GAP
Good Aviation Practice

New Zealand
airspace

Includes drone advice

CAA
CIVIL AVIATION AUTHORITY OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa

Contents

Photo: istockphoto.com/DanBrandenburg

See the CAA website for Civil Aviation Rules, advisory circulars, airworthiness directives, forms, and more safety publications. Visit aviation.govt.nz.

Every effort is made to ensure that the information in this booklet is accurate and up to date at the time of publishing, but numerous changes can occur with time, especially in regard to airspace and legislation. Readers are reminded to obtain appropriate up-to-date information.

Abbreviations

ACAS	Airborne collision avoidance system
AFIS	Aerodrome flight information service
AGL	Above ground level
AIPNZ	Aeronautical Information Publication New Zealand
AMSL	Above mean sea level
ATC	Air traffic control
ATS	Air traffic services
CAA	Civil Aviation Authority (of New Zealand)
CFZ	Common frequency zone
CTA	Control area
CTR	Control zone
DME	Distance measuring equipment
FIR	Flight information region
FIS	Flight information service
FL	Flight level (hundreds of feet)
GAA	General aviation area
GAP	Good Aviation Practice (booklet)
GPS	Global positioning system
H24	Hours: 24 (ie, permanent)
ICAO	International Civil Aviation Organization
IFR	Instrument flight rules
LFZ	Low flying zone
MBZ	Mandatory broadcast zone
MOA	Military operating area
NORDO	Non radio-equipped
NOTAM	Notice to Airmen
OCA	Oceanic control area
PLA	Parachute landing area
PSR	Primary surveillance radar
QNH	Altimeter sub-scale setting
RNZAF	Royal New Zealand Air Force
RPAS	Remotely piloted aircraft systems
SIGMET	Information concerning the occurrence or expected occurrence of hazardous weather conditions in a given airspace
SSR	Secondary surveillance radar
SVFR	Special visual flight rules
TM	Transponder mandatory airspace
UA	Unmanned aircraft
UNICOM	Universal communication service
VFR	Visual flight rules
VHZ	Volcanic hazard zone
VMC	Visual meteorological conditions
VNC	Visual navigation chart
VPC	Visual planning chart

Introduction

Controlled airspace and special use airspace are prescribed by the Civil Aviation Authority (CAA). Where the Director of Civil Aviation has determined that a portion of airspace requires an air traffic control service, it is designated as controlled airspace to protect IFR routes and procedures. Special use airspace can also be designated for a number of purposes. These may include facilitation of police operations, search and rescue operations, military activities, environmental and conservation purposes, and for major public events.

As you can imagine, airspace design is a complex undertaking that encompasses a wide array of international standards and procedures. These include safe approach and departure routes at major airports, while also enabling efficient en-route air navigation. The airspace must cater for a variety of aircraft performances, while also accounting for New Zealand's rugged, and sometimes restrictive, terrain.

To keep our skies safe, it's essential that all pilots, drone users included, have a sound knowledge of airspace, and that they are able to use aeronautical charts and airspace information effectively.

AIP New Zealand

The *Aeronautical Information Publication New Zealand (AIP)* is a collective name given to a number of publications relating to airspace and aerodromes.

These documents define the regulatory and airspace requirements to fly in New Zealand.

The AIP includes:

- *AIP New Zealand* Vols 1 to 4 (available online, www.aip.net.nz)
- AIP Supplements
- Air Navigation Register
- Visual navigation and planning charts
- En-route charts (for IFR).

NOTAMs (stands for Notices to Airmen) are notices issued about any change to airspace, aerodromes, or hazards, that require immediate notification.

The AIP is published for the CAA by Aeropath via the website shop.aeropath.aero, under a Part 175 certificate.

Visual aeronautical charts

For visual navigation, use the visual planning charts (VPCs) and the visual navigation charts (VNCs). Details of the current visual chart series are in *AIP New Zealand*, www.aip.net.nz. The table shows the scales of charts available, and their colour coding.

Pilots must carry and use the most up-to-date visual charts if they are operating VFR, or are IFR and conducting visual manoeuvres.

To purchase visual charts, see shop.aeropath.aero or tel: 0800 500 045.

Series	Scale	
A	1:1 000 000	A1 and A2 – VPCs to be used for planning purposes and for flight above 10,000 ft
B	1:500 000	B1 to B6 – VNCs covering the whole country, and most suited for cross-country navigation (less airspace information than the 1:250 000 scale).
C	1:250 000	C1 to C14 – VNCs covering the whole country, and most suited to low level and local navigation.
D	1:125 000	D1 and D2 – D1 Auckland Terminal, and D2 Christchurch Terminal, VNCs depicting a larger scale of the Auckland and Christchurch airspace.
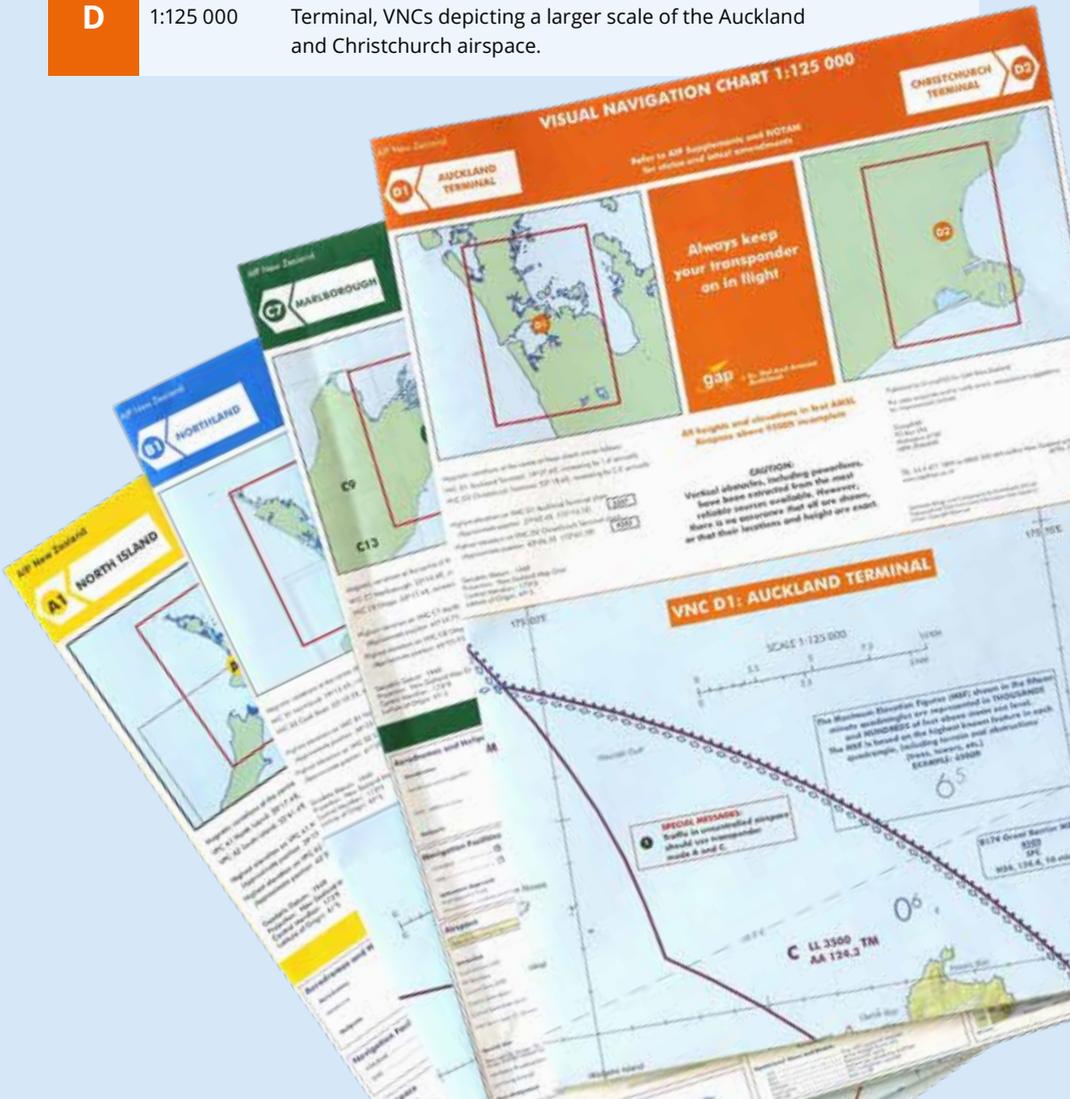
Designated airspace

All airspace is described by the CAA in the Air Navigation Register, a part of *AIP New Zealand*. The Air Navigation Register can be accessed free-of-charge on the *AIP New Zealand* website, www.aip.net.nz. The Register contains the geographic coordinates of various temporary and permanent airspace.

All designated airspace has a unique alphanumeric designator, as well as a name. All New Zealand airspace designators start with "NZ" followed by a letter indicating the type of airspace. Airspace used by other Pacific States within New Zealand's

area of responsibility is designated with that State's code, such as "NS" for Samoa. Following the letters are three numbers: the first signifies the briefing area the airspace is generally within, and the other two the airspace number.

For example: NZL663 is a low flying zone (LFZ) in Briefing Area 6. (The airspace designator is restricted to three digits, so in Briefing Area 10 the first number used is 7.)

Controlled aerodrome

A controlled aerodrome is an aerodrome with an aerodrome control service provided by Airways (New Zealand's air traffic service provider). A controlled aerodrome does not necessarily mean that controlled airspace also exists.

To learn more about the types of air traffic service provided, see page 26.

Controlled airspace

Controlled airspace is sometimes described as 'an upside down wedding cake', (see diagram). There are two types of controlled airspace: control zones (CTRs) – the bottom tier of the cake touching the surface of the earth – and control areas (CTAs) – the upper tiers. Controlled airspace is established to protect the flight paths and procedures of IFR aircraft (usually commercial flights).

Within controlled airspace, air traffic control (ATC) provides wake turbulence separation. For more on wake turbulence, see the CAA GAP Booklet *Wake Turbulence*.

New Zealand Briefing Areas

AIP New Zealand **Figure GEN 3.1-1**

■ **NEW ZEALAND FIR (NZZC)**

□ **AUCKLAND OCEANIC FIR (NZZO)**

Control area (CTA)

Control zone (CTR)

General aviation area (GAA)

VFR transit lane
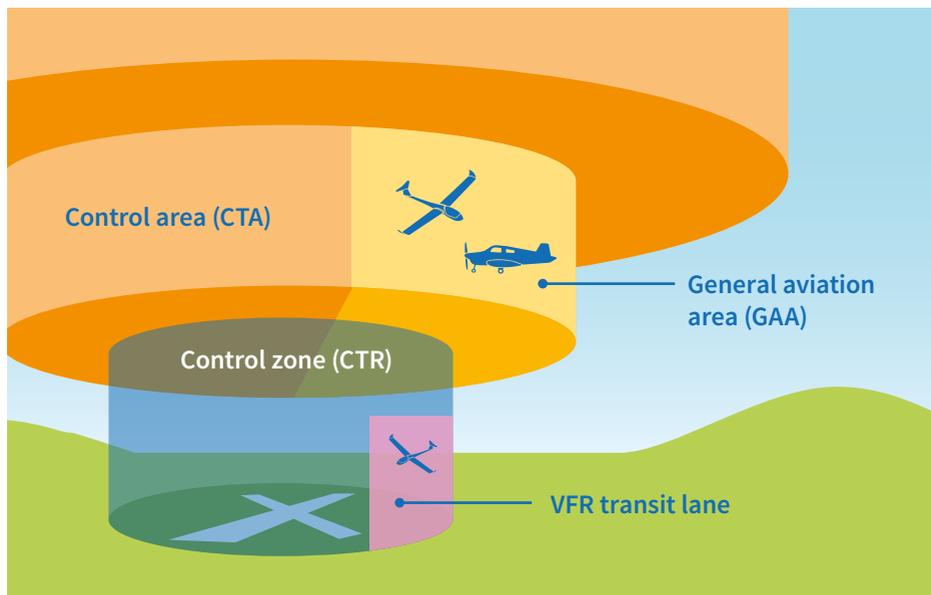
Control zones

Control zones (CTRs) protect arriving and departing IFR flights and are the only type of controlled airspace that touch the surface of the earth.

Within a CTR, *sectors* designed to facilitate air traffic management may be established. CTR sectors are depicted on C Series visual navigation charts, but not all CTRs have sectors. VFR aircraft may be given joining or departure instructions via one of these sectors. ATC can also instruct IFR aircraft on a visual approach or departure to use a sector.

At some CTRs there are published arrival and departure routes for VFR and IFR aircraft. For the VFR pilot, this information is found in *AIP New Zealand*, Vol 4 AD section, Aerodrome Charts.

Control areas

Control areas (CTAs) extend from a specified lower limit to a specified upper limit. Examples of CTAs include:

- CTAs that are established around one or more aerodromes and are designed to encompass the flight paths of controlled flights on instrument approaches or departures, and also encompass IFR en-route operations.

- Oceanic control areas (OCAs) that are normally established over the 'high seas'.

Pilots should be aware that not all instrument holding and arrival/departure tracks are contained within CTAs. Holding procedures and DME arcs normally provide a 1000-foot minimum terrain and obstacle clearance, but they do not always ensure that the flight is contained within controlled airspace.

As with CTRs, *sectors* may also be established within CTAs to aid air traffic management.

Airspace classification

In New Zealand, airspace is classified under the International Civil Aviation Organization (ICAO) airspace classification system. This system determines the level of air traffic service (ATS) that will be provided, and whether entry to that airspace requires an ATC clearance.

This level of service cannot be varied by ATC for any given class of airspace.

The following table shows the ICAO classes of airspace that are used in New Zealand, along with their operating restrictions.

There are seven ICAO classes of airspace, ranging from class A through to class G. Classes B, E, and F are not currently used in New Zealand.

Class A airspace

Class A airspace is used to accommodate high-level international air routes in the Auckland Oceanic Flight Information Region (FIR). IFR aircraft are separated from other IFR aircraft. VFR aircraft are not permitted in this airspace.

Class C airspace

Class C airspace is applied to: CTRs at large international aerodromes, associated CTAs, and en-route airspace covering principal domestic air routes. In this airspace, IFR and VFR traffic are separated from each other at all times. Within a CTR, IFR aircraft are separated from special VFR (operating below visual meteorological conditions) aircraft, and special VFR aircraft are separated from each other when visibility is less than 5 km.

Where separation is not being provided, air traffic controllers are required to pass appropriate traffic information to VFR aircraft about other VFR aircraft, or special VFR aircraft when visibility is less than 5 km. VFR aircraft, however, must maintain their own separation from each other.

All aircraft require an ATC clearance to be in Class C airspace.

Class D airspace

Class D airspace normally applies to CTRs and CTAs surrounding regional aerodromes, such as Rotorua and Nelson. IFR aircraft are separated from other IFR aircraft, but VFR aircraft are not separated from any IFR or other VFR aircraft.

Within a CTR only, during special VFR conditions, IFR aircraft are separated from special VFR aircraft, and special VFR aircraft are separated from other special VFR aircraft when visibility is less than 5 km.

Pilots of VFR and IFR aircraft operating within Class D airspace must use a good lookout to separate themselves from each other as ATC separation is not provided.

Classes C and D – general

An entry clearance is required to operate within Class C or D airspace. This is used as a 'gate' to ensure that all aircraft operating within such airspace are made known to the air traffic controller, and also for traffic management reasons (see *AIP New Zealand* ENR 1.4 for details).

Examples of circumstances where controllers may reasonably refuse an entry clearance may be:

- a lack of accurate position information from the aircraft
- inability of the controller and pilot to establish reliable two-way communication

- the number of aircraft already in the airspace has reached the capacity that ATC can handle, or
- during an emergency.

Any airspace entry delay or refusal for VFR aircraft should be reasonable and justifiable. VFR pilots, however, will not always be made aware of the air traffic causing a delay or refusal.

Class G airspace

Any airspace within the New Zealand FIR not otherwise classified, is Class G airspace. Class G airspace does not require an entry clearance. You must, however, observe Class G airspace rules (check *AIP New Zealand* ENR 1.4). En-route IFR and VFR aircraft should maintain a listening watch on the appropriate FISCOM frequency (see *AIP New Zealand* GEN 3.4) unless within an MBZ or CFZ. Note that Class G airspace is not shown on the aeronautical charts – in New Zealand it is essentially any airspace not labelled as A, C, or D.

Safe operation in Class G airspace depends on the 'see, detect, and avoid' principle. The Part 91 rules regarding visibility, height above terrain, and distance from cloud apply.

IFR aircraft are required to obtain traffic information before entering instrument meteorological conditions in Class G airspace. ATS will provide this traffic information, detailing other IFR aircraft in the area. On receipt, pilots are required to use traffic information to maintain sufficient spacing from these other aircraft.

Note: Controlled airspace reverts to uncontrolled Class G airspace when there is no ATC service being provided within that airspace. This happens to some airspace at night when the ATC unit is 'off watch'. ATC unit hours of service are in the AIP Supplements.

ICAO classes of airspace that are used in New Zealand

Class A

IFR flights only are permitted, all flights are provided with air traffic control service and are separated from each other.

Class C

IFR and VFR flights are permitted, all flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

Class D

IFR and VFR flights are permitted and all flights are provided with air traffic control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of all other flights.

Class G

IFR and VFR flights are permitted and receive flight information service if requested.

Transponder mandatory airspace

Transponder mandatory airspace (TM) is designated to assist ATC surveillance systems, such as radar, and airborne surveillance systems, such as ACAS (airborne collision avoidance system). Within transponder mandatory airspace, aircraft are required to have an operating transponder Mode A (identification and position) and Mode C (altitude). All controlled airspace in New Zealand is TM. Special use airspace may also be designated as TM, for example, portions of some MBZs (see page 18) are also TM. When required, ATC may give approval to enter controlled airspace without an operable transponder, or with a transponder where mode C is deselected.

Transponder mandatory airspace is indicated on visual navigation charts (VNCs) by the abbreviation TM.

VFR transit lanes

VFR transit lanes are portions of controlled airspace that are released as Class G airspace during daylight hours only. This is to allow VFR aircraft to transit within airspace not normally used by IFR aircraft.

No clearance is required to operate within VFR transit lanes when active. Although VFR transit lanes are separated from IFR procedures, it is recommended that pilots use their transponders if fitted, and use the lanes for transiting purposes only.

VFR transit lanes are depicted on VNCs with the designation Txxx.
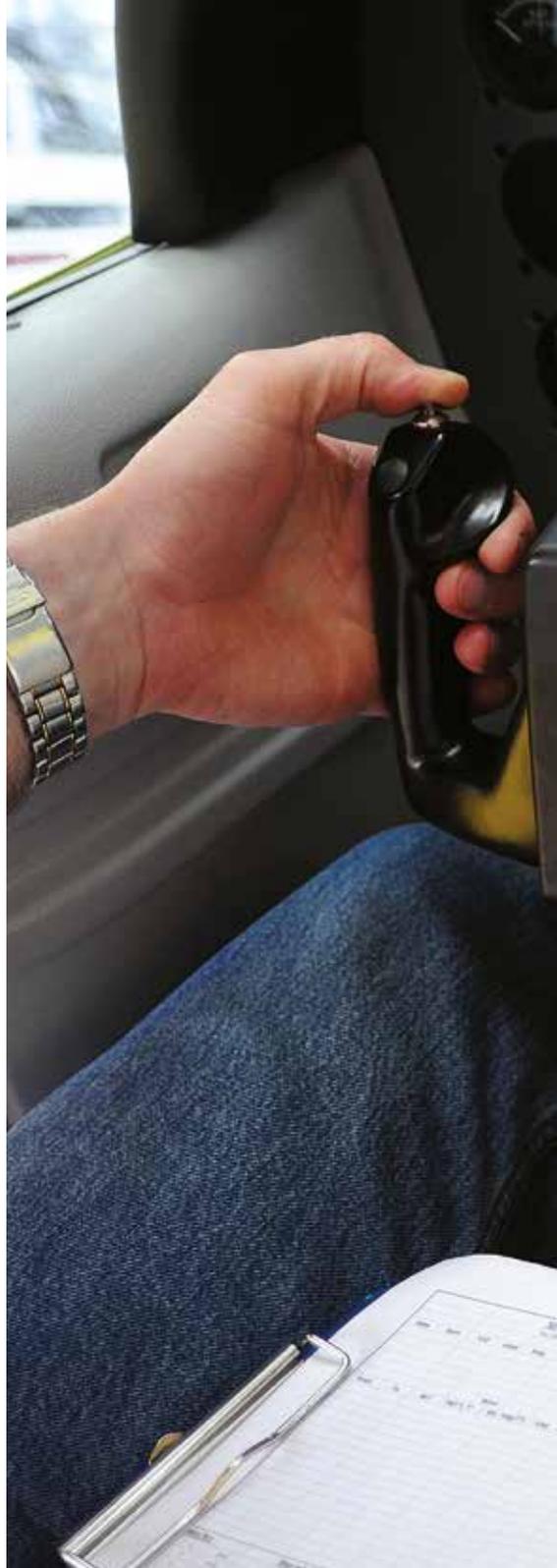
General aviation areas

General aviation areas (GAAs) are portions of controlled airspace which become Class G (uncontrolled) airspace under certain conditions. GAAs are available for use during daylight hours only. Be aware that GAAs may contain both powered and glider traffic, including training activity.

There are three types of GAA, distinguished by their manner of activation as follows:

- **Always active during daylight hours**
  You can use this type of GAA without requesting the use of this airspace from ATC or notifying them. These are indicated on the VNCs using the term "DAY".

- **By notification**
  These GAAs require that the appropriate ATC unit is notified by an airspace user in reasonable time prior to the area being activated. ATC must activate this form of GAA, but it may take up to 10 minutes to do so if there are IFR aircraft affected. These GAAs are indicated on the VNCs using the term "ATC notification".

- **Activation by approval**
  Prior approval from the appropriate ATC unit is required before these areas can be activated. It is recommended that pilots make their request well before the actual time they need to use the airspace, so that ATC have advanced notice to plan their air traffic management. These are indicated on the VNCs using the term "ATC approval".

For GAAs that are active by ATC approval, ATC may require entry and exit reports, or a report at a specified time. They may also require pilots to maintain a listening watch on the ATC frequency. If in doubt, confirm the

Altimeter showing QNH setting.

requirements with ATC. Other pilots wishing to use the GAA must seek approval from the ATC unit that activated the GAA.

When operating within a GAA, it is recommended that transponders be used in order to provide ATC units and ACAS-equipped aircraft with accurate position information. Powered aircraft should set an SSR code of 1200, and gliders 1300 on their transponders – unless the aircraft has a pre-assigned code from ATC.

ATC will not clear an IFR aircraft through an active GAA unless it is known the pilot is aware of the GAA, or the pilot requests it.

The ATC unit that activates a GAA may be able to provide some traffic information and advisories if time and workload permits. It is important to note, however, that the unit does not provide separation in an active GAA.

General aviation areas are depicted on VNCs with the designation Gxxx. High-level GAAs are also shown on the visual planning charts.

QNH zones

There are 11 QNH zones within New Zealand domestic airspace. A diagram of the QNH zone boundaries can be found in *AIP New Zealand* Figure ENR 1.7-2.

New Zealand QNH zones extend from the surface of the earth to 13,000 feet AMSL. They incorporate geographical areas that normally have similar barometric pressures. This enables en-route aircraft to use a single pressure setting, and means all aircraft in a given QNH zone should be using the same pressure setting.

When approaching an aerodrome traffic circuit, pilots should change to the aerodrome QNH if this is known.

General aviation pilots transiting area QNH zones are advised to request the area QNH information from the appropriate ATS unit.

New Zealand Area QNH Zones

AIP New Zealand Figure ENR 1.7-2

NORTHLAND

WAIKATO

MANAWATU

HAWKE'S BAY

WEST COAST

COOK STRAIT

CLARENCE

OHAU

FIORDLAND

CANTERBURY

OTAGO

Special use airspace

Special use airspace is made up of the following types of airspace:

- restricted areas
- military operating areas (MOA)
- danger areas
- volcanic hazard zones (VHZ)
- mandatory broadcast zones (MBZ)
- low flying zones (LFZ).

Special use airspace does not change the underlying classification of the airspace. For instance, an LFZ remains Class D airspace when it is contained within a Class D CTR, and an LFZ outside a CTR is Class G airspace. Special use airspace requirements, however, take precedence over the class of airspace where they coincide. For example, where an MOA overlaps controlled airspace the requirements of the MOA must be met first.

Restricted area

Most permanent restricted areas are conservation sites of importance to New Zealand's wildlife.

Temporary restricted areas can be designated when the Director considers it necessary in the interests of aviation safety, or security, or in the public interest.

For example, this can often follow a request by Police in an emergency.

Entry to a restricted area can be authorised only by the 'administering authority'. Restricted areas may have operational conditions imposed on pilots by the administering authority, and even on the administering authority itself by the Director. Their details can be found on the *AIP New Zealand* website, www.aip.net.nz, under Air Navigation Register.

Restricted areas are depicted on VNCs as Rxxx.

Restricted area

[NZ R...]

• **Enter only after authorisation from the administering authority**
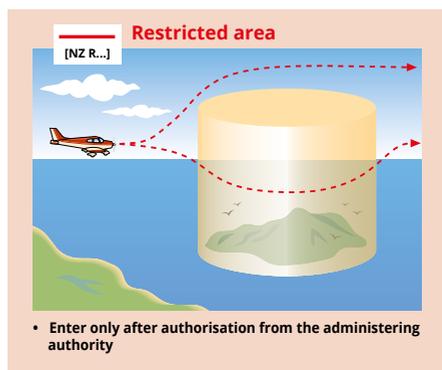
<< An albatross prepares for its first flight. The only mainland colony of albatrosses in the world lives at Taiaroa Head, at the tip of the Otago Peninsula. The royal albatross colony at Taiaroa is protected by a permanently active restricted area. Crown Copyright: Department of Conservation *Te Papa Atawhai*.

Military operating area (MOA)

As the name suggests, a military operating area is an area within which military operations, including live firing and the use of explosives, may take place. MOAs have the same entry and operational requirements as restricted areas:

- within New Zealand sovereign territory (12 nautical miles from the coastline), and

- within international airspace (for New Zealand registered aircraft).

Note that some MOAs are designated H24. This means 'permanently active', and unauthorised aircraft must remain clear at all times. Military operating areas are depicted on VNCs as Mxxx.

Military operating area (MOA)

[NZ M...]

- **Military exercises – including live firing**
- **Enter only after authorisation from the administering authority, if:**
  - **a New Zealand registered aircraft; or**
  - **any other aircraft within New Zealand territory**

Danger area

A danger area can be entered by aircraft only after careful consideration of the hazards present, such as live firing, model aircraft operations, etc. Danger areas do not have an administering authority, as there is no requirement to control access.

There is a 'using agency' responsible for the activity within the danger area, and their contact details are available in *AIP New Zealand* ENR 5.1. Our advice is to avoid danger areas, or alternatively ascertain the likely danger by contacting the appropriate agency. If you do enter a danger area, it will be at your own risk.

Temporary danger areas may be designated, and their details would be either in AIP Supplements or NOTAMs.

Danger areas are depicted on VNCs as Dxxx.
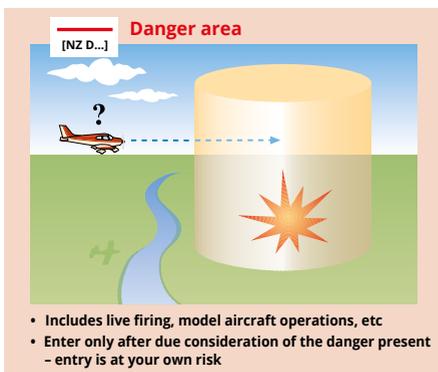
Danger area
[NZ D...]

• **Includes live firing, model aircraft operations, etc**
• **Enter only after due consideration of the danger present – entry is at your own risk**

Volcanic hazard zone (VHZ)

A volcanic hazard zone is designated where volcanic activity may be present. Aircraft are required to operate in visual meteorological conditions (VMC) by day only while in a VHZ in order to be able to observe any volcanic ejecta or ash plume. New Zealand's most active volcanoes (Mt Ruapehu, Mt Ngauruhoe, Mt Tongariro, White Island, and Raoul Island) have permanent VHZs.

VHZs are nominally set at Level 1 with a 3 nautical mile radius. When volcanologists change the alert to Level 2, the VHZ automatically increases to a radius of 8 nautical miles and an upper limit of FL150. This continues until Level 5 is reached with a full volcanic eruption, with a radius of 50 nautical miles and a height of FL660. This status is advised by NOTAM, and the full extent of any ash cloud is advised by SIGMET. Pilots must check this information before considering entering a VHZ.

Volcanic activity from normally dormant volcanoes may require temporary VHZ designation.

Volcanic hazard zones are depicted on the VNCs as Vxxx.

Volcanic hazard zone (VHZ)
[NZ V...]

• **Enter only in VMC by day**
• **VHZs can be increased in size by NOTAM depending on volcanic activity level**
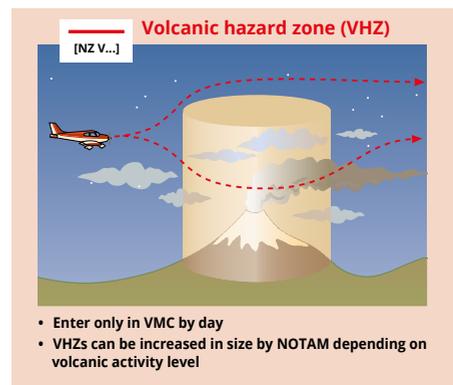
Mandatory broadcast zone (MBZ)

A mandatory broadcast zone is an area normally established at a busy uncontrolled aerodrome, or airspace that has intensive tourist operations. An MBZ requires a pilot to broadcast position, altitude, and intentions reports on a specified frequency on entry, when joining an aerodrome traffic circuit, prior to entering a runway, and at specified regular intervals when operating within the MBZ. As an extra safety measure, landing or anti-collision lights must be switched on, if fitted. Radio frequencies are on the appropriate charts.

Aircraft without an operable radio must not enter an MBZ unless another accompanying aircraft in formation can broadcast the required reports on their behalf. If the aircraft is entering an MBZ for the purpose of radio repairs, then another party such as a UNICOM unit may make the 'broadcasts on behalf'. Parachute dropping aircraft must broadcast on the MBZ frequency regarding parachuting when the landing area is within an MBZ.

Where applicable, a direct transmission to the AFIS operator is acceptable if the pilot wants information, and the AFIS operator will respond directly.

The AFIS operator will initiate direct transmission if necessary.

Mandatory broadcast zones are depicted on VNCs as Bxxx.

Mandatory broadcast zone (MBZ)

[NZ B...]

"...traffic – ABC – Position – Intentions"

- Broadcast position and intentions on entry, when joining the circuit, before entering a runway, and at specified intervals
- Anticollision and/or landing lights must be on if so equipped
- NORDO aircraft may enter only under special conditions
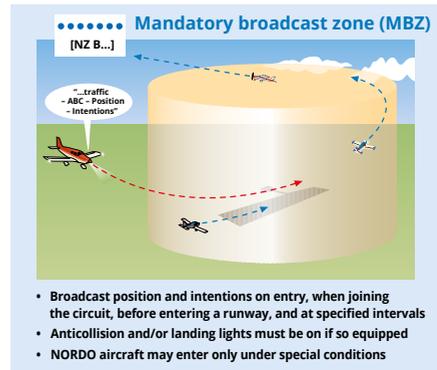
Paraparaumu is a well-known MBZ in the lower North Island, often an arrival and departure point for light aircraft flying to or from the South Island. It also has an aerodrome flight information service, see page 28 for more information.

Low flying zone (LFZ)

Low flying zones normally exist over flat areas, and extend from the surface of the earth to 500 feet AGL. They are prescribed to allow low-level flight training by a specified using agency. Normally, these are flight training organisations or aero clubs. The using agency is responsible for the LFZ and will have agreements in place with affected landowners.

If you wish to use an LFZ, you must obtain a briefing on the appropriate procedures from the using agency. An LFZ is not a restricted area, so the using agency cannot refuse access. However, rule 91.131 *Low flying zones* requires pilots to comply with using agency conditions of operations. If LFZ operating conditions are not respected, it may be disestablished. For this reason, and to be aware of all safety requirements, pilots must obtain a prior briefing from the specified using agency, particularly for solo flight within an LFZ. Before entering the LFZ, pilots are also required to broadcast details of the flight and the proposed duration.

Low flying zones are depicted on VNCs as Lxxx.

Military low-level flying

Military low-level flying down to 250 feet AGL may be conducted at any given time throughout the New Zealand FIR outside:

- controlled airspace
- aerodromes
- restricted areas
- LFZs
- AND, clear of built-up areas

and other such locations as identified in RNZAF low flying orders. At specific locations, military low-level flying may be conducted down to very low heights.

Low flying zone (LFZ)

[NZ L...]

- **Extends up to 500 feet AGL**
- **Obtain a briefing from the specified using agency before entering**
- **Broadcast intentions prior to entering and on exiting**
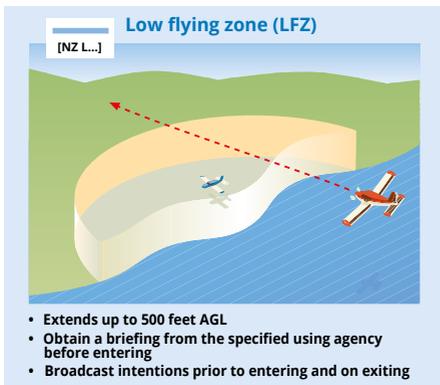
UA (drones and model aircraft)

They're commonly referred to as drones, but unmanned aircraft (UA) is the official International Civil Aviation Organization (ICAO) term for such aircraft. They are also referred to as remotely piloted aircraft systems (RPAS).

If you were to carelessly launch a drone from your backyard, there is a chance that you could be creating a hazard to manned aircraft, and people on the ground, as well as breaking airspace law.

A drone is an aircraft so you are a pilot. The Civil Aviation Rules relating to drones and model aircraft are known as 'Part 101'. Everyone must fly according to those rules.
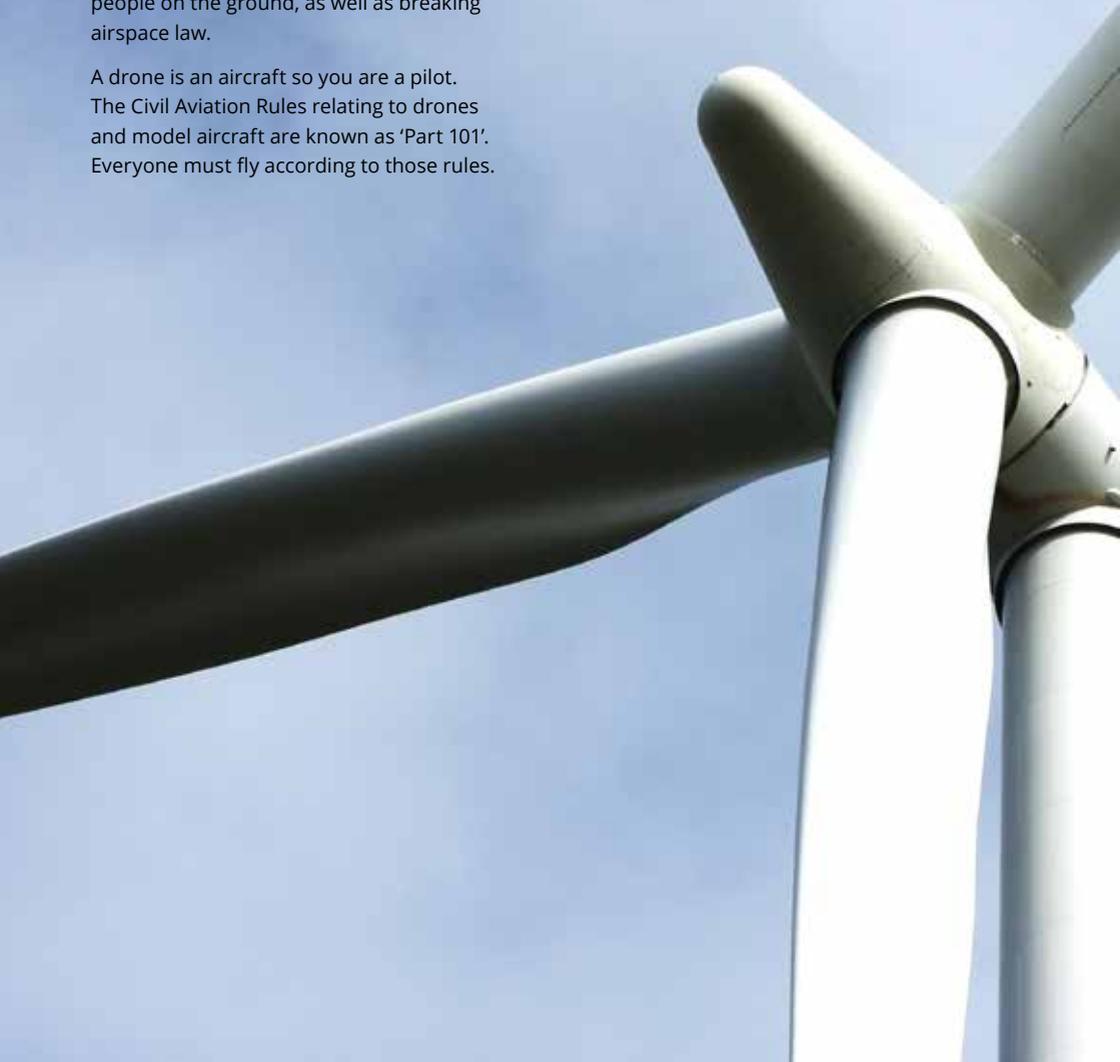
Consider others, be responsible

Always keep a respectful – and safe – distance from people and property.

- **Stay a safe and considerate distance away** from people and buildings.
- **Don't fly directly over people**, unless they say it's OK.
- **Don't fly over private land**, such as farms or houses, unless the owner says it's OK.
- **Check** with the local council or the Department of Conservation **before flying in public areas** such as parks, beaches and reserves.
- **Keep your drone in sight at all times** – fly only in daylight and when the visibility is good – stay clear of fog and cloud.
- **If you see another aircraft, stay well clear of it and land immediately.**

Know the no-fly zones

It's dangerous to fly drones anywhere other aircraft are operating.

- **Stay 4 km away from anywhere aircraft are landing or taking off** – including helipads at hospitals and those used by sightseeing aircraft.
- **Be aware that controlled airspace around airports extends well beyond the 4 km limit** – you must have clearance from air traffic control to operate in that area.
- **Don't fly in special use airspace**, such as low flying zones, danger, restricted or military operating areas.
- **Fly no higher than 120 m (400 ft) above the ground** – this keeps your drone below the height of other aircraft.

To see a map of these no-fly zones, or to apply for a clearance to fly your drone within controlled airspace, go to www.airshare.co.nz.

<< You need to be constantly thinking about the environment your drone is flying in and what you're going to do if something goes wrong. Pictured: Aeronavics' SkyJibX4 flying beside a wind turbine. Photo courtesy of Aeronavics.

Preflight checklist

Like any pilot, you need to do a preflight check.

1. **Check the tech**
   Make sure the battery is fully charged and all drone components are secure and undamaged.

2. **Scan the land**
   Your flying area must be clear of people, animals, or anything that might cause problems, such as powerlines. Get permission if you plan to fly over people or private property, or stay well away.

3. **Eyes on the drone**
   You must always be able to see your drone. Fly it no higher than 120 m (400 ft) above ground level, and only in daylight, avoiding cloud or fog.

4. **Check for no-fly zones**
   There are many areas you can't fly a drone, such as zones that extend around airports. Know where you're allowed to fly, and where you need to ask for clearance first.

5. **Be ready to land**
   If you see another aircraft, or an emergency situation unfolding, immediately land your drone.

Training

Get some training to help you better understand how to fly within the group of Civil Aviation Rules known as 'Part 101'.

If you can't fly your drone according to these rules, you must get an Unmanned Aircraft Operator Certificate under 'Part 102'.

Find more information about how to get that certificate, and a list of approved training organisations at aviation.govt.nz/drones.

More information about flying your drone

Take a look at our drones microsite flyyourdrone.nz – it includes videos and a preflight checklist.

There are some exceptions to the rules outlined there.

The full rules are at aviation.govt.nz/drones.

Be aware if you breach New Zealand Civil Aviation Rules while flying your drone you could face disciplinary action including prosecution.

To contact the CAA for advice – drones@caa.govt.nz.

>> Photo: istockphoto.com/smckenzie

Useful resources

To be notified about any changes or updates to the rules in Part 101 and 102, go to our Email Notification Service: notifications.caa.govt.nz.

On the same page, you can also subscribe to receive a notification when our safety magazine *Vector* is published on the website.

Visual navigation charts are the official charts that show New Zealand airspace. You can buy them from Aeropath via the website shop.aeropath.aero.

For aerodrome contact details, see the aerodrome charts on the *AIP New Zealand* (AIP) website, www.aip.net.nz. On that website, you can also view airspace that has been designated for model flying, along with other special use airspace you need to avoid, see ENR 5.1 *Prohibited, Restricted, and Danger Areas*.

Model Flying NZ, modelflyingnz.org, is the longest-established model flying organisation in New Zealand. Contact them for information about having a 15 to 25 kg aircraft inspected and approved to fly; and about gaining the qualification to fly less than 4 km from an aerodrome.

Non-designated airspace

Common frequency zone (CFZ)

In certain areas of New Zealand, common frequency zones have been established. These areas are not designated airspace, but they are where voluntary common frequencies have been established in order to enhance safety. CFZs signify areas of concentrated aviation activity, generally recreational aviation.

Common frequency zone (CFZ)

[NZ C...]

"...traffic
– ABC – Position
– Intentions"

• **Broadcast position and intentions if radio equipped**
• **Anticollision and/or landing lights should be on if so equipped**
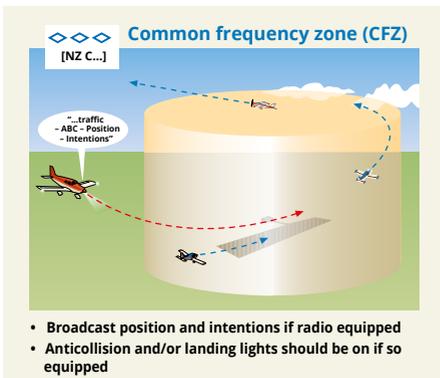
It is not mandatory to use a radio on the specified frequency within a CFZ, but it would be very poor airmanship not to use the published frequency and not to comply with expected local radio procedures when radio equipped. As a minimum, pilots should broadcast their position and intentions on entry and exit from a CFZ.

Use of landing and/or anti-collision lights is also a recommended practice within a CFZ.

CFZs are depicted on VNCs by use of the abbreviation CFZ and a diamond-shaped boundary marking.

Parachute landing area (PLA)

Parachute landing areas indicate the main (but not the only) landing area for major parachuting operations. Any portion of airspace near an active PLA should be treated as a danger area – enter at your own risk – and pilots should always be on the lookout for parachutists, particularly on the upwind side of the PLA. The area of danger will vary with the prevailing wind and parachuting task, but it can be as much as three nautical miles from the PLA.

Busy PLA sites often have special procedures that other aircraft must be aware of. Examples are: Parakai and Taupō, where it's recommended that pilots should not conduct overhead joins because of the incompatibility of this manoeuvre with parachuting.

Parachute landing area (PLA)

?

• **Treat the airspace near an active PLA (especially upwind of the PLA) like a danger area – enter at your own risk**
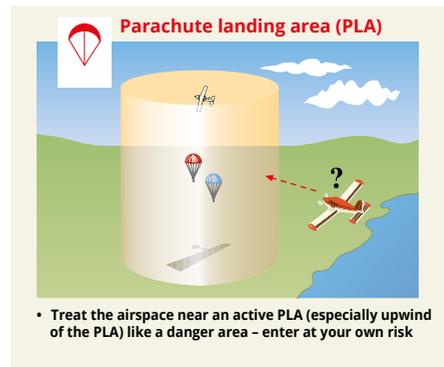
>> For every aerodrome you fly to, check the *AIP New Zealand* aerodrome charts and the VNCs for parachute landing areas along your intended track. Always read the notes below the AIP graphic, as busy PLA sites will often be accompanied by special procedures. Photo courtesy of Skydive Wanaka.

Aircraft flying near PLAs should take care to ascertain whether the PLA is active by listening on the appropriate frequency – as listed in *AIP New Zealand* ENR 5.3, or indicated on the VNCs. This frequency will usually be the aerodrome frequency, unless the parachute dropping is in controlled airspace.

ATC approval for parachuting in controlled airspace is required, and therefore other aircraft on the ATC frequency will be advised of this operation.

Parachute landing areas are depicted on VNCs by a parachute symbol and the code Pxxx.

Air traffic services

There are three main types of air traffic service (ATS) units in New Zealand:

- Air traffic control (ATC) – which includes aerodrome control; approach control procedural; approach control surveillance; area control procedural; and area control surveillance
- Aerodrome flight information service (AFIS)
- Area flight information service (FIS).

All of these services provide an alerting service and a flight information service to aircraft known to the unit.

You may request emergency assistance at any time (even if you have had no previous contact with an ATS unit) – do not hesitate to call if you experience any type of inflight problem.

Air traffic services in New Zealand are currently provided by Airways, www.airways.co.nz.
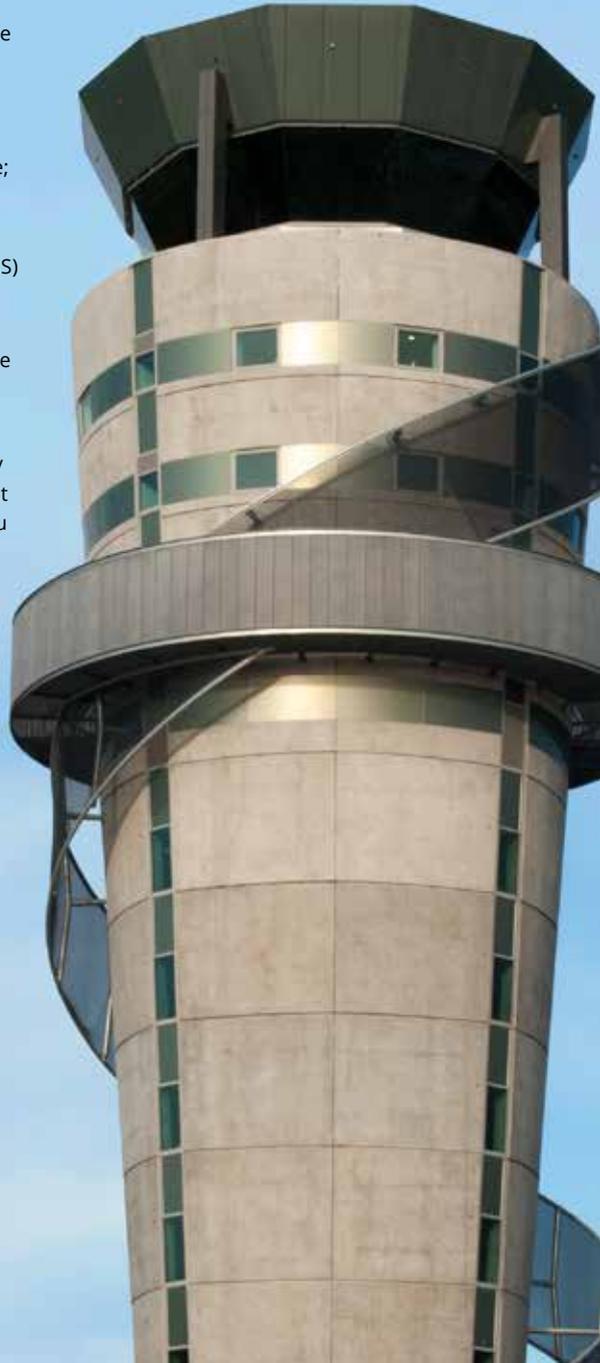
Air traffic control units

An aerodrome control tower is the most visible ATC facility, and is located on, or overlooking, an aerodrome.

Aerodrome control provides an ATC service for aerodrome traffic within the vicinity of the aerodrome and on the manoeuvring area of a controlled aerodrome, primarily using visual observation of the aerodrome and circuit.

Approach control is responsible for arriving and departing flights in control zones and control areas.

Area control is responsible for en-route traffic in control areas.

Only ATC units provide an air traffic control service for the purpose of preventing collisions. ATC provides control, flight information and alerting services simultaneously. An example would be a VFR aircraft joining a controlled aerodrome where other VFR aircraft are operating in the circuit. The joining aircraft would normally be given:

- circuit joining instructions (as part of an ATC service)
- relevant information on other traffic in the vicinity (as part of a flight information service)
- activation of aerodrome emergency services if necessary.

A pilot is responsible for avoiding a collision with other aircraft while complying with ATC instruction and sighting information. An aerodrome controller is required to maintain a visual watch of aerodrome traffic and to prevent collisions by issuing instructions, clearances, and traffic information to achieve a safe and orderly flow of air traffic to form an aerodrome traffic circuit.

Beyond the aerodrome traffic circuit, ATC issues traffic information to help the pilot see and avoid other aircraft in accordance with the level of air traffic control service provided in a particular class of airspace:

- Class C – traffic information for VFR aircraft about other VFR aircraft, or special VFR aircraft when the visibility is greater than 5000 m.
- Class D – traffic information about both IFR and VFR aircraft, or special VFR aircraft when the visibility is greater than 5000 m.

<< Control towers are the most visible ATC facility, and they are located on, or overlooking, aerodromes. They provide an ATC service within the vicinity of the aerodrome, primarily using visual observation of the aerodrome and circuit.

Aerodrome, approach, and area control are separate ATC services, but ATC positions may provide one or more functions:

- Approach control may be combined with aerodrome control at some ATC units in an aerodrome control tower.

- Approach control may be provided as a separate position at a control tower.

- Approach control services may be provided from an area control centre.

- Approach and area control services may be combined and provided from a sector within a centre.

- Approach and area control services may use surveillance (eg, radar) systems to provide a surveillance service to traffic.

- In New Zealand, surveillance service is provided by either:

  - Primary surveillance radar – uses radar echoes to detect position.

  - Secondary surveillance radar – uses aircraft transponders to respond to ground equipment interrogation and identify aircraft. This equipment is able to use transmitted information to ascertain the aircraft altitude if the aircraft transponder is selected to 'Altitude Mode/Mode C'.

  - Automatic dependent surveillance – broadcast (ADS-B) – an aircraft determines its position via satellite navigation and periodically broadcasts it, enabling it to be identified and tracked. The information can be received by ground stations as a replacement for secondary radar.

  - Multilateration (MLAT) – series of ground stations which uses the responses from all types of aircraft transponders to calculate aircraft position by triangulating the difference in time of receipt from the signals at the ground stations. MLAT facilitates gap fill surveillance for area control above Queenstown environs, and surface movement control in low-visibility conditions at Auckland International Airport.

Primary surveillance radars (PSRs) located at Auckland, Wellington, and Christchurch give limited coverage depending on terrain and altitude. The secondary surveillance radar (SSR) network covers much of the North Island and the north and east of the South Island. For up-to-date coverage maps, see *AIP New Zealand* ENR 1.6.

Aerodrome and area flight information services

An aerodrome flight information service (AFIS) provides information to aerodrome traffic, such as the preferred runway, weather conditions, and traffic information. Information passed to the pilot by an AFIS is not an instruction or a clearance – it is issued to enhance safety. Milford Sound is an example of an aerodrome where such information is important.

Pilots should not confuse AFIS units with a UNICOM station (present at Ardmore aerodrome) or a base radio. Of these three, only an AFIS can provide traffic information determined by the observations of the AFIS operators themselves. UNICOM may not interpret aircraft information and therefore may only relay information from pilot or aircraft operator reports. AFIS operators are required to maintain a watch during their hours of service to ensure a high integrity of data.

The area flight information service is located in the Christchurch ATS Centre. The primary task of this service is to provide alerting

and flight information (eg, weather updates, aerodrome and traffic information) to pilots around the country as required. Not all of these services are automatically provided to aircraft on a flight plan, but they are available on request.

The VNCs show the various frequencies used throughout the country to contact area flight information service as FISCOM CH INFO.

Assistance

Remember, if you ever get into difficulties in the air, air traffic services are always there to help.

They can provide assistance in locating aircraft that may be overdue or missing. If the aircraft had its transponder operating and was within surveillance coverage, it may be possible to trace the aircraft track, reducing time to find the missing aircraft.

Air traffic services are there for the safe and orderly flow of all air traffic. In New Zealand, there is a very good standard of ATC as a result of the combined efforts of ATC staff and pilots. We recommend that all pilots take the time to visit their local control tower and take a look at what it's like from the 'other side'.

From time to time, should a mistake or error happen that involves airspace, an investigation may take place where you could be asked to "contact the tower or supervisor". Remember that the first priorities will be safety and education. We all need to work together to keep our skies safe.

Queenstown tower. Photo courtesy of Airways.

Conclusion

Take some time to familiarise yourself with the charts and have a good look through the ENR section about airspace in *AIP New Zealand*, Vol 1. Remember that you need to have the current charts with you when flying. Make a habit of checking your new charts for airspace changes when you receive them, and always thoroughly read the AIP Supplements and NOTAMs that might be applicable to your flight.

Remaining familiar with the structure and operation of airspace will help ensure that your next flight will be a safe, relaxed and expeditious one.

Airspace poster

A poster, *New Zealand Airspace*, is available from the CAA to help you quickly recall the basics as often as you need to.

For a free copy, email: publications@caa.govt.nz.

Radio phraseology

Communication between pilots and air traffic services is referred to throughout this booklet. Radio calls that are clear, concise and correct are essential to good communication.

We recommend that you study Advisory Circular AC91-9 *Radiotelephony Manual*, and the CAA GAP booklet *Plane Talking*.

>> *New Zealand Airspace* poster

Useful websites

CAA	Rules, ACs, etc	aviation.govt.nz
AIP New Zealand	Aeronautical information	www.aip.net.nz
AIP Shop / Aeropath	Aeronautical charts	shop.aeropath.aero
Airways NZ IFIS	Flight planning, NOTAMs, etc	ifis.airways.co.nz
MetFlight GA	General aviation weather	metflight.metra.co.nz
airshare™	Airways' drone information hub	www.airshare.co.nz

NEW ZEALAND AIRSPACE

Special Use Airspace

⊘ Authorisation Required

Restricted Area
[NZR...]
- Enter only after authorisation from the administering authority

Military Operating Area (MOA)
[NZ M...]
- Military exercises – including live firing
- Enter only after authorisation from the administering authority, if:
  - a New Zealand registered aircraft; or
  - any other aircraft within New Zealand territory

? Hazardous Areas

Danger Area
[NZD...]
- Includes live firing, model aircraft operations, etc
- Enter only after due consideration of the danger present – entry is at your own risk

Volcanic Hazard Zone (VHZ)
[NZV...]
- Enter only in VMC by day
- VHZs can be moved and in size by NOTAM depending on volcanic activity level

Always refer to the *AIP New Zealand* and the Civil Aviation Rules for current requirements.

Operational Requirements

Mandatory Broadcast Zone (MBZ)
[MBZ...]
- Broadcast position and intentions on entry, when joining the circuit, before entering a runway, and at unspecified intervals
- Anticollision and/or landing lights must be on if so equipped
- NORDO aircraft may enter only under special conditions

Low Flying Zone (LFZ)
[LFZ...]
- Extends up to 500 feet agl
- Obtain a briefing from the specified using agency before entering
- Broadcast intentions prior to entering and on exiting

Non-designated Airspace

Common Frequency Zone (CFZ)
[NZC...]
- Broadcast position and intentions if radio equipped
- Anticollision and/or landing lights should be on

Parachute Landing Area (PLA)
[NZP...]
- Treat the airspace near an active PLA (especially upwind of the PLA) like a danger area – enter at your own risk

For further information, including a section on drones, see the GAP booklet, *New Zealand Airspace*.

Airspace Requirements

Controlled Airspace

	Class A	Class C	Class D
IFR			
Aircraft radio required	✓	✓	✓
Entry clearance required	STOP	STOP	STOP
ATC separation provided	✓	✓	✓
Traffic information provided			i
Speed limitations		Below 10,000 ft – 250 knots max	Below 10,000 ft – 250 knots max
VFR			
Aircraft radio required	⊘	✓	✓
Entry clearance required		STOP	STOP
ATC separation provided		✓	
Traffic information provided		i	i
VFR visibility minima		2 km / 8 km / 5 km	2 km / 8 km / 5 km
VFR distance from cloud minima		1000 ft	1000 ft
Speed limitations		Below 10,000 ft – 250 knots max	Below 10,000 ft – 250 knots max

At or above 10,000 ft AMSL. Below. Vertically (above or below). Horizontally.

Uncontrolled Airspace

	Class G
IFR	
Aircraft radio required	✓
ATC separation provided	
Traffic information provided	i (When practicable)
Speed limitations	Below 10,000 ft – 250 knots max
VFR	
Traffic information provided	i (On request) (When practicable)
VFR visibility minima	8 km / 5 km / 2 km
VFR distance from cloud minima	1000 ft / Clear of cloud
Speed limitations	Below 10,000 ft – 250 knots max

Uncontrolled airspace includes VFR Transit Lanes and General Aviation Areas when active by day

At or above 10,000 ft AMSL. Below. Above 3000 ft AMSL or 1000 ft AGL whichever is higher. At or below 3000 ft AMSL or 1000 ft AGL whichever is higher. Vertically (above or below). In sight of surface.

KEY

- ✈ = IFR
- ✈ = VFR
- ✈ = SVFR — Below VFR minima within control zone only
- 📻 = Flight Information Service
- 📻 = Aircraft radio required
- 📻 = ATC service
- STOP = Entry clearance required
- ↕ = ATC separation provided
- i = Traffic information provided
- 👁 = Visibility

VFR minima at aerodromes within a control zone [CAR Part 91]

	CEILING	VISIBILITY
C **D**		
DAY	1500 ft	5 km
NIGHT	1500 ft	5 km

VFR minima in uncontrolled airspace [CAR Part 91]

	CEILING	VISIBILITY
G		
DAY	600 ft	1500 m
NIGHT	1500 ft	8 km

CIVIL AVIATION AUTHORITY OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa

GAP

Good Aviation Practice

See the CAA website for Civil Aviation Rules, advisory circulars, airworthiness directives, forms, and more safety publications.

To request publications such as GAPs and posters email: publications@caa.govt.nz.

aviation.govt.nz

New Zealand airspace
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