1.000 ft
C) it varies daily.
D) 2,0° C / 1.000 ft

A layer is absolutely unstable if the temperature decrease with height is:
A) more than 1° C per 100m.
B) 0.65° C per 100m.
C) less than 0.65° C per 100m.
D) between 1° C per 100m and 0.65° C per 100m.

The stability in a layer is increasing if:
A) warm and moist air is advected in the lower part.
B) cold and dry air is advected in the upper part.
C) warm air is advected in the lower part and cold air in the upper part.
D) warm air is advected in the upper part and cold air in the lower part.

ELR is 1 C/100m - the stability is:
A) absolute stability.
B) neutral when dry.
C) conditional stability.
D) absolute instability.

Which term applies when the temperature of the air changes by compression or expansion with no heat added or removed?
A) Adiabatic.
B) Advection.
C) Katabatic.
D) Atmospheric.

What weather condition occurs at the altitude where the dewpoint lapse rate and the dry adiabatic lapse rate converge?
A) Unstable air changes into stable air.
B) Stable air changes to unstable air.
C) Cloud bases form.
D) Precipitation starts.

A saturated atmosphere has a surface temperature of +12C and a temperature of +5C at 4000ft. This atmosphere is:
A) conditionally stable.
B) conditionally neutral.
C) stable.
D) unstable.

The decrease in temperature, per 100 metres, in an unsaturated rising parcel of air is:
A) 0.5° C.
B) 0.65° C.
C) 1° C.
D) 2° C.

The decrease in temperature, per 100 metres, in a saturated rising parcel of air at lower level of the atmosphere is approximately:
A) 1° C.
B) 0.6° C.
C) 1.5° C.
D) 0.35° C.

Dry stable air is blowing over a range of hills and producing a layer of turbulence 3000ft thick. Before the onset of the turbulence the surface temperature was 15º C, and the temperature at 3000ft was 10.5º C. The new surface temperature in the turbulence will be... and the new temperature just inside the top of the turbulence layer will be...
A) 19.25º C; 8.25º C
B) 17.25º C; 6.25º C
C) 17.25º C; 8.25º C
D) 19º C; 6.5º C

The temperature lapse rate of rising saturated air in the lower troposphere is:
A) 5,4 degrees C per 1.000 feet.
B) 1,98 degrees C per 1.000 feet.
C) 3 degrees C per 1.000 feet.
D) 1,5 degrees C per 1.000 feet.

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In a layer of air the decrease in temperature per 100 metres increase in height is more than 1° C. This layer can be described as being:
A) conditionally unstable.
B) absolutely unstable.
C) absolutely stable.
D) conditionally stable.

A parcel of moist but not saturated air rises due to adiabatic effects. Which of the following changes?
A) Specific humidity.
B) Absolute humidity.
C) Relative humidity.
D) Mixing ratio.

A parcel of unsaturated air is lifted to just below the condensation level and then returned to its original level.
What is the final temperature of the parcel of air?
A) Lower than the starting temperature.
B) The same as the starting temperature.
C) Higher than the starting temperature.
D) It depends upon the QFE.

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21. Foehn winds are caused by:
A) air rising on the windward side of a mountain range at the DALR and descending on the leeward side at the SALR.
B) unstable conditions on the windward side of a mountain causing cloud to form and precipitation to occur.
C) Katabatic flow of air on the windward side of the mountain range compressing and warming the air.
D) air rising on the windward side of a mountain range at the SALR and descending on the leeward side at the DALR.

If the surface temperature is 15° C , then the temperature at 10000 FT in a current of ascending unsaturated air is:
A) -5° C.
B) 5° C.
C) 0° C.
D) -15° C.

An ELR of 2,9° C per 1.000 ft, is by definition:
A) conditionally unstable.
B) stable.
C) conditionally stable.
D) unstable.

The environmental lapse rate is less than 1° C/100m

A) True altitude to be lower than Indicated altitude.
B) True altitude to be the same as Indicated altitude.
C) True altitude to be the decreasing.
D) True altitude to be higher than Indicated altitude.

The height of the lifting condensation level is determined by:

A) wet adiabatic lapse rate and dewpoint at the surface.
B) wind and dewpoint at the surface.
C) temperature at surface and air pressure.
D) temperature and dewpoint at the surface.

At lower altitudes, the SALR differs from the DALR. The reason is due to:

A) none of the above.
B) the release of latent heat.
C) the lowering of the saturation vapour pressure of water with altitude.
D) the absorption of latent heat.

If in a 100 m thick layer the temperature at the bottom of the layer is 10° C and at the top of the layer is 8° C then this layer is:

A) neutral.
B) absolutely stable.
C) absolutely unstable.
D) conditionally unstable.

A layer in which the temperature increases with height is:

A) conditionally unstable.
B) absolutely unstable.
C) absolutely stable.
D) neutral.

The rate of cooling of ascending saturated air is less than the rate of cooling of ascending unsaturated air because:

A) water vapour doesn't cool as rapidly as dry air.
B) water vapour absorbs the incoming heat from the sun.
C) moist air is heavier than dry air.
D) heat is released during the condensation process.

An inversion is:

A) an unstable layer.
B) a layer that can be either stable or unstable.
C) a conditionally unstable layer.
D) an absolutely stable layer.

During an adiabatic process heat is:

A) neither added nor lost.
B) added.
C) lost.
D) added but the result is an overall loss.

A mass of unsaturated air is forced to rise till just under the condensation level. It then settles back to its original position...

A) it depends on QFE.
B) the temperature will be the same at the end of its journey.
C) the temperature will be less than before it started on its journey.
D) the temperature of the parcel of air is greater than before at the end of its journey.

A moist but unsaturated parcel of air becomes saturated by:

A) lifting the parcel to a higher level.
B) moving the parcel to an area with lower pressure and equal temperature.
C) moving the parcel to an area with higher pressure and equal temperature.
D) lowering the parcel to a lower level.

A moist stable airstream is blowing slowly over a range of hills 5000ft high. On the windward side of the hills the surface temperature is 10º C and the cloud base 1000ft. On the lee side the cloud base is 3000ft. The surface temperature on the lee side is:

A) 13.6º C.
B) 13.4º C.
C) 15.4º C.
D) 12.4º C.

What is the final temperature of saturated surface air under the same conditions?

A) -03° C
B) 0° C
C) +03° C
D) -19° C

Rising air cools because:

A) it becomes more moist.
B) it expands.
C) it contracts.
D) surrounding air is cooler at higher levels.

An adiabatic temperature change occurs when:

A) air cools at 3 degrees per 1000ft.
B) the air temperature is altered as pressure decreases.
C) the pressure of a parcel of air is maintained constant and the temperature is altered.
D) no heat energy is lost or gained when a parcel of air is subjected to a change of pressure.

When saturated air moves downhill, its temperature increases:
A) at a slower rate than dry air because vaporization uses heat.
B) at a slower rate than dry air because condensation releases heat.
C) at a faster rate than dry air because of the absorption of latent heat.
D) at a faster rate than dry air because of the release of latent heat.

What is the final temperature of unsaturated surface air at 12° C, which rises to 6.000 ft?
A) +18° C
B) +30° C
C) -06° C
D) +30° C

A layer in which the temperature remains constant with height is:
A) absolutely stable.
B) neutral.
C) conditionally unstable.
D) unstable.

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41. A layer of air cooling at the SALR compared to the DALR would give what kind of cloud?
A) No cloud if saturated.
B) Stratus if saturated.
C) Convective cloud.
D) Cumulus if saturated.

Which of the following statements concerning the lifting of a parcel of air is correct?
A) Unsaturated parcels cool at a rate of 0.65° C per 100m.
B) Saturated parcels always cool at a rate of 0.65° C per 100m.
C) Unsaturated parcels cool more rapidly than saturated parcels.
D) Unsaturated parcels cool less rapidly than saturated parcels.

Which statement is true for a conditionally unstable layer?
A) The environmental lapse rate is less than 0.65° C/100m.
B) The environmental lapse rate is less than 1° C/100m.
C) The layer is unstable for unsaturated air.
D) The wet adiabatic lapse rate is 0.65° C/100m.

What can be said about the altimeter indication during a period of 10 minutes, when a uniform pressure pattern prevails?
A) The indication increases.
B) There will be no visible change in the indication.
C) The indication decreases.
D) The altimeter indicates lower when set to 1013,2 hPa.

Clouds and fog:

Cloud formation and description:

In an unstable layer there are cumuliform clouds. The vertical extent of these clouds depends on the:

A) wind direction.
B) pressure at different levels.
C) air pressure at the surface.
D) thickness of the unstable layer.

Which of the following cloud types is a medium level cloud?

A) AS
B) ST
C) CS
D) SC

What process in an air mass leads to the creation of wide spread NS, AS and ST cloud coverage?

A) Lifting.
B) Radiation.
C) Sinking.
D) Convection process.

Stratus cloud of limited depth at a temperature of -5C will most likely give

A) moderate to heavy glaze ice.
B) moderate to heavy rime ice.
C) light to moderate rime ice.
D) light to moderate glaze ice.

Convective clouds are formed:

A) in unstable atmosphere.
B) in mid-latitudes only.
C) in stable atmosphere.
D) in summer during the day only.

Which of these clouds is most likely to be associated with thunderstorms?

A) Alto Cumulus Castellanus.
B) Stratus.
C) Nimbo Stratus.
D) Alto Stratus.

Low cloud in temperature climates, excluding heap, are those existing from:

A) The surface to 7500 metres.
B) The surface to 6500ft.
C) The surface to 7500ft.
D) 1000ft to 6500ft.

A cumulus cloud, base 3,000 ft has a base temperature of +16 deg C. The dewpoint temperature and the dry bulb temperature at the surface are probably:

A) +25 deg C & +20 deg C.
B) +25 deg C & +17.5 deg C.
C) +17.5 deg C & +25 deg C.
D) +16 deg C & +16 deg C.

What are the typical bases of alto type cloud?

A) surface.
B) 6,500ft.
C) 1,000ft.
D) 16,500ft.

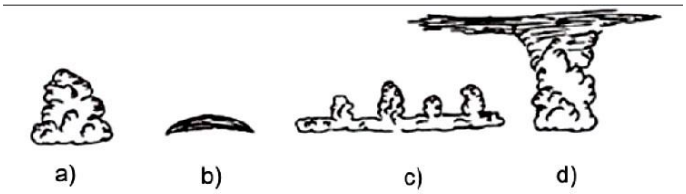
Which of the following are medium level clouds?

A) All convective clouds.
B) Altostratus and altocumulus.
C) Cumulonimbus.
D) Cirrocumulus and cirrostratus.

Fallstreaks or virga are:

A) gusts associated with a well developed Bora.
B) water or ice particles falling out of a cloud that evaporate before reaching the ground.
C) strong downdraughts in the polar jet stream, associated with jet streaks.
D) strong katabatic winds in mountainous areas and accompanied by heavy precipitation.

Which one of the displayed cloud forms is representative of a cumulonimbus capillatus?



A) A
B) C
C) B
D) D

Which of the following is a cause of stratus forming over flat land?

A) Convection during the day.
B) The release of latent heat.
C) Radiation during the night from the earth surface in moderate wind.
D) Unstable air.

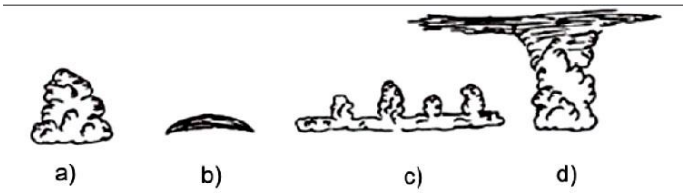
A layer of air can be:

A) Conditional; unstable when unsaturated and stable when saturated.
B) all of the above.
C) Neutrally stable when saturated and unstable when unsaturated.
D) Conditional; unstable when saturated and stable when unsaturated.

The presence of altocumulus lenticularis is an indication of the:

A) presence of mountain waves.
B) risk of orographic thunderstorms.
C) development of thermal lows.
D) presence of valley winds.

Which one of the displayed cloud forms is representative of altocumulus castellanus?



A) C
B) B
C) D
D) A

What are the typical tops of alto type cloud?
A) surface.
B) 16,500ft.
C) 6,500ft.
D) 23,000ft.

A plain in Western Europe with an average elevation of 500 m (1600 FT) above sea level is covered with a uniform AC layer of cloud during the summer months. At what height above the ground is the base of this cloud to be expected?
A) 100 - 1500 FT above the terrain.
B) 15000 - 25000 FT above the terrain.
C) 7000 - 15000 FT above the terrain.
D) 1500 - 7000 FT above the terrain.

Which of the following cloud is classified as low level cloud?
A) ST
B) AS
C) CC
D) CS

In cirrostratus cloud you would expect what type and degree of icing?
A) Rime, light.
B) Rime, moderate.
C) Rime, trace.
D) Clear, trace.

---

21. Which of the following clouds may extend into more than one layer?
A) Stratus.
B) Cirrus.
C) Nimbostratus.
D) Altocumulus.

Dissipation of clouds is related to:
A) convection.
B) decrease in temperature.
C) subsidence.
D) increase pressure.

A plain in Western Europe with an average height of 500 m (1600 FT) above sea level is covered with a uniform SC layer of cloud during the summer months. At what height above the ground is the base of this cloud to be expected?
A) 1500 - 7000 FT above ground.
B) 100 - 1500 FT above ground.
C) 15000 - 25000 FT above ground.
D) 7000 - 15000 FT above ground.

Which of the following is most correct regarding the cloud types Stratus and Nimbostratus?

A) Stratus may give rain showers and Nimbostratus may give drizzle, ice prisms or snow grains.
B) Stratus may give drizzle, ice prisms or snow grains and Nimbostratus may give rain showers.
C) Stratus may give drizzle, ice prisms or snow grains and Nimbostratus may give continuously falling rain or snow.
D) Neither cloud type may give precipitation.

Altostratus clouds are classified as:

A) convective clouds.
B) low level clouds.
C) medium level clouds.
D) high level clouds.

What flying conditions may be encountered when flying in cirrus clouds?

A) Average horizontal visibility more than 1000 m; nil icing.
B) Average horizontal visibility more than 1000 m; light to moderate rime ice.
C) Average horizontal visibility less than 500 m; nil icing.
D) Average horizontal visibility less than 500 m; light to moderate icing.

What will snow most likely fall from?

A) Cs
B) Ns
C) Ac
D) Ci

Turbulence cloud is:

A) warm air being forced to rise ahead of cold air at the surface.
B) usually alto - stratus type cloud.
C) cloud with significant turbulence within it.
D) created as a result of mixing from turbulence.

Clouds classified as low level are considered to have a base height of:

A) 1000 - 2000ft.
B) the surface - 6500ft.
C) 100 - 200ft.
D) 500 - 1000ft.

What type of cloud is usually found at high level?

A) Cc
B) Ns
C) St
D) Ac

In which of the following conditions is moderate to severe airframe icing most likely to be encountered?

A) In Nimbostratus cloud.
B) Below the freezing level in clear air.
C) In clear air above the freezing level.
D) Within cloud of any type.

From which cloud do you get hail?

A) Cb
B) Ns
C) Ts
D) Sc

Which types of clouds are typical evidence of stable air conditions?

A) NS, CU
B) CB, CC
C) ST, AS
D) CU, CB

The presence of altocumulus castellanus indicates:

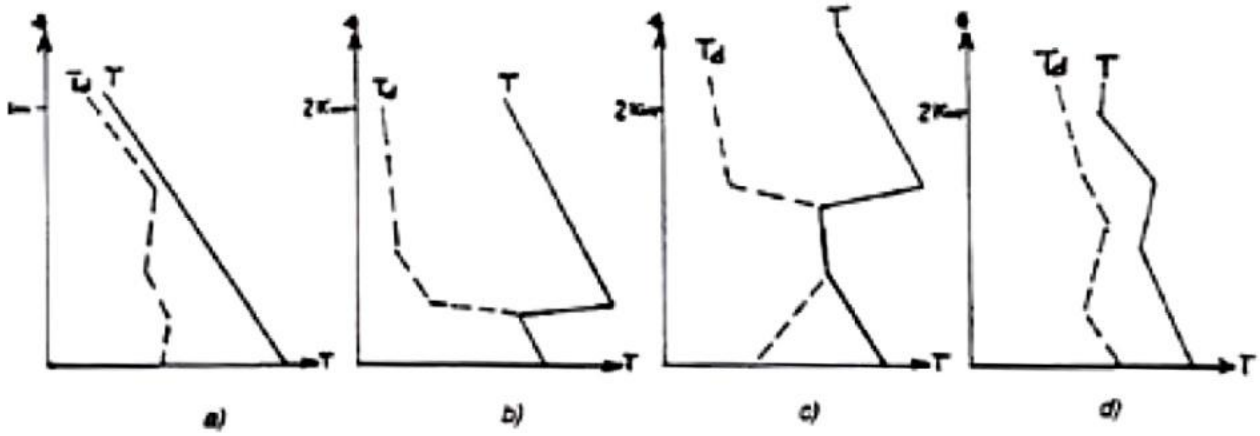
A) subsidence in a large part of the troposphere.
B) strong convection at low height.
C) instability in the middle troposphere.
D) stability in the higher troposphere.

Which of the following clouds are classified as medium level clouds in temperate regions?

A) AS, AC.
B) CS, ST.
C) CI, CC.
D) SC, NS

Which of the four radio soundings corresponds with a low stratus layer?

A) C
B) B
C) A
D) D



Which of the following cloud types can stretch across at least two cloud levels?
A) SC
B) ST
C) CI
D) NS

What are the characteristics of cumuliform clouds?
A) Small water droplets, instability, turbulence, extensive areas of rain and rime ice.
B) Large water droplets, stability, no turbulence, showers and mainly rime ice.
C) Large water droplets, instability, turbulence, showers and mainly clear ice.
D) Small water droplets, stability, no turbulence and extensive areas of rain.

A plain in Western Europe with an average height of 500 m (1600 FT) above sea level is covered with a uniform CC layer of cloud during the summer months. At what height above the ground is the base of this cloud to be expected?
A) 1500 - 7000 FT above the terrain.
B) 7000 - 15000 FT above the terrain.
C) 15000 - 35000 FT above the terrain.
D) 100 - 1500 FT above the terrain.

What cloud is between a warm and cold front?
A) Ns.
B) St with showers.
C) St with drizzle.
D) Cs.

---

41. Uneven heating of a land surface by day in a stable atmosphere is most likely to form:
A) Fair weather cumulus cloud.
B) Fracto stratus cloud.
C) Alto cumulus castellanus.
D) Stratocumulus cloud.

Which of the following cloud types is found at high levels?
A) CI
B) CU
C) SC
D) AS

Turbulence cloud is:
A) cloud with significant turbulence in it.
B) usually alto - stratus type cloud.
C) cloud formed by turbulent mixing.
D) warm air being forced to rise ahead of cold air at the surface.

What cloud types are classified as medium cloud?
A) Cb + St.
B) Ns + Sc.
C) Ac + As.
D) Ci + Cs.

What type of cloud is being described? A generally grey cloud layer with fairly uniform base and uniform appearance, which may give drizzle or snow grains. When the sun is visible through the cloud, the outline is clearly discernible. Sometimes it appears in the form of ragged patches.

A) Nimbostratus.
B) Stratus.
C) Altostratus.
D) Cirrostratus.

Which of the following types of clouds are evidence of unstable air conditions?

A) CI, SC.
B) SC, NS.
C) ST, CS.
D) CU, CB.

A cumulonimbus cloud at moderate latitudes in summer contains:

A) only ice crystals.
B) a combination of ice crystals, water droplets and supercooled water droplets.
C) only water droplets.
D) a combination of ice crystals and water droplets.

Which of the following processes within a layer of air may lead to the building of CU and CB clouds?

A) Subsidence.
B) Frontal lifting within stable layers.
C) Convection.
D) Radiation.

Cloud cover at night will reduce the amount of surface cooling because:

A) clouds absorb the incoming radiation.
B) clouds re-radiate the earths radiation.
C) clouds reflect the earths radiation.
D) clouds reflect the incoming radiation.

From which of the following clouds are you least likely to get precipitation in summer?

A) CB/CU
B) CS/NS
C) CU/ST
D) CS/AS

Which of the following cloud types can project up into the stratosphere?

A) Altocumulus.
B) Cirrostratus.
C) Cumulonimbus.
D) Altostratus

Clouds, classified as being low level are considered to have bases from:

A) 500 to 1000 FT.
B) the surface to 6500 FT.
C) 100 to 200 FT.
D) 1000 to 2000 FT.

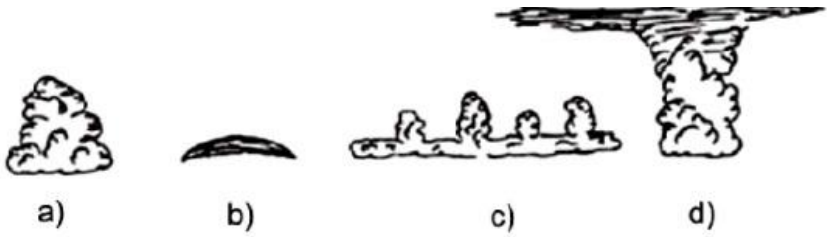
Altostratus (AS) and Nimbostratus (NS) are easily confused. How do you distinguish between them?
A) The cloud base is higher in AS and precipitation, if any, is light.
B) Steady precipitation from AS.
C) The sun can be seen through NS.
D) Precipitation falls from AS but not from NS.

What cloud does hail fall from?
A) Ci
B) Cu
C) Cb
D) Ns

Orographic lifting associated with stable conditions might produce:
A) NS/AS, thunderstorms and hail.
B) CU/CB, showers.
C) ST/SC, showers of heavy rain.
D) Cap clouds, AC lenticularis, standing waves.

Which of the following types of cloud can extend over the low, medium and high cloud levels?
A) CB
B) ST
C) AC
D) CI

Which one of the displayed cloud forms is representative of altocumulus lenticularis?
A) c
B) b
C) a
D) d



Which one of the following cloud types gives steady rain or snowfall?
A) Nimbostratus.
B) Cumulonimbus.
C) Cirrostratus.
D) Altostratus.

Cumulus clouds are an indication for:
A) stability.
B) the approach of a cold front.
C) up and downdrafts.
D) the approach of a warm front.

What causes low level cloud in front of the warm front?

A) Cold air passing over warm surface.
B) Rain falling into warm air and condensing.
C) Warm air passing over cold surface.
D) Rain dragging warm air into the cold air and condensing it.

---

61. If Relative Humidity is high, you would expect a ... cloud base. The cloud top would be when the ... meets the...

A) high, SALR, ELR.
B) high, ELR, DALR.
C) low, SALR, ELR.
D) low, SALR, DALR.

Orographic lifting associated with unstable conditions will produce:

A) CU/CB, showers.
B) AC lenticularis, standing waves, light precipitation.
C) ST/SC, continuous light/moderate rain.
D) NS/AS, thunderstorms and hail.

What is the composition of Ci cloud?

A) Water droplets.
B) Ice crystals.
C) Supercooled water droplets.
D) Smoke particles.

What is the main composition of clouds classified as high level clouds?

A) Ice crystals.
B) Water droplets.
C) Water vapour.
D) Supercooled water droplets.

What type of cloud is associated with drizzle?

A) Ac
B) Ci
C) Cb
D) St

What clouds do you expect approximately 800 km ahead of a warm front?

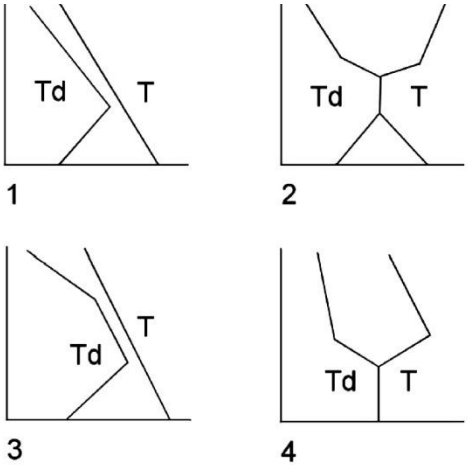
A) AC
B) NS
C) CS
D) CU

Isolated TS in summer are because of:

A) cold front occlusions.
B) cold fronts.
C) warm front occlusions.
D) convection.

Which of the following radiosonde diagrams could indicate that low stratus is present?

A) 1
B) 2
C) 3
D) 4



Turbulence cloud describes a cloud that is:

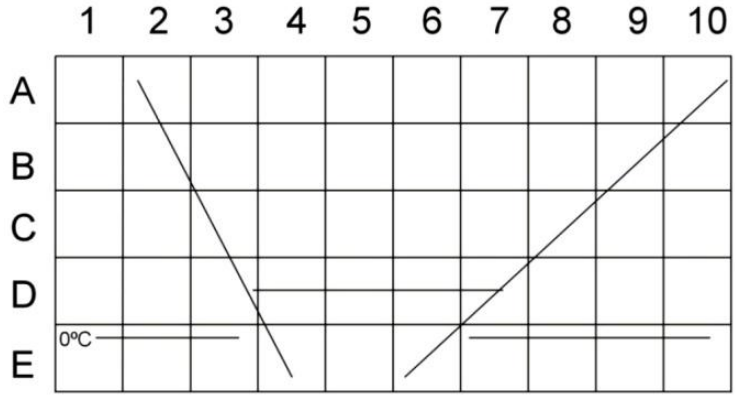
A) Stratiform and extends, at low level, over large areas.
B) associated with moderate or severe turbulence.
C) often associated with CAT.
D) Stratiform and extends, at low level, over a large area of land only.

Which clouds are evidence of stable air:

A) St, As
B) Cu, Cb
C) Cb, Cc
D) Cu, Ns

The types of cloud you would find at C7 and C3 are:

A) Ns and Cs.
B) As, As and embedded Cb.
C) Cu, Ac and Acc.
D) Ci and Ns.



Strongly developed cumulus clouds are an indication of:

A) poor surface visibility.
B) the presence of warm air aloft.
C) instability in the atmosphere.
D) the presence of a low level inversion.

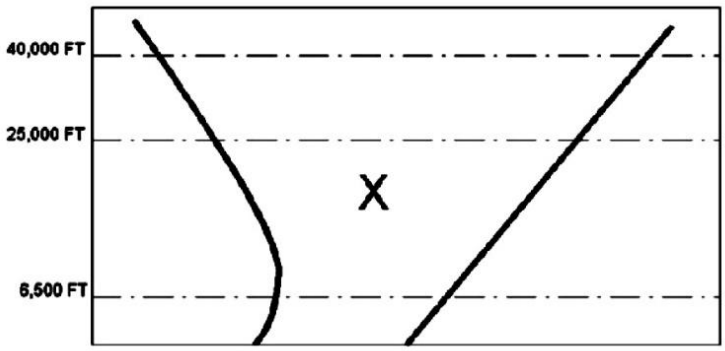
Cloud cover will ... maximum day temperatures and ... night temperatures:
A) reduce; reduce
B) reduce; increase
C) increase; reduce
D) increase; increase

The presence of altocumulus lenticularis is a sign of:
A) katabatic winds.
B) lee waves.
C) severe instability.
D) anabatic winds.

Which of the following cloud types can stretch across all three cloud levels (low, medium and high level)?
A) ST
B) CB
C) AC
D) CI

When a CC layer lies over a West European plane in summer, with a mean terrain height of 500 m above sea level, the average cloud base could be expected:
A) 7 000 - 15 000 ft above ground level.
B) 15 000 - 25 000 ft above ground level.
C) 1 500 - 7 000 ft above ground level.
D) 100 - 1 500 ft above ground level.

Using the diagram in annex, the cloud to be expected at X is:
A) Nil
B) Cb
C) ST & SC
D) NS



Which of the following indicates medium to upper level instability and possible the formation of TS?
A) Altocumulus Lenticularis.
B) Altocumulus castellanus.
C) Red cirrus.
D) Halo.

Cu is an indication of:
A) the approach of a cold front.
B) vertical movement of air.
C) stability.
D) the approach of a warm front.

If you see Alto Castellanus what does it indicate?

A) Subsidence..
B) Instability in the lower atmosphere.
C) The upper atmosphere is stable.
D) Middle level instability.

---

81. A plain in Western Europe at 500m (1600ft) AMSL is covered with a uniform alto - cumulus cloud during summer months. At what height AGL is the base of the cloud expected?

A) 1500 - 7000ft.
B) 100 - 1500ft.
C) 7000 - 15000ft.
D) 15000 - 25000ft.

Formation of an orographic cloud takes place when sufficient wind forces the air over obstacles like a mountain, and further:

A) a) and b) are correct.
B) it is true that the necessary amount of lifting of the air depends on the air humidity.
C) with sufficient height of the mountain the air temperature reaches the dew point thus creating a cloud.
D) the air is supercooled and unstable.

Fog, Mist, Haze:

Advection fog is caused by:
A) none of the above.
B) air, cooler by at least 10° C, moving over a moist surface.
C) dry air over a cold surface.
D) cold air over a warm moist surface.

Two factors which contribute to the formation of radiation fog are:
A) a light wind (2 to 8 kts) and good cloud cover.
B) a high relative humidity and clear night skies.
C) clear night skies and a low relative humidity.
D) a high relative humidity and no wind.

Sea fog:
A) forms when air becomes saturated
B) all of the above.
C) can form or persist with moderate or even strong wind.
D) is cleared by change of air mass or less commonly by an increase in wind strength.

Which two factors contribute to the formation of radiation fog?
A) Clear night skies and a low relative humidity.
B) A high relative humidity and no wind.
C) A high relative humidity and clear night skies.
D) A light wind (5 to 8 knots) and good cloud cover.

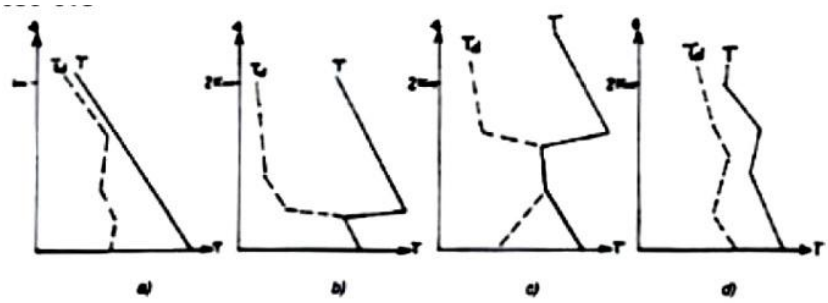
Fog formation by warm and humid air flowing over cold areas is often extensive and of long duration. Such fog is called:
A) Frontal fog.
B) Advection fog.
C) Radiation fog.
D) Orographic fog.
How come warm air moving over col areas???called advection fog

The most likely reason for radiation fog to dissipate or become low stratus is:
A) a low level temperature inversion.
B) an increasingly stable atmosphere.
C) increasing surface wind speed.
D) surface cooling.

According to ICAO, haze (HZ) or smoke (FU), is reduced visibility due to the presence of solid particles (lithometeors) in the atmosphere to a value of:
A) < 5.000 m
B) = 5.000 m
C) 5.000 m
D) < = 5.000 m

Of the four radio soundings, select the one that indicates ground fog:

A) C
B) B
C) A
D) D



Which type of fog do you expect over flat landscape on a clear night, under no wind conditions?

A) Steam fog.
B) Radiation fog.
C) Advection fog.
D) Orographic fog.

Which of the following weather conditions favour the formation of radiation fog?

A) Strong wind, little or no cloud, moist air.
B) Light wind, extensive cloud, dry air.
C) Light wind, little or no cloud, moist air.
D) Light wind, extensive cloud, moist air.

Steaming fog (arctic sea smoke) occurs in air:

A) with cold mass properties.
B) that is absolutely stable.
C) with warm mass properties.
D) that is stable.

What are the differences between radiation fog and advection fog?

A) Radiation fog is formed by surface cooling in a calm wind. Advection fog is formed by evaporation over the sea.
B) Radiation fog forms due to night cooling and advection fog due to daytime cooling.
C) Radiation fog forms only on the ground, advection fog only on the sea.
D) Radiation fog forms due to surface cooling at night in a light wind. Advection fog forms when warm humid air flows over a cold surface.

What is the general height of radiation fog?

A) 2000 ft
B) 1500 ft
C) 500 ft
D) 3000 ft

What conditions are most likely to lead to the formation of hill fog?

A) High relative humidity and an unstable air mass.
B) Clear skies, calm or light winds, with relatively low humidity.
C) Precipitation which is lifted by the action of moderate winds striking the range.
D) Humid stable air mass, wind blowing towards the hills.

Fog forming over the sea in a 20KT wind is most likely to be:

A) Radiation fog.
B) Advection fog.
C) Neither, fog cannot form above 12KT wind speed.
D) Steam fog.

When the temperature and dew point are less than one degree apart the weather conditions are most likely to be:

A) unlimited visibility.
B) fog or low cloud.
C) clear and cool.
D) high scattered clouds.

Radiation fog usually clears with:

A) zero wind and cloud cover.
B) sub-zero temperatures and zero wind.
C) strong winds and daytime heating.
D) cloud cover and dawn turbulence.

Fog (FG) is defined as being a:

A) visibility of < 1.000 m due to liquid particles or ice crystals suspended in the atmosphere.
B) visibility of < = 1.000 m due to liquid particles or ice crystals suspended in the atmosphere.
C) visibility of < 1.000 m due to any precipitation in the atmosphere.
D) visibility of < 1.000 m due to solid or liquid particles suspended in the atmosphere

Which one of the following statements regarding the meteorological horizontal visibility is the correct one?

A) If the visibility varies in different directions, an average value of around the horizon is reported.
B) If the visibility varies in different directions, the visibility in the worst direction is reported.
C) The visibility is improved when darkness falls, because you distinguish a point of light more easily than an unlighted mark.
D) Fog (FG) is used to describe visibility less than 1000 m except when qualified by MI, BC, PR, or VC.

Which of the following conditions is most likely to lead to the formation of steam fog (arctic smoke)?

A) Warm air moving over cold water.
B) The sea is warmed by strong radiation from the sun.
C) Cold air moving over warm water.
D) The coastal region of the sea cools at night.

21. Frontal fog is most likely to:

A) Form ahead of a vigorous fast moving cold front.
B) Form on a vigorous cold front and last for many hours.
C) Form to the rear of a warm front but only last for 1 to 2 hours.
D) Form ahead of a warm front.

Radiation fog is most likely to form in the UK at an inland airfield with a relative humidity of 80%:

A) in autumn with clear skies and surface wind 2-6 kt.
B) in winter with clear skies and surface wind 10-15 kt.
C) in spring with 6/8 ST, SC cloud and surface wind 2-10 kt.
D) in summer with clear skies and nil wind.

Name the difference between radiation and advection fog:

A) Flat landscape, a clear night, winds of 10-20KT, for the formation of radiation fog, and mountainous terrain and no wind conditions for advection fog.
B) Advection fog occurs under no wind conditions in a clear night, while radiation fog forms over the sea in a 20 KT wind.
C) Vertical movement (radiation fog) versus horizontal movement (advection fog).
D) Orographic lifting for radiation fog, and horizontal movement with a 20 KT wind for advection fog.

Frontal fog:

A) is due to rain saturating the warm sector air.
B) occurs in precipitation at a cold front.
C) occurs in a narrow band where the frontal surface meets the ground.
D) is due to evaporation of rain drops in the cold sector.

Hill fog will be most likely when:

A) precipitation is lifted by air blowing over the hills.
B) humid, stable, blowing onto a range of hills.
C) high RH, unstable.
D) clear sky, little wind, dry air.

Freezing fog consists of:

A) supercooled water droplets.
B) ice crystals.
C) frozen water droplets.
D) frozen minute snow flakes.

Mist (BR) is defined as being:

A) reduced visibility > 1.000 m but not more than 5.000 m due to the presence of water droplets in the atmosphere.
B) reduced visibility > = 1.000 m but not more than 5.000 m due to solid or liquid particles in the atmosphere.
C) reduced visibility > 1.000 m but not more than 5.000 m due to solid or liquid particles in the atmosphere.
D) reduced visibility > = 1.000 m but not more than 5.000 m due to the presence of water droplets in the atmosphere.

Under which of these conditions is radiation fog most likely to form?

A) Very low temperatures.
B) Strong surface winds.
C) Little or no cloud.
D) Very dry air.

Steaming fog, otherwise known as ... It occurs when ... air moves over a...

A) ice fog, cold & stable, warmer moist land
B) arctic smoke, cold & stable, warmer moist surface
C) polar smoke, cold, warmer land
D) smoke fog, warm, cold coastal area

Radiation fog requires ... and ..., which usually occur in ... pressure systems.

A) light winds; overcast skies; low
B) strong winds; overcast skies; low
C) strong winds; clear skies; high
D) light winds; clear skies; high

The range of wind speed in which radiation fog is most likely to form is:

A) between 10 and 15 kt.
B) below 5 kt.
C) above 15 kt.
D) between 5 and 10 kt.

What wind conditions, occurring just before dawn, favour the formation of fog at an airport where the temperature is 15° C and the dew point is 14° C?

A) Easterly, 10 kt.
B) Calm.
C) Northerly, 10 kt.
D) Westerly, 10 kt variable.

Radiation fog occurs when there is:

A) ground cooling due to radiation.
B) marked increase in wind speed close to the ground.
C) marked increase in ground wind speed.
D) warm air over warm surface.

At what time of day, or night, is radiation fog most likely to occur?

A) Shortly after sunrise.
B) Late evening.
C) At sunset.
D) Shortly after midnight.

Which of the following would lead to the formation of Advection fog?

A) Cold moist air over warm surface.
B) Warm dry air over cold surface
C) Warm moist air over cold surface.
D) Cold dry air over warm surface.

Which of the following would lead to the formation of Steaming fog?

A) Cold air over warm sea.
B) Warm air over cold sea.
C) Cold sea near coast.
D) Warm air over land.

Advection fog can be formed when:

A) warm moist air flows over a colder surface.
B) warm moist air flows over a warmer surface.
C) cold moist air flows over warmer water.
D) cold moist air flows over a warmer surface.

Which of the following is most likely to lead to the dissipation of radiation fog?

A) A marked increase in wind velocity near the ground.
B) Ground cooling caused by radiation during the night.
C) A build up of a high pressure area resulting in adiabatic warming associated with a sinking air mass.
D) A marked decrease in wind velocity close to the ground.

The morning following a clear, calm night when the temperature has dropped to the dewpoint, is likely to produce:

A) advection fog.
B) a cold front.
C) radiation fog.
D) good clear weather.

Which of the following conditions is most likely to lead to the formation of advection fog?

A) Moist warm air moving over a cold surface.
B) Moist cold air moving over a warm surface.
C) Dry warm air moving over a cold surface.
D) Dry cold air moving over a warm surface.

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41. Which of the following statements is true concerning advection fog?

A) It forms when unstable air is cooled adiabatically.
B) It forms slowly and disappears rapidly.
C) It can be formed suddenly by day or night.
D) It forms at night or the early morning.

Which of the following circumstances most favour the development of radiation fog?

A) Warm moist air at the windward side of a mountain.
B) Maritime tropical air flowing over cold sea.
C) Moist air over land during clear night with little wind.
D) Advection of very cold air over much warmer sea.

Conditions favourable for the development of radiation fog (FG) are:

A) high relative humidity, little or no cloud.
B) high relative humidity, little or no cloud, little wind (2-8 kts or calm).
C) high relative humidity, little or no cloud, a strong sea breeze.
D) high relative humidity, no cloud.

What is the average vertical extent of radiation fog?

A) 2 000 FT.
B) 500 FT.
C) 10 000 FT.
D) 5 000 FT.

Advection fog will form when warm, moist air moves at ... over a cold sea current like the ... current.

A) 25kt; Brazil
B) 15kt; Labrador
C) 25kt; Gulf Stream
D) 15kt; Harmattan

Frontal fog is most likely to occur:

A) in winter in the early morning.
B) in advance of a warm front.
C) in summer in the early morning.
D) in rear of a warm front.

Radiation fog often occurs:

A) in a polar low which is intensifying.
B) near the coasts in the warm air of a polar depression in late spring.
C) along the line of a warm front of a warm sector depression.
D) in anti-cyclonic conditions with air of maritime origin.

Radiation fog can be dispersed by:

A) all of the above.
B) strong winds.
C) insolation.
D) replacement of moist air by drier air.

Which of the following is most likely to lead to the formation of radiation fog?

A) Dry, warm air passing over warm ground.
B) The passage of fronts.
C) Cold air passing over warm ground.
D) Heat loss from the ground on clear nights.

Which type of fog is likely to form when air having temperature of 15° C and dew point of 12° C blows at 10 knots over a sea surface having temperatures of 5° C?

A) Radiation fog.
B) Advection fog.
C) Frontal fog.
D) Steam fog.

When does frontal fog, also known as mixing fog, occur?

A) When very humid warm air meets with dry cold air.
B) When very humid cold air meets with dry warm air.
C) When very dry cold air meets with very dry warm air.
D) When very humid warm air meets with very humid cold air.

What can be said about the formation of Haze?

A) A frontal system is the cause.
B) Dust particles are trapped below an inversion.
C) A strong lifting action in the atmosphere is necessary.
D) The air is very cold and thus the relative humidity increases.

What type of fog is most likely to form over flat land during a clear night, with calm or light wind conditions?

A) Orographic.
B) Radiation.
C) Steam.
D) Advection.

When is radiation fog most likely?

A) Late afternoon.
B) Just after dawn.
C) Midday.
D) Midnight.

Which of the following statements is true?

A) Radiation fog only forms when the air is very dry and there is an inversion.
B) Radiation fog only forms on a clear night with no wind.
C) Radiation fog cannot form over the sea.
D) Radiation fog only forms in valleys (the katabatic effect).

In temperate latitudes in summer what conditions would you expect in the centre of a high pressure system?

A) TS, CB.
B) NS.
C) calm winds, haze.
D) TS, SH.

Precipitation
Development of precipitation:

Rain ice may be found:
A) in the cold air, below the warm front and below the cold air 0º C level.
B) in the warm air, above the warm front and below the 0º C level.
C) above the cold air 0º C level and below the warm air 0º C level.
D) in the warm air but above the 0º C level.

Where do you get freezing rain?
A) Rain falling into warmer air.
B) Rain falling into colder air and freezing into pellets.
C) Rain falling from an inversion into an area below 0 C.
D) Rain hitting the ground and freezing on impact.

How does freezing rain develop?
A) Rain falls on cold ground and then freezes.
B) Rain falls through a layer where temperatures are below 0° C.
C) Through melting of sleet grains.
D) Through melting of ice crystals.

A cumulus cloud, base 2,000 ft has a base temperature of +14 deg C. The dewpoint temperature and the dry bulb temperature at the surface are probably:
A) +14 deg C & +18 deg C.
B) +20 deg C & +20 deg C.
C) +15 deg C & +20 deg C.
D) +18 deg C & +22 deg C.

Intensity of precipitation is described as:
A) Drizzle, rain or snow.
B) Slight, moderate or heavy.
C) Intermittent, continuous or showery.
D) Intermittent, moderate or heavy.

The intensity of precipitation associated with dense nimbostratus is:
A) moderate or heavy.
B) light.
C) nil.
D) heavy, possibly hail.

Which form of precipitation from clouds containing only water is most likely to fall in mid-latitudes?
A) Heavy rain with large drops.
B) Moderate rain with large drops.
C) Drizzle.
D) Hail.

How would an unstable atmosphere likely reduce the visibility?

A) By mist.
B) Low stratus.
C) By rain and or snow.
D) By haze.

The Bergeron Theory:

A) explains the formation of hailstones in Cumulus cloud.
B) explains the formation and growth of snowflakes.
C) explains the formation of raindrops in cloud where the temperature is above freezing.
D) presumes that at high levels in a cloud, some water droplets turn to ice and grow by sublimation.

The presence of ice pellets at the surface is evidence that:

A) a warm front has passed.
B) there are thunderstorms in the area.
C) a cold front has passed.
D) freezing rain occurs at a higher altitude.

Types of precipitation:

Which of the following are favourable conditions for the formation of freezing rain?

A) Water droplets falling from cold air aloft with a temperature below 0° C.
B) Warm air aloft from which rain is falling into air with a temperature below 0° C.
C) An isothermal layer aloft with a temperature just above 0° C through which rain is falling.
D) Cold air aloft from which hail is falling into air that is warm.

Which of the following are described as precipitation?

A) TS
B) DZ
C) SA
D) SQ

Hail, which can weigh up to... will only fall from... cloud. Hailstones grow by collision with... and...

A) 1 kg; CB; supercooled water droplets; sublimation
B) 1 lb.; CB; raindrops; snow
C) 1 kg; NS; raindrops; soft hail
D) 1 lb.; CB; supercooled water droplets; soft hail

With what type of cloud is heavy precipitation unlikely during the summer months?

A) SC, AS
B) CB, ST
C) NS, CC
D) AS, NS

With what type of cloud is DZ precipitation most commonly associated?

A) CC
B) CB
C) ST
D) CU

With what type of cloud is GR precipitation most commonly associated?

A) CB
B) CC
C) ST
D) AS

Which one of the following types of cloud is most likely to produce heavy precipitation?

A) SC.
B) ST.
C) NS.
D) CS.

What type of cloud can produce hail showers?

A) AC
B) CS
C) CB
D) NS

Precipitation in the form of showers occurs mainly from:

A) clouds containing only ice crystals.
B) stratified clouds.
C) cirro-type clouds.
D) convective clouds.

What is the most common freezing precipitation?

A) Freezing hail and freezing snow.
B) Freezing graupel.
C) Freezing pellets.
D) Freezing rain and freezing drizzle.

With what type of clouds are showers most likely associated?

A) Stratus.
B) Nimbostratus.
C) Stratocumulus.
D) Cumulonimbus.

With which of the following types of cloud is +RA precipitation most commonly associated?

A) SC
B) ST
C) NS
D) AC

With what type of cloud is +TSRA precipitation most commonly associated?

A) CB
B) AS
C) NS
D) SC

What type of clouds are associated with rain showers?

A) Nimbostratus.
B) Towering cumulus and altostratus.
C) Altostratus and stratus.
D) Towering cumulus and cumulonimbus.

Which precipitation type generally has the greatest impact on visibility?

A) Snow.
B) Hail.
C) Drizzle.
D) Heavy rain.

Which cloud would you encounter the most intensive rain?

A) St
B) Sc
C) Ci
D) Ns

Freezing rain occurs when:

A) water vapour first turns into water droplets.
B) rain falls into a layer of air with temperatures below 0° C.
C) snow falls into an above-freezing layer of air.
D) ice pellets melt.

Which of the following processes can produce both fog and clouds?

A) Radiation.
B) Convection.
C) Advection.
D) Divergence.

What is difference between advection and convection?

What type of clouds are associated with snow showers?

A) Cumulus and altostratus.
B) Nimbostratus.
C) Altostratus and stratus.
D) Cumulus and cumulonimbus.

Large hail stones:

A) are typically associated with severe thunderstorms.
B) are entirely composed of clear ice.
C) only occur in thunderstorms of mid-latitudes.
D) only occur in frontal thunderstorms.

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21. The following statements deal with precipitation, turbulence and icing. Select the list containing the most likely alternatives for NS cloud:

A) Precipitation may be snow, sleet or rain. Icing and turbulence are frequently severe.
B) Precipitation may be snow, sleet or rain. Icing is probable and may range between light and severe. Turbulence is rarely more than moderate.
C) Precipitation and icing are usually nil. Turbulence is rarely more than moderate.
D) Precipitation is frequently in the form of hail. Icing and turbulence are frequently severe.

Steady precipitation, in contrast to showery precipitation falls from:

A) Stratiform clouds with severe turbulence.
B) convective clouds with little or no turbulence.
C) convective clouds with moderate turbulence.
D) Stratiform clouds with little or no turbulence.

Hail occurs when:

A) rain drops freeze on falling from a CB.
B) snowflakes melt and then re-freeze.
C) supercooled water droplets freeze.
D) water vapour changes directly into ice.

Freezing precipitation occurs:

A) mainly in the form of freezing rain or freezing drizzle.
B) only in the precipitation of a warm front.
C) mainly in the form of freezing hail or freezing snow.
D) only in the precipitation of a cold front.

Which of the following cloud types is least likely to produce precipitation?

A) CB
B) AS
C) NS
D) CI

From what type of cloud does drizzle fall?

A) Stratus.
B) Cumulus.
C) Altostratus.
D) Cirrostratus.

Air Masses and Fronts

Type of Air masses:

In which air mass are extremely low temperatures encountered?

A) Polar continental air.
B) Polar maritime air.
C) Tropical continental air.
D) Arctic maritime air.

Tropical Maritime air moving towards the pole would produce:

A) CB cloud and showers.
B) Clear skies with haze.
C) radiation fog.
D) advection fog and low stratus.

What are the typical differences between the temperature and humidity between an air mass with its origin in the Azores and an air mass with its origin over northern Russia?

A) The air of the Azores is warmer and more humid than the North-Russian air.
B) The North-Russian air is colder and more humid than the air of the Azores.
C) The air of the Azores is warmer and dryer than the North-Russian air.
D) The North-Russian air is warmer and dryer than the air of the Azores.

An airmass is unstable when:

A) temperature increases with height.
B) temperature and humidity are not constant.
C) pressure shows a marked variation over a given horizontal area.
D) an ascending parcel of air continues to rise to a considerable height.

Which air mass has the coldest temperature?

A) AM
B) PC
C) TM
D) PM

Tropical Maritime air moving pole wards would produce:

A) Clear skies with haze.
B) CB cloud and showers.
C) advection fog and low stratus.
D) radiation fog.

Polar continental air masses arrive over Western Europe from:

A) Siberia during the winter.
B) arctic regions in winter.
C) Siberia during the summer.
D) polar regions all year round.

In which air mass can extreme cold temperatures be found?

A) Arctic maritime.
B) Polar continental.
C) Tropical maritime.
D) Polar maritime.

Which of these phenomena usually forms in the transition zone between two air masses?

A) an unstable low pressure.
B) a frontal low pressure.
C) a ridge of high pressure.
D) radiation fog.

What would decrease the stability of an air mass?

A) Decrease in water vapor.
B) Warming from below.
C) Cooling from below.
D) Increase in water vapor.

Where does polar continental air originate?

A) Siberian landmass.
B) The region of the Baltic sea.
C) Areas of arctic water.
D) The region of Greenland.

Characteristic weather associated with a polar maritime airmass moving over north west Europe in winter would include:

A) warm, moist conditions with some SC or CU and moderate to poor visibility.
B) clear settled weather over land by day with good visibility.
C) widespread CU and CB activity over land.
D) extensive low stratus giving drizzle or light rain over land by day.

An airmass is a large volume of air where ... in the horizontal are more or less constant.

A) relative humidity and pressure
B) pressure and dewpoint
C) humidity and temperature
D) stability and dewpoint

An airmass is stable when:

A) the vertical motion of a rising parcel of air tends to become weaker and disappears.
B) pressure is constant.
C) temperature in a given area drops off very rapidly with height.
D) the lapse rate is 1° C per 100 m.

Over the British Isles a returning polar maritime airmass would have:

A) Stability.
B) Alto cumulus castellanus.
C) Latent instability.
D) Potential instability.

A stable humid warm air mass slowly overrides a cold one. Which one of the following weather types may originate from this condition?

A) The forming of a cold front.
B) The forming of a warm front.
C) Warm front dissipation.
D) The formation of thunder storms.

A source region is an area in which:

A) frontal depressions form or originate.
B) thunderstorms form or originate.
C) tropical revolving storms form.
D) an air mass type forms or originates.

In which of the following regions does polar maritime air originate?

A) Region of British Isles.
B) Baltic Sea.
C) Black Sea.
D) East of Greenland.

Where is the source of tropical continental air that affects Europe in summer?

A) Southern France.
B) The southern Balkan region and the Near East.
C) The Azores region.
D) Southern Italy.

FL180, Northern Hemisphere with a wind from the left, what can you say about temperature with a heading of 360?

A) Nothing.
B) Not possible to tell without a pressure.
C) Increases from South to North.
D) Increases from North to South.

Fronts:

Describe a cold occlusion at a polar front depression:

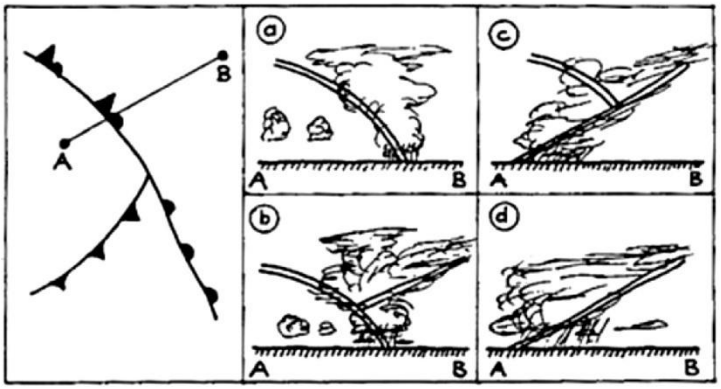
A) Both, the air ahead of the warm front and the air behind the cold front are of approximately the same temperature.
B) The air ahead of the warm front is warmer than the air behind the cold front.
C) The air ahead of the warm front is colder than the air behind the cold front.
D) The air behind the cold front is less cold than the air ahead of the warm front.

What is the surface visibility most likely to be, in a warm sector of tropical maritime air, during the summer?

A) Moderate (several km).
B) Very poor (less than 1 km).
C) Very good (greater than 50 km).
D) Good (greater than 10 km).

Which cross-section of air mass and cloud presentation is applicable to the straight line A-B?

A) c
B) b
C) a
D) d



When flying through a cold front in the summer, the following flying weather may be expected:

A) towering clouds without turbulence.
B) horizontally extended clouds with even tops and bases.
C) horizontally extended clouds with drizzle.
D) towering clouds with showery precipitation.

When flying from South to North in the Southern Hemisphere crossing over and above a polar frontal jet at FL 400, what might happen to the OAT?

A) Rise.
B) Initially fall then rise.
C) Fall.
D) Initially rise then fall.

What will be the effect on the reading of an altimeter of an aircraft parked on the ground as an active cold front is passing?

A) It will first decrease then increase.
B) It will first increase then decrease.
C) It will fluctuate up and down by about +/- 50 feet.
D) It will remain unchanged.

In which main direction does a polar front depression move?

A) Along the front towards the east.
B) Across the front towards the south.
C) Along the front towards the west.
D) Across the front towards the north.

Which of the following conditions are you most likely to encounter when approaching an active warm front at medium to low level?

A) Extreme turbulence and severe lightning striking the ground.
B) Low cloud base and poor visibility.
C) High cloud base, good surface visibility, and isolated thunderstorms.
D) Severe thunderstorms at low altitude.

After such a downpour yesterday, the visibility is today now better. There are now isolated rain showers with sunny spells. It is a little colder though. What is being described?

A) Warm front.
B) Tropical storm.
C) Weather behind the cold.
D) Warm sector.

What types of cloud will you meet flying towards a warm front?

A) At some 500 km from the front, groups of CB, later at some 250 km thickening AS.
B) At some 500 km AS, later CS and at some 80 km before the front CB.
C) At some 800 km CS, later AS, and at some 300 km NS until the front.
D) Extensive areas of fog. At some100 km from the front NS begin.

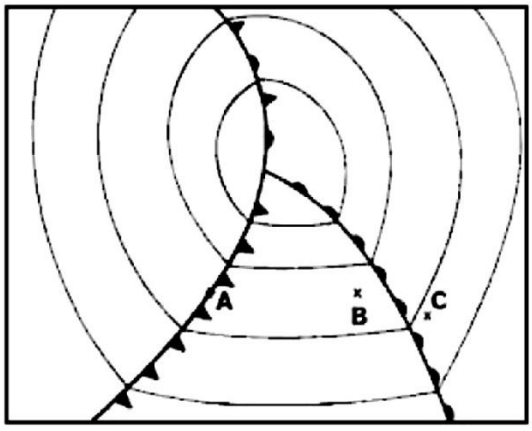
Why not D?

During a cross-country flight at FL 50, you observe the following sequence of clouds: Nimbostratus, Altostratus, Cirrostratus, Cirrus. Which of the following are you most likely to encounter?

A) Decreasing temperatures.
B) Increasing temperatures.
C) Strong, gusty winds.
D) A strong downdraught.

What change in pressure, will occur at point A, during the next hour?

A) Irregular fluctuations.
B) A drop in pressure.
C) Approximately constant pressure.
D) A rise in pressure.



Where is the surface wind usually westerly in a Northern Hemisphere polar front depression?

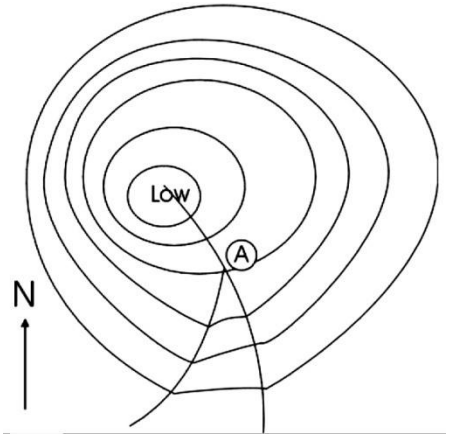
A) Behind the cold front.
B) In front of the cold front.
C) In front of the warm front.
D) To the north of centre of the depression.

Describe a warm occlusion at a polar front depression:

A) The air behind the cold front is colder than the air ahead of the warm front.
B) Both, the air ahead of the warm front and the air behind the cold front are of approximately the same temperature.
C) The air ahead of the warm front is warmer than the air behind the cold front.
D) The air behind the cold front is less cold than the air ahead of the warm front.

In the chart below, an occluding frontal system, in what direction is the triple point moving? The triple point is where the occlusion and the cold and warm fronts meet, and is marked A.

A) Northeast.
B) Southeast.
C) East.
D) North.



If you have to fly through a warm front when freezing level is at 10000 feet in the warm air and at 2000 feet in the cold air, at which altitude is the probability of freezing rain the lowest?

A) 12000 feet.
B) 5000 feet.
C) 9000 feet.
D) 3000 feet.

What is the movement of air relating to a trough?

A) Descending and diverging.
B) Converging and ascending.
C) Descending and converging.
D) Ascending and diverging.

A jetstream at a polar front will be found:

A) in the polar air aloft, at the cold air tropopause.
B) on the warm air side of the front, above the tropopause.
C) in the warm air aloft, just below the warm air tropopause.
D) on the cold air side of the front, below the tropopause.

In Zurich during a summer day the following weather observations were taken: 160450Z 23015KT 3000 +RA SCT008 SCT020 OVC030 13/12 Q1010 NOSIG = 160650Z 25008KT 6000 SCT040 BKN090 18/14 Q1010 RERA NOSIG = 160850Z 25006KT 8000 SCT040 SCT100 19/15 Q1009 NOSIG = 161050Z 24008KT 9999 SCT040 SCT100 21/15 Q1008 NOSIG = 161250Z 23012KT CAVOK 23/16 Q1005 NOSIG = 161450Z 23016KT 9999 SCT040 BKN090 24/17 Q1003 BECMG 25020G40KT TS = 161650Z 24018G35KT 3000 +TSRA SCT006 BKN015CB 18/16 Q1002 NOSIG = 161850Z 28012KT 9999 SCT030 SCT100 13/11 Q1005 NOSIG = What do you conclude based on these observations?

A) Storm clouds due to warm air came close to and grazed the station.
B) A cold front passed the station early in the morning and a warm front during late afternoon.
C) A trough line passed the station early in the morning and a warm front during late afternoon.
D) A warm front passed the station early in the morning and a cold front during late afternoon.

What type of low is usually associated with frontal activity?

A) Warm low.
B) Mountain lee low.
C) Cold low.
D) Polar front low.

---

21. How would you find the velocity of the warm front?

A) 70% of the speed found by measuring the distance between the isobars in the warm sector.
B) The speed found by measuring the distance between the isobars along the front itself.
C) 70% of the speed found by measuring the distance between the isobars ahead of the front itself.
D) Two thirds of the speed found by measuring the distance between the isobars along the front itself.

Which frontal or occlusion system is the fastest moving?

A) Warm front.
B) Warm occlusion.
C) Cold occlusion.
D) Cold front.

An active low pressure system approaches - what would you notice the altimeter in an aircraft on the ground to do during a 10 min period?

A) Impossible to tell.
B) Increases.
C) Rapidly fluctuates.
D) Remains the same as any fluctuations are small.

How are the air masses distributed in a cold occlusion?

A) The coldest air behind and the warm air in front of the occlusion; the less cold air mass is above ground level.
B) The coldest air mass behind and the less cold air in front of the occlusion; the warm air mass is above ground level.
C) The coldest air in front of and the less cold air is behind the occlusion; the warm air mass is above ground level.
D) The coldest air in front of and the warm air behind the occlusion; the less cold air is above ground level.

An occlusion takes place when:

A) The front no longer moves.
B) Cold air displaces warm air.
C) A cold front catches up with a warm front.
D) Warm air displaces cold air.

What is the relative movement of the two airmasses along a cold front?

A) Cold air pushes under a warm air mass.
B) Warm air pushes over a cold air mass.
C) Warm air pushes under a cold air mass.
D) Cold air slides over a warm air mass.

In a warm front occlusion:

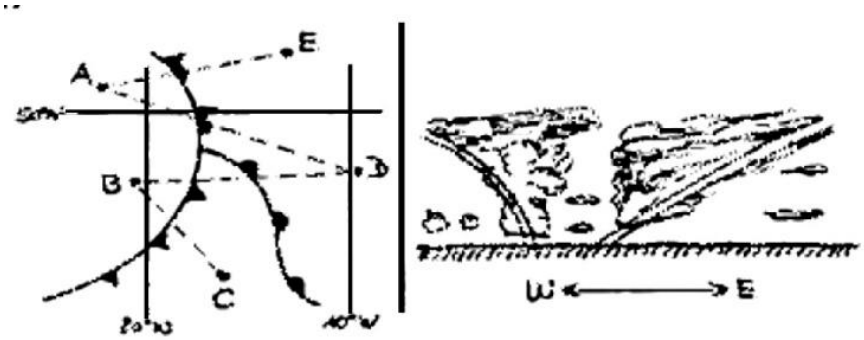
A) the warm front becomes a front aloft.
B) the warm air is lifted.
C) the cold air is lifted.
D) the warm front overtakes the cold front.

If cold air supersedes warm air, the boundary between the air masses is called:

A) a polar front.
B) an arctic front.
C) a cold front.
D) a warm front.

Which one of the tracks (dashed lines) is represented by the cross-section shown on the left?

A) Track B-D.
B) Track C-A.
C) Track B-C.
D) Track B-A.



Over Central Europe what type of cloud cover is typical of the warm sector of a depression during winter?

A) Fair weather CU.
B) ST with drizzle.
C) CU, CB.
D) CI, CS.

Where is the coldest air in a cold occlusion?

A) Behind the cold front.
B) In front of the occlusion.
C) At the junction of the occlusion.
D) Behind the warm front.

The boundary between polar and tropical air is known as:

A) Warm front.
B) Cold front.
C) Tropical front.
D) Polar front.

Define a warm front:

A) The same as an occlusion.
B) The front side of a heat wave.
C) The situation when cold air displaces warm air.
D) The situation when warm air displaces cold air.

What weather conditions are prevalent during the summer, over the North Sea, approximately 300 km behind a quickly moving cold front?

A) Cloud cover mostly scattered, isolated showers.
B) Rain covering a large area, 8 octas NS.
C) Showers and thunderstorms.
D) 8 octas CS, AS without precipitation.

Which of the following statements is correct?

A) Wind speeds at a quasi-stationary front may be as high as 40kt.
B) A quasi-stationary front moves at an angle of 20 deg to frontal alignment.
C) Where a front is quasi-stationary, the isobars are roughly parallel to the front.
D) Weather at a quasi-stationary front usually consists of heap cloud and thunderstorms.

Shortly after the passage of an active cold front you observe the aneroid altimeter of a parked aircraft. The indication of the instrument will...

A) increase.
B) show no appreciable change due to such minor pressure fluctuation.
C) not be influenced by the air pressure.
D) decrease.

A Warm occlusion is:

A) Warm air overriding cold air.
B) Air behind the cold front over riding the air in front of the warm front.
C) Warm air undercutting cold air.
D) Air ahead of the warm front over riding the air behind the cold front.

What is the name of the pressure system found between two polar front depressions:

A) Cold temporary anticyclone.
B) Cold anticyclone.
C) Blocking anticyclone.
D) Warm anticyclone.

The following is true concerning a warm front:

A) When the air is stable, the clouds are Stratiform with uniform precipitation. When the air is unstable, the clouds form vertically and showers will develop in the precipitation area.
B) When the air is stable, the clouds are Stratiform with uniform precipitation.
C) The associated type of weather is mostly uniform and offers only small variations.
D) When the air is unstable, the clouds form vertically and showers will develop in the precipitation area.

Jets are very rare near occluded front because:

A) there is not enough pressure difference across the fronts.
B) the air is too cold across the fronts.
C) the air is too warm across the fronts.
D) there is not enough temperature difference across the fronts.

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41. What happens to an aircrafts altimeter on the ground once a cold front has passed?

A) Decreases.
B) Increases then decreases.
C) Remains the same.
D) Increases.

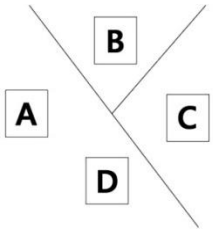
In which approximate direction does the centre of a frontal depression move?

A) In the direction of the sharpest pressure increase.
B) In the direction of the isobars ahead of the warm front.
C) In the direction of the warm sector isobars.
D) In the direction of the isobars behind the cold front.

In the disturbed temperature regions:

A) the wet season is normally from May to September.
B) the surface winds are moderate weasterlies.
C) winters are generally mild.
D) the weather is mainly governed by travelling frontal depressions.

Where might we find the warmest air?



A) D
B) C
C) B
D) A

Read this description: " After such a fine day, the ring around the moon was a bad sign yesterday evening for the weather today. And, sure enough, it is pouring down outside. The clouds are making an oppressively low ceiling of uniform grey; but at least it has become a little bit warmer." Which of these weather phenomena is being described?

A) A cold front.
B) Weather at the back of a cold front.
C) A warm front.
D) A blizzard.

At what time of the year, are the paths of north Atlantic lows moving from west to east generally, at their most southerly position?

A) Spring.
B) Winter.
C) Summer.
D) Autumn.

The passage of a cold front through a MET station in the British Isles will result in:

A) a steady rise in pressure and a backing of the surface wind.
B) a steady fall in pressure and a backing of the surface wind.
C) a steady rise in pressure and a veering of the surface wind.
D) a steady fall in pressure and a veering of the surface wind.

The polar front is the boundary between:

A) polar air and tropical air.
B) arctic air and polar air.
C) arctic air and tropical air.
D) maritime polar air and continental polar air.

When polar maritime air is affecting North-West Europe at night the cloud amount is expected to ... and the cloud base will...

A) decrease; lift.
B) decrease; lower.
C) increase; lower.
D) increase; lift.

In which of the following situations can freezing rain be encountered?

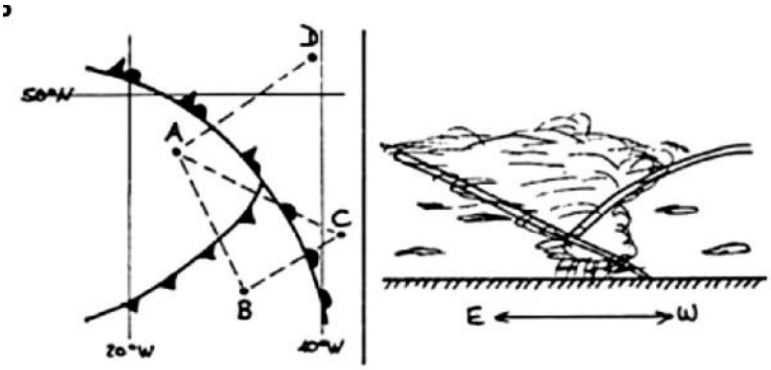
A) Ahead of a warm front in the winter.
B) Ahead of a cold front in the winter.
C) Ahead of a cold front in the summer.
D) Behind a warm front in the summer.

What type of front / occlusion usually moves the fastest?

A) Warm occlusion.
B) Cold occlusion.
C) Warm front.
D) Cold front.

Examining the pictures, on which one of the tracks (dashed lines) is this cross-section to be expected?

A) Track B-C.
B) Track B-D.
C) Track A-D.
D) Track A-E.



How do air masses move at a warm front?

A) Warm air undercuts a cold air mass.
B) Warm air overrides a cold air mass.
C) Cold air undercuts a warm air mass.
D) Cold air overrides a warm air mass.

What weather might you expect behind a fast moving cold front?

A) 8 oktas of layered cloud.
B) Continuous rain.
C) Scattered ST.
D) Isolated CB and showers.

A frontal depression passes through the airport. What form of precipitation do you expect?

A) Rain or snow during about 12 hours until the warm front arrives. Within the warm sector the rain increases. Improvement on the passage of the cold front.
B) Showers during some 2 hours until the warm front arrives. Drizzle in the warm sector within 12 hours. Rain or snow on the passage of the cold front.
C) Continuous rain or snow during 6 hours until the warm front arrives. The precipitation stops for several hours within the warm sector. On the arrival of the cold front, showers within a couple of hours.
D) Continuous rain or snow while the frontal wave passes for a period of some 24 hours.

Steady precipitation, in contrast to showers, preceding a front is an indication of:

A) cumuliform clouds with moderate turbulence.
B) Stratiform clouds with little or no turbulence.
C) cumuliform clouds with little or no turbulence.
D) Stratiform clouds with moderate turbulence.

A warm front occlusion is approaching the east coast of the UK.
What WX would you expect in the North Sea during summer?

A) Low level stratus.
B) High level Ci.
C) Medium level cloud 3/8 octas, isolated showers.
D) TS/showers/CB.

What type of precipitation would you expect at an active unstable cold front?

A) Light to moderate continuous rain.
B) Freezing rain.
C) Drizzle.
D) Showers associated with thunderstorms.

Which one of the following alternatives indicates how an occluded front is generated?

A) a cold front is halted and becomes almost stationary.
B) a cold front overtakes a warm front and the warm air between the fronts is lifted.
C) cold air wedges under warm air.
D) warm air supersedes cold air.

Which of the following describes a warm occlusion?

A) The warmer air mass is ahead of the original warm front.
B) The coldest air mass is ahead of the original warm front.
C) The air mass ahead of the front is drier than the air mass behind the front.
D) The air mass behind the front is more unstable than the air mass ahead of the front.

---

61. A squall line usually is most likely to be encountered:

A) in an airmass with cold mass properties.
B) behind of a stationary front.
C) ahead of a cold front.
D) at an occluded front.

The weather most likely as a warm front passes is:

A) moderate continuous rain, intermittent light drizzle.
B) moderate continuous rain, rain showers.
C) light showers, moderate continuous drizzle.
D) heavy continuous rain, occasional thunderstorm.

Frontal depressions can be assumed to move in the direction of the 2000 feet wind:

A) at the apex of the wave.
B) in the warm sector.
C) in front of the warm front.
D) behind the cold front.

What will be the effect on the reading of an altimeter of an aircraft parked on the ground shortly before an active cold front passes?

A) It will be decreasing.
B) It will be increasing.
C) It will remain unchanged.
D) It will fluctuate up and down by about +/- 50 feet.

With the passage of a Polar frontal depression what would be most likely?

A) Showers for 2hrs, Drizzle for 12hrs, then snow and rain.
B) Continual backing of the wind.
C) Heavy showers of rains and possible hail, followed by drizzle and light rain.
D) Continuous snow and rain, then it stops to be followed by showers of rain and snow.

In a polar front depression, an occlusion is called a warm occlusion when the cold air:

A) behind is colder than the cold air in front.
B) behind is less cold than the cold air in front, with the warm air at a high altitude.
C) in front of the surface position of front is only at a high altitude.
D) behind is colder than the cold air in front, with the warm air being at a high altitude.

Flying towards a warm front, at what distances might you expect the following cloud types from the surface position of the front?

A) CS 800km: AS 200km: NS 400km.
B) CS 600km; AS 400km: NS 200km.
C) CS 200km: AS 400 km: NS 600km.
D) CS 400km: AS 600km: NS 800km.

After passing at right angles through a very active cold front in the direction of the cold air, what will you encounter, in the northern hemisphere immediately after a marked change in temperature?

A) A veering in the wind direction.
B) A backing in the wind direction.
C) An increase in tailwind.
D) A decrease in headwind.

After such a downpour yesterday, the visibility is today now better. There are now isolated rain showers with sunny spells. It is a little colder though! What is being described?

A) Warm sector.
B) Tropical storm.
C) Weather behind the cold front.
D) Warm front.

What is feature of a stationary front?

A) Weather conditions are a combination of strong cold front and strong warm front weather.
B) The cold front surface moves about half the speed of the warm front surface.
C) The warm front surface moves about half the speed of the cold front surface.
D) Surface winds tend to flow parallel to the frontal zone.

What cloud formation is most likely to occur at low levels when a warm air mass overrides a cold air mass?

A) Cumulus.
B) Cumulonimbus.
C) Altostratus.
D) Nimbostratus.

Ahead of a warm front:

A) winds veer and decrease with height.
B) winds back and decrease with height.
C) winds back and increase with height.
D) wind back slightly but veer on passage and increase with height.

What is the weather inside the warm sector in a frontal depression in Europe?

A) Low stratus and drizzle.
B) Cb and thunderstorms.
C) As with light rain.
D) Fair weather Cu.

A warm sector of a polar depression passes over an observer in Auckland, New Zealand. As the warm front passes the temperature will ... and the wind will...

A) fall; veer.
B) fall; back.
C) rise; veer.
D) rise; back.

How come backs??

The following is true concerning a cold front:

A) A cold front is normally steeper than a warm front.
B) A cold front is normally less steep than a warm front.
C) Both b) and c) are correct.
D) A cold front is normally moving with less speed than a warm front.

If an active cold front is approaching, and pressure falls, what will the altimeter read on a parked aircraft shortly before the front arrives?

A) Fluctuates -50ft to +50ft.
B) Stays the same.
C) Decrease.
D) Increase.

As an active cold front passes, the altimeter of an aircraft parked on the apron:

A) decreases then increases.
B) increases then decreases.
C) remains unchanged.
D) fluctuates by +/- 50 ft.

What type of low pressure area is associated with a surface front?

A) Polar front low.
B) A cold air pool.
C) A low on lee side of a mountain.
D) Heat low.

The weather associated with a cold front may vary from a minor change of wind to a serious thunderstorm with low cloud base, bad visibility and strong, gusty winds. The type of weather depends on:

A) All answers are correct.
B) The speed and slope of the cold front.
C) The amount of humidity in the warm air.
D) The stability of the warm air.

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81. What will be the effect on the reading of an altimeter of an aircraft parked on the ground during the period following the passage of an active cold front?

A) It will remain unchanged.
B) It will have increased.
C) It will have decreased.
D) It will show a small increase or decrease.

The cloud sequence that could be expected during the passage of a typical warm front would be:

A) AS, CI, CS, ST, NS.
B) CB, ST, AS, CS, CI
C) CI, AS, CB, CU.
D) CI, CS, AS, NS, ST.

The mean position of the polar front in the N Atlantic is:

A) from Florida to North of the UK in January.
B) from north of UK to Newfoundland in July.
C) from Florida to SW UK in July.
D) from SW UK to Newfoundland in January.

Behind a cold front:

A) winds veer and decrease with height..
B) winds back and decrease with height.
C) winds veer and increase with height.
D) winds may back slowly and increase with height.

What cloud cover is typical for a wide warm sector of a polar front depression over Central Europe in the summer?

A) BKN CU and CB.
B) Sky clear.
C) ST with drizzle.
D) Fair weather CU.

State in which type of front supercooled raindrops most frequently occur?

A) Occlusion.
B) Warm front.
C) Stationary front.
D) Cold front.

On an aerodrome, when a warm front is approaching:

A) QFE and QNH decrease.
B) QFE increases and QNH decreases.
C) QFE decreases and QNH increases.
D) QFE and QNH increase.

A warm front occlusion is characterised by:

A) the warm sector is being undercut primarily by the cold front.
B) air behind the cold front being warmer than the air ahead of the warm front.
C) air ahead of the occlusion being warmer than behind.
D) air ahead of the warm front being warmer than the air behind the cold front.

A warm front is approaching an airport:

A) QFE decreases and QNH increases.
B) QFE and QNH decrease.
C) QFE increases and QNH decreases.
D) QNH decreases, while QFE remains unchanged.

When flying in the warm sector of a well developed frontal depression, well clear of all fronts, which of the following statements are correct:

a. Severe windshear occurs on the approach to landing at inland airfields
b. There is little or no cloud above 6500 ft
c. The air will be generally unstable
d. There will be widespread poor visibility, possibly advection fog at low level

Of these statements:

A) b & c are correct
B) a, b & c are correct
C) a & d are correct
D) b & d are correct

What characterizes a stationary front?

A) The weather conditions that it originates is a combination between those of an intense cold front and those of a warm and very active front.
B) The warm air moves at approximately half the speed of the cold air.
C) The surface wind usually has its direction parallel to the front.
D) The surface wind usually has its direction perpendicular to the front.

Which of the following is typical for the passage of a cold front in the summer?

A) Rapid drop in pressure once the front has passed.
B) Mainly towering clouds.
C) Rapid increase in temperature once the front has passed.
D) Mainly layered clouds.

If flying cross country at FL50 you first see NS, AS, CC then CI, you can expect:

A) Increasing temperature.
B) A veer in the wind.
C) Increase in pressure.
D) Decreasing temperature.

With the passage of a cold front crossing the United Kingdom from the North Atlantic, the following weather changes can be expected:

A) a veer in the wind, a fall in pressure.
B) a back in the wind, pressure falling then starting to rise.
C) a back in the wind, pressure starting to fall.
D) a veer in the wind, pressure falling then starting to rise.

What type of fronts are most likely to be present during the winter in Central Europe when temperatures close to the ground are below 0° C, and freezing rain starts to fall?

A) Warm fronts, warm occlusions.
B) Cold occlusions.
C) Cold fronts.
D) High level cold fronts.

The main factor which contributes to the formation of very low clouds ahead of a warm front is the:

A) saturation of the warm air by rain falling into it and evaporating.
B) warm air moving over a cold surface.
C) saturation of the cold air by rain falling into it and evaporating.
D) reduction of outgoing radiation due to clouds.

A Cold occlusion is:

A) Air behind the cold front undercutting the air in front of the warm front.
B) Cold air undercutting warm air.
C) Air ahead of the warm front undercutting the air behind the cold front.
D) Warm air overriding cold air.

Thunderstorms in exceptional circumstances can occur in a warm front if:

A) the cold air is convectively unstable.
B) the warm air is convectively unstable.
C) the warm air is convectively stable.
D) the cold air is convectively stable.

An observer on the northern hemisphere is under influence of the wind system of a depression, which is moving from West to East. The centre of the depression passes to the South of the observer. For this observer the wind direction is:
A) initially veering, then backing.
B) continuously backing.
C) continuously veering.
D) initially backing, then veering.

The approximate inclined plane of a warm front is:
A) 1/150
B) 1/300
C) 1/50
D) 1/500

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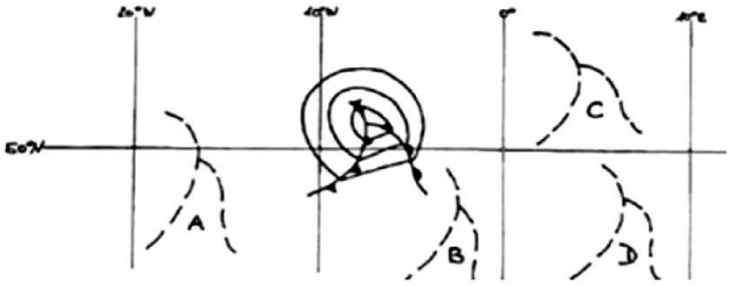
101. Refer to the diagram. Assuming the usual direction of movement, to which position will the polar frontal wave have moved?



A) Position D
B) Position B
C) Position C
D) Position A

At a quasi-stationary front:
A) winds blow parallel to the isobars and front.
B) winds blow perpendicular to the isobars.
C) winds are usually gusty and variable.
D) winds are always very strong.

What happens in a warm occlusion?
A) Cold air under rides the warm air.
B) Warm air undercuts the cold air.
C) Warm air behind the cold front overrides the cold air in front of the warm front.
D) Cold air behind the cold front undercuts the warm air ahead of the warm front.

Squall lines are encountered:
A) behind a stationary front.
B) at an occluded front.
C) ahead of a cold front.
D) in an airmass with cold air properties.

The main high pressure systems affecting NW Europe have their origins in or over:
A) North Atlantic, Mediterranean, North Africa.
B) Scandinavia, Siberia, North Africa.
C) North Atlantic, Azores, South East Europe (Balkans).
D) Azores, Siberia.

When do cold occlusions occur most frequently in Europe?
A) Summer.
B) Winter and spring.
C) Winter.
D) Autumn and winter.

Thunderstorms will occur on a warm front:
A) when cold air is moist and cools slower than SALR.
B) when warm air is moist and cools quicker than SALR.
C) when cold air is moist and cools quicker than SALR.
D) when warm air is moist and cools slower than DALR.
Cools quicker than SALR?

A cold occlusion is characterised by:
A) air ahead of the warm front being warmer than the air behind the cold front.
B) the warm sector is being undercut primarily by the warm front.
C) air ahead of the occlusion being colder than behind.
D) air behind the cold front being warmer than the air ahead of the warm front.

When flying in the warm sector of a well developed frontal depression, well clear of all fronts, which of the following statements are correct:

a. Severe windshear occurs on the approach to landing at inland airfields
b. There is little or no cloud above 6500 ft
c. The air will be generally unstable
d. There will be widespread poor visibility, possibly advection fog at low level

A) a, b & c are correct
B) a & d are correct
C) b & d are correct
D) b & c are correct

Where is the coldest air to be found, in an occlusion with cold front characteristics?
A) Behind the front.
B) At the junction of the occlusion.
C) Ahead of the front.
D) At the surface position of the front.

In connection with the passage of a front:
A) After frontal passage, the wind will veer to the left.
B) The pressure will increase before it passes.
C) Answers b) and c) are correct.
D) The pressure will decrease before it passes.

Pressure Systems

Location of principle pressure areas:

With low pressures dominating the Med, which of the following would likely be found in central Europe?

A) Thunderstorms and snow.
B) Northerly Foehn wind over the Alps.
C) Warm clear sunny spells.
D) Thermal depressions.

You are flying from Sydney, Australia to Auckland, New Zealand (track 100 deg T). You have a strong starboard drift. If the QNH at Sydney is 1013, you could expect the QNH at Auckland to be:

A) impossible to determine.
B) 1023.
C) 1013.
D) 1003.

Standing in the Northern Hemisphere, north of a polar frontal depression travelling west to east, the wind will...

A) back then veer.
B) continually veer.
C) continually back.
D) veer then back.

You are flying from Sydney, Australia to Auckland, New Zealand (track 100 deg T). You have a strong port drift.
If the QNH at Sydney is 1013, you could expect the QNH at Auckland to be:

A) 1023
B) 1003
C) 1013
D) impossible to determine

In the Northern Hemisphere a man observes a low pressure system passing him to the south, from west to east.
What wind will he experience?

A) Backs then Veers.
B) Constantly Backs.
C) Backs then steady.
D) Veers then Backs.

Select the answer which you consider will complete correctly the following statement in relation to the main pressure systems affecting the North Atlantic region between 30° N and 65° N. During winter the predominant mean low pressure system at the surface is usually centred over:

A) Iceland / Greenland.
B) Azores.
C) USA.
D) Siberia.

In which of the following areas do surface high pressure systems usually predominate over the North Atlantic region between 30° N and 65° N and the adjoining land areas during the northern summer?

A) Greenland, Azores, NE Canada.
B) Azores, SE USA, SW Europe.
C) Greenland, SW Europe, NE Canada.
D) Iceland, SW USA, Azores.

With the passage of an active polar front depression the surface winds will... and the upper winds will ... in the northern hemisphere:

A) veer; veer
B) back; veer
C) veer; back
D) back; back

In a shallow pressure distribution (widely spaced Isobars or low pressure gradients) you observe the aneroid altimeter of a parked aircraft for 10 minutes (no thunderstorms observed). The reading of the instrument will.

A) Increase greatly.
B) Not be influenced by the air pressure.
C) Experience great changes.
D) Show no appreciable change due to such a minor pressure fluctuation.

When flying at FL180 in the Southern Hemisphere you experience a left crosswind. What is happening to your true altitude if indicated altitude is constant?

A) Impossible to tell.
B) Increasing.
C) Remains the same.
D) Decreasing.

Considering the North Atlantic region between 30° N and 65° N together with the adjacent land areas during winter, the normal disposition of the main anticyclones at the surface is:

A) Azores, Siberia.
B) Siberia, Iceland, Canaries.
C) NE Canada, Iceland.
D) Greenland, Iberian peninsula.

If you fly with left drift in the Northern Hemisphere, what is happening to your true altitude?

A) Increases.
B) Can't tell.
C) Stays the same.
D) Decreases.

Select the answer in relation to the main pressure systems affecting the North Atlantic region between 30° N and 65° N: During winter the predominant low pressure system at the surface is usually centered over...

A) USA.
B) Siberia.
C) Iceland & Greenland.
D) Azores.

What is the movement of air relating to a ridge?

A) Ascending and diverging.
B) Descending and diverging.
C) Descending and converging.
D) Ascending and converging.

Tropical revolving storms occur in ... They then usually move ... and on reaching a land mass they...

A) early summer, west, decay
B) late summer, west, intensify
C) late summer, west, decay
D) late summer, west, intensify

In the Northern Hemisphere between lat. 35 N - 65 N in the north Atlantic during winter, the principle land based depression affecting the region is located at:

A) Greenland / Icelandic low.
B) Azores high.
C) USA high.
D) Siberia high.

With two pressure systems at different latitudes, but with the same isobar spacing, it would be possible to have the same gradient wind speed with:

A) a low at low latitude and a high at high latitude.
B) a low at high latitude and a high at low latitude.
C) a low at high latitude and a high at high latitude.
D) a low at low latitude and a high at low latitude.

A steep pressure gradient is characterised by:

A) Isobars close together, strengthened wind.
B) Isobars far apart, decreased wind.
C) Isobars close together, temperature increasing.
D) Isobars far apart, temperature decreasing.

What generates air movement and is the cause of wind?

A) Frontal systems.
B) Pressure.
C) Rotation of the earth.
D) Difference in temperature.

When would you most likely find cold occlusions across central Europe?

A) Winter.
B) Winter and spring.
C) Summer.
D) Winter and Autumn.

21. A polar air low is usually formed by:

A) returning polar maritime air moving over warm sea in summer.
B) polar maritime air moving SE over the sea in winter.
C) polar continental air moving over warmer land in the spring.
D) a depression forming on the polar front in summer.

Considering the North Atlantic region between 30° N and 65° N and the adjacent land areas during mid-summer, the predominant pressure systems are:

A) Azores high and weak low over NE Canada.
B) weak low over NE Canada and Scandinavian high.
C) Scandinavian high and Azores high.
D) Azores low and Icelandic high.

The formation of high and low pressure areas is normally caused by:

A) temperature differences.
B) humidity.
C) storms.
D) mechanical turbulence.

Anticyclones:

In temperate latitudes what weather conditions may be expected over land during the summer in the centre of a stationary high pressure zone?

A) Calm winds, haze.
B) CB, TS.
C) NS.
D) TS, SH.

Subsidence in an anticyclone produces...

A) saturated air and an inversion.
B) increased pressure at the surface.
C) dry air and an inversion.
D) isothermal dry and stable air.

A blocking anticyclone:

A) usually takes the form of a wedge of warm air aligned east - west.
B) a deep depression which dominates all other weather in the vicinity.
C) is often a warm anticyclone which usually converts the west - east movement of polar front lows into a meridional flow.
D) is always a cold anticyclone.

What is the most likely cause of a lack of clouds at higher levels in a stationary high?

A) Divergence at higher levels.
B) Rising air.
C) Sinking air.
D) Instability.

What surface weather is associated with a stationary high pressure region over land in the winter?

A) Thunderstorms.
B) NS with continuous rain.
C) The possibility of snow showers.
D) A tendency for fog and low ST.

The stable layer at some height in the low troposphere of an older high pressure area in the mid-latitudes is called:

A) friction inversion.
B) trade wind inversion.
C) subsidence inversion.
D) radiation inversion.

What is the correct term for the descending air flow in a large high pressure area?

A) Convergence.
B) Subsidence.
C) Convection.
D) Advection.

The most effective way to dissipate cloud is by:
A) convection.
B) a decrease in temperature.
C) subsidence.
D) a decrease in pressure.

A ridge of high pressure is generally associated with:
A) divergence causing cloud to break up and more precipitation.
B) divergence causing increased cloud and precipitation.
C) divergence and subsidence causing clear skies and good weather.
D) convergence causing increased cloud and precipitation.

Which weather condition is defined as an anticyclone?
A) Col.
B) Low pressure area.
C) Calm.
D) High pressure area.

Polar air moving south will become:
A) it depends on the humidity.
B) increasingly unstable.
C) conditionally unstable.
D) increasingly stable.

Areas of sinking air are generally cloudless because as air sinks it:
A) is heated by compression.
B) is heated by expansion.
C) reaches warmer layers.
D) loses water vapour.

An anticyclone is an area where at the surface:
A) pressure is low at the centre and the air is ascending.
B) pressure is high at the centre and the air is descending.
C) pressure is high at the centre and the air is rising.
D) pressure is low at the centre and the air is descending.

Divergence close to the surface could cause:
A) pressure to intensify at the center of high pressure.
B) ascent in the middle troposphere.
C) divergence at high level.
D) pressure to fall at the center of high pressure.

Lack of cloud at low level in a stationary high is due to:
A) instability.
B) divergence at high level.
C) rising air.
D) sinking air.

If the pressure level surface bulges upwards, the pressure system is a:

A) warm, low.
B) cold, high.
C) warm, high.
D) cold, low.

A blocking anticyclone on the northern hemisphere is:

A) a cold anticyclone/steering depressions/situated over Scandinavia.
B) situated between 50° and 70° N/a cold anticyclone/steering depressions.
C) a warm anticyclone/quasi stationary/situated between 50° N and 70° N.
D) quasi stationary/situated between 50° N and 70° N/ a cold anticyclone.

If the pressure surfaces bulge upwards in all levels then the pressure system is a:

A) warm low.
B) cold high.
C) cold low.
D) warm high.

Subsidence is:

A) vertically downwards motion of air.
B) vertically upwards motion of air.
C) horizontal motion of air.
D) the same as convection.

The subtropical high pressure belt is at which latitude?

A) 40 - 55 degrees.
B) 55 - 75 degrees.
C) 10 - 15 degrees.
D) 25 to 35 degrees.

Non-Frontal Depressions:

Tropical revolving storms usually:

A) move in a westerly direction before re-curving towards the Equator.
B) form close to one side of the Equator and, while moving slowly in a westerly direction, cross over to the other hemisphere.
C) move in an easterly direction before re-curving towards the nearest pole.
D) do not form within 5 degrees of the Equator.

Which is true of a secondary depression in the northern hemisphere?

A) It tends to move round the primary in a cyclonic sense.
B) It tends to maintain its position relative to the primary.
C) It rapidly closes on, and merges with the primary.
D) It tends to move round the primary in an anticyclonic sense.

A thermal depression is likely to form...

A) in association with a marked trough of low pressure over the USA.
B) in the lee of the Alps over northern Italy in winter.
C) on the trailing edge of a warm sector mid latitude depression.
D) over the Iberian peninsular during the summer.

Extensive cloud and precipitation is often associated with a non frontal thermal depression because of:

A) surface convergence and upper level divergence causing widespread ascent of air in the depression.
B) surface convergence and upper level divergence causing widespread descent of air in the depression.
C) surface divergence and upper level convergence causing widespread ascent of air in the depression.
D) surface divergence and upper level convergence causing widespread descent of air in the depression.

How do you recognize a cold air pool?

A) As a high pressure area aloft (e.g. on the 500 hPa chart).
B) A cold air pool may only be recognized on the surface chart as a low pressure area.
C) A cold air pool may only be recognized on the surface chart as a high pressure area.
D) As a low pressure area aloft (e.g. on the 500 hPa chart).

Which is true of a typical non frontal thermal depression?

A) It forms over the ocean in winter.
B) It forms over land in summer.
C) It forms over land in winter.
D) It forms over the ocean in summer.

Secondary depressions move:
A) around the primary in a cyclonic fashion.
B) around the primary in an anticyclonic fashion.
C) eastwards.
D) westwards.

When air is lifted due to the presence of a range of mountains in its path, the resulting vertical motion is referred to as:
A) Convergence.
B) Turbulence.
C) Orographic lifting.
D) Frontal lifting.

With an intense trough of low pressure over Iceland during wintertime the weather likely to be experienced is:
A) strong wind with subsidence at low levels.
B) light wind, good visibility and a high cloud ceiling.
C) strong wind associated with an almost clear sky.
D) strong wind shear, convection and snow showers.

Sub tropical highs are found:
A) 25 - 35° .
B) Between the Polar and Ferrell cells.
C) 40 - 60° .
D) 5 - 15° .

A trough of low pressure on a surface synoptic chart is an area of:
A) convergence and subsidence.
B) convergence and widespread ascent.
C) divergence and widespread ascent.
D) divergence and subsidence.

What is encountered during the summer, over land, in the centre of a cold air pool?
A) Showers and thunderstorms.
B) Fine weather CU.
C) Strong westerly winds.
D) Nothing (CAVOK).

What type of air movement is associated with the centre line of a trough?
A) Convergence with lifting.
B) Divergence with lifting.
C) Divergence with descending air.
D) Convergence with descending air.

Tropical Revolving Storm:

On which coast of North America, is the danger of tropical revolving storms the greatest?

A) NE coast.
B) W coast.
C) N coast.
D) SE coast.

What type of clouds, visible even at a long distance, could indicate the presence of a tropical revolving storm?

A) Excessive accumulation of CU.
B) Frequent SC.
C) Dense CI.
D) NS spread over a large area.

What is the track most likely to be taken by a hurricane in the Caribbean area?

A) West in the earlier stages and later south east.
B) East.
C) West in the earlier stages and later north east.
D) West deep into the U.S.

During which seasons are hurricanes most likely to appear in the northern hemisphere?

A) Winter and spring.
B) All seasons.
C) Summer and autumn.
D) Winter.

The region of the globe where the greatest number of tropical revolving storms occur is:

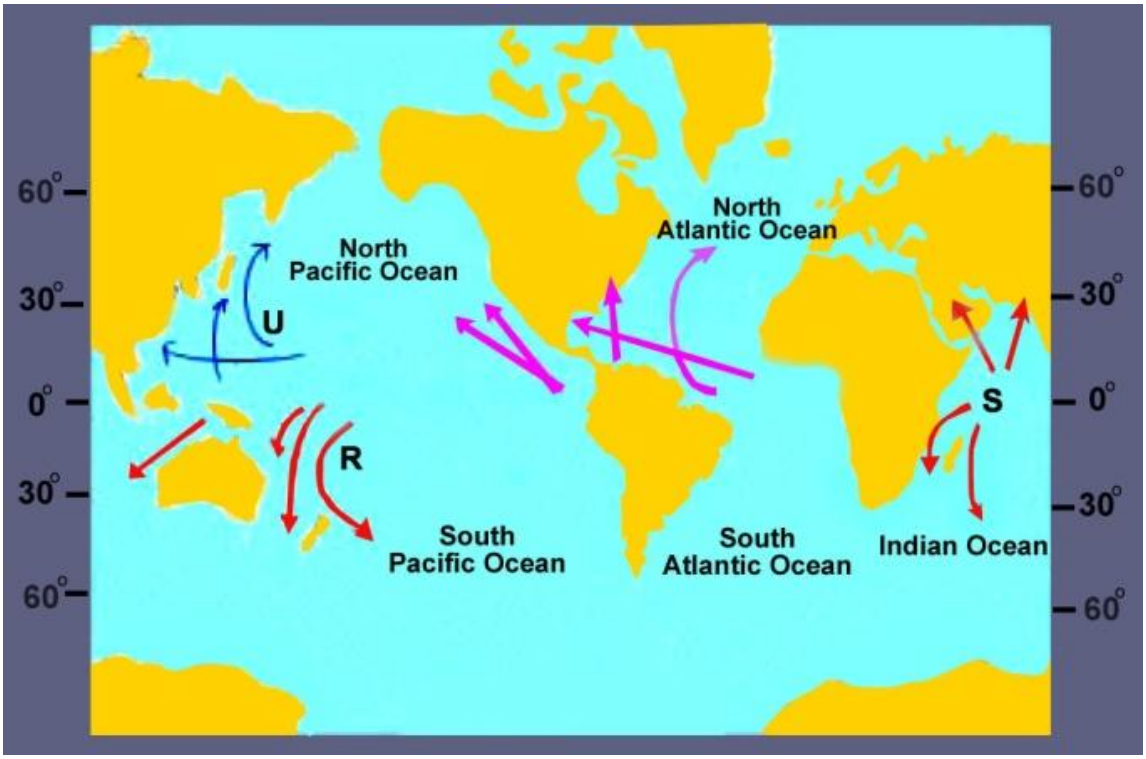
A) the Caribbean sea, affecting the West Indies, Mexico and the south-east coastline of the USA.
B) the south-western Indian ocean, affecting Madagascar, Mauritius and the island of Ré union.
C) the north-west Pacific, affecting Japan, Formosa, Korea and the Chinese coastline.
D) the northern Indian ocean, affecting India, Sri Lanka and Bangladesh.

When do you get TRS at Darwin (Australia)?

A) July - October.
B) In the winter.
C) Never.
D) November - April.

Which statement is true for hurricanes in the North Atlantic?

A) They intensify rapidly after landfall.
B) The diameter is 50-500 m.
C) From the earths surface up to the tropopause the core is warmer than its surroundings.
D) Their greatest frequency of occurrence is in winter.



The arrows labelled U represent the tracks of tropical revolving storms which occur mainly from:

A) December to April and are called tornadoes.
B) July to October and are called typhoons.
C) January to March and are called willy-willies.
D) May to July and are called cyclones.

The arrows labelled R represent the mean tracks of tropical revolving storms which occur mainly from:

A) December to April and are called tornadoes.
B) June to October and are called hurricanes.
C) December to April and are called cyclones.
D) June to October and are called typhoons.

The arrows labelled S represent the mean tracks of tropical revolving storms which occur mainly from:

A) December to April and are called cyclones.
B) December to April and are called typhoons.
C) May to November and are called cyclones.
D) May to November and are called hurricanes.

TRS off Somalia are called:

A) Cyclones.
B) Tornadoes.
C) Hurricanes.
D) Typhoons.

Why do tropical revolving storms tend to develop mostly in the western parts of the tropical oceans?

A) Because they are areas in which there is a strong progressive windshear with increase of height.
B) Because there is a maximal temperature difference between land mass and sea.
C) Because there is a maximum of humidity as a result of the trade winds long sea passage.
D) Because the gulf formation of the coastlines triggers a strong rotary circulation.

When, if at all, is a tropical revolving storm most likely to affect Darwin, on the central north coast of Australia?

A) May to July.
B) August to October.
C) Not experienced at Darwin.
D) December to April.

Where are the fastest winds in a Tropical Revolving Storm?

A) To the left of the track in Typhoons.
B) In a ring 20nm outside the eye wall.
C) In the wall of cloud surrounding the eye.
D) To the right of the track in Hurricanes and Cyclones.

Most frequent tropical revolving storms are:

A) cyclones in the Indian Ocean.
B) typhoons in the Pacific.
C) tornadoes in Western Africa.
D) hurricanes in the Caribbean.

Where is the most dangerous zone in a tropical revolving storm?

A) In the centre of the eye.
B) Anywhere in the eye.
C) About 600 km away from the eye.
D) In the wall of clouds around the eye.

What is the main energy source of a tropical revolving storm?

A) Temperature difference between equatorial low pressure trough and subtropical high pressure belt.
B) The equatorial jet stream.
C) Latent heat released from condensing water vapour.
D) Cold air advancing from temperate latitudes.

Which of the following statements is correct?

A) Tropical revolving storms originate within 5° of the equator.
B) TRS' s are named alphabetically on a global basis, starting on 1st January.
C) TRS' s are thermal depressions originating over sea areas where sea temperature is greater than 26° C.
D) TRS' s are thermal depressions originating over sea areas and moving at speeds greater than 30kts.

Where does a TRS gain its energy from?
A) The very low pressures inside the storm.
B) Energy gained directly from the sun.
C) Latent heat from water in oceans.
D) The very fast winds.

What are the indications of a TRS from a great distance?
A) Ns
B) Thick Ci
C) Thick CB's
D) Sc

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21. Tropical revolving storms do not occur in the southeast Pacific and the south Atlantic because:
A) of the low water temperature.
B) the southeast trade winds cross over into the northern hemisphere.
C) there is no Coriolis force present.
D) of the strong southeast wind.

Where are TRS not likely to form?
A) South Indian Ocean.
B) South China sea.
C) South Pacific.
D) South Atlantic.

During which months is the Hurricane season in the Caribbean?
A) April until July.
B) January until April.
C) July until November.
D) October until January.

In which part of the world are TRS most frequent?
A) Northern Indian Oceans around India, Sri Lanka.
B) NW Pacific i.e. Japan, Korea, SE Asia.
C) Madagascar, Eastern Indian Ocean.
D) Caribbean.

What is the likely track for a hurricane in the Caribbean area?
A) West deep into the USA.
B) East then south.
C) West in the earlier stages and later turning south east.
D) West in the earlier stages and later turning north east.

Where is the most severe weather in a TRS?
A) in the wall of cloud surrounding the eye.
B) in the centre of the eye.
C) 300km from the eye.
D) within the eye.

At what time of the year are typhoons most likely to occur over the southern islands of Japan?
A) January to May.
B) September to January.
C) July to November.
D) May to July.