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AGENCY OF JAPAN

CURRENT STATUS OF GLOBAL IMAGER (GLI)

SATELLITES

地球観測衛星計画

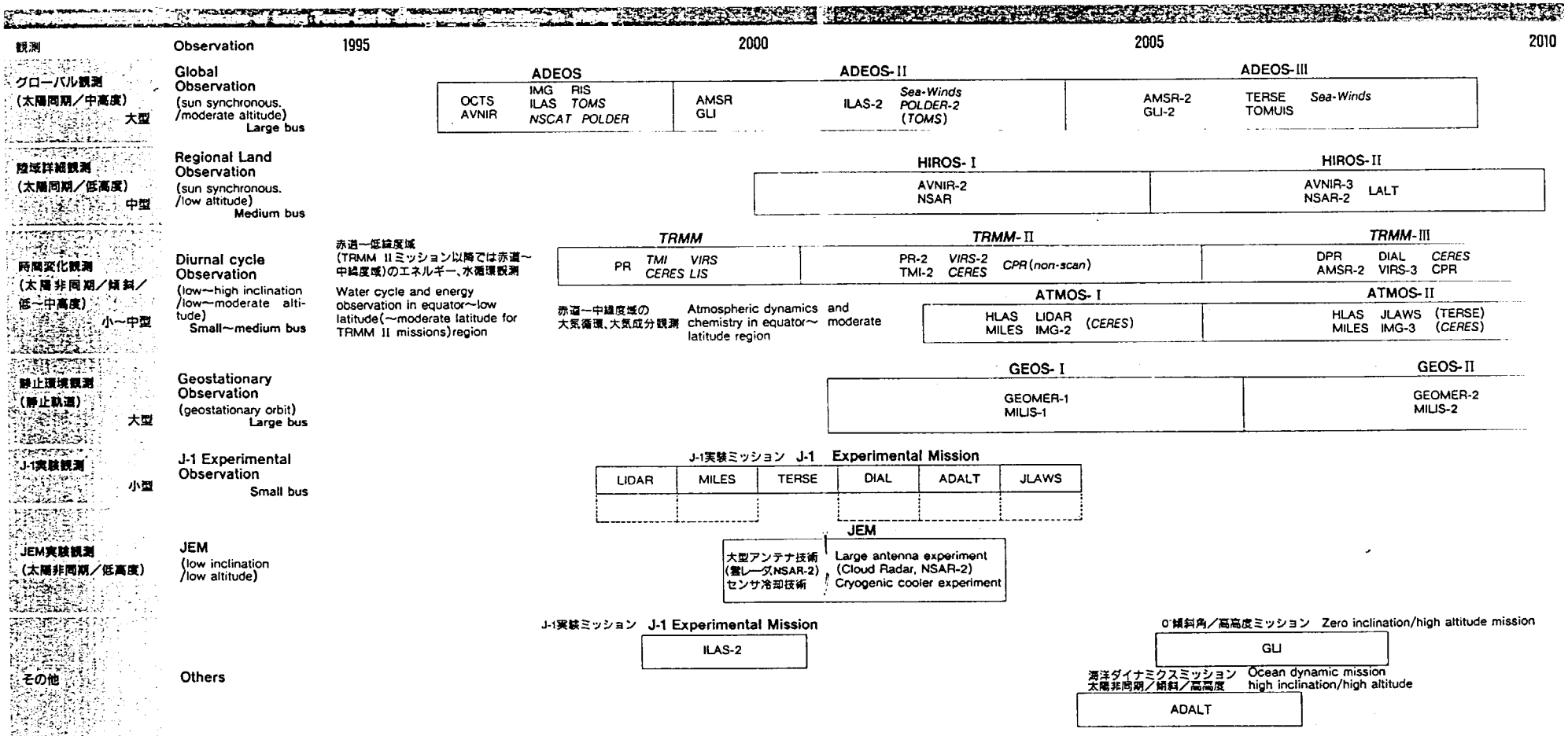
現在から2010年までに必要な観測センサを適切な軌道に打上げるための日本の地球観測衛星計画を立案しています。

この地球観測衛星計画を立案する上で、観測センサのミッションと研究開発状況とを考慮しました。

今後は、世界各国の地球観測衛星計画と調整を図り、最適な計画にしていく予定です。

We plan a Japanese Earth observation program in which needed sensors will be put into suitable orbits from now to 2010. In order to plan this program, we considered the mission and the status of observation sensors R & D.

We seek to develop the most suitable which will complement other countries observation programs.



※-2、-3等は、同等、もしくは改良を施した同型後継センサであることを示す　　Italic：外国衛星もしくは外国センサ

表中の衛星名、センサ名はテンポラリなものであり今後、国際調整等を踏まえ、決定する

※-2、-3 etc. Same one or improved　　Italic : International cooperation

The names of satellites and sensors are temporary

CPR : Cloud Profiling Radar

GEOMER : GEOstationary Meteorological and Environmental Radiometer

LALT : Laser ALTimeter

MILIS : MILImeter Sounder

(参考資料: FY4 地球環境観測委員会報告書、
REFERENCE: '92 Earth Environment Observatic

Outline of ADEOS-II Program

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2. Characteristics

NASDA instruments

- **AMSR** (Advanced Microwave Scanning Radiometer)
- **GLI** (Global Imager)
- **DCS** (Data Collection System)

Other agency instrumens (Updated base line)

- **ILAS-II** (Improved Limb Atmospheric Spectrometer:JE
- **SeaWinds** (Modified NSCAT : NASA/JPL)
- **POLDER**
  (Polarization and Directionality of the Earth's Reflectances:CNES)

Main Characteristics of ADEOS-II S/C (Phase-A+ Baseline)

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Total Weight	Approx. 3.5 ton
Mission Payload	Approx. 1.2 ton
Generate Power	5.0kW at EOL (Approx. 1.2kW for mission instruments)
Life	3 years design (5 years fuel)
Orbit	Sun Synchronous Subreccurent
Altitude	Approx. 802.92 km
Inclination	Approx. 98.62 deg
Period	Approx. 101 min
Recurrent Period	4 days
Local time	AM 10:30 ± 15min

SCANNING CONCEPT

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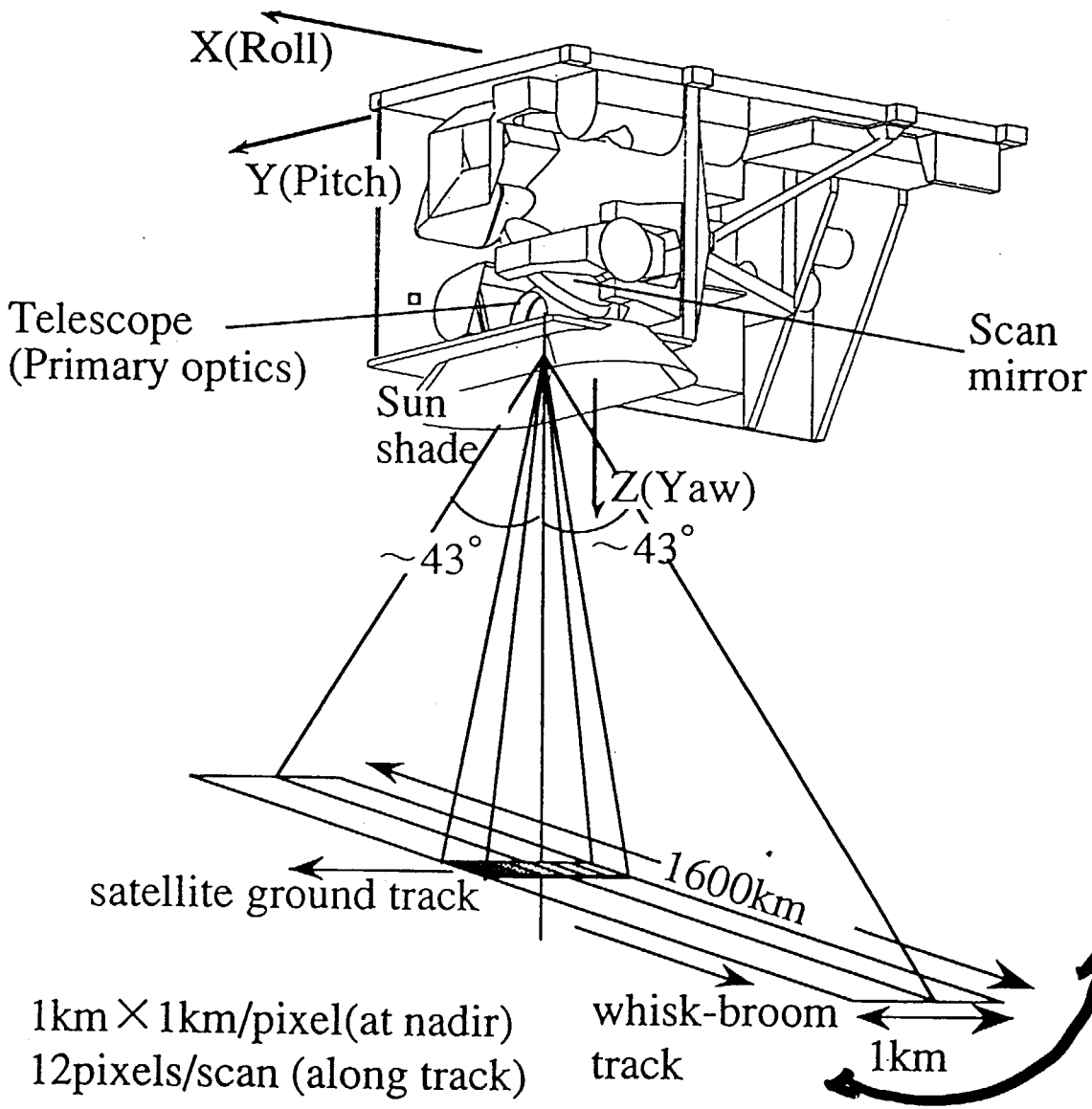

GLI

MISSION REQUIREMENT(VIS.&NIR)

	wave length	Δλ	IFOV	S/N	A/D
	nm	nm	m		
1	380	10	1000	>600	12
2	400	10	1000	>800	12
3	412	10	1000	>800	12
4	443	10	1000	>800	12
5	460	10	1000	>800	12
6	490	10	1000	>800	12
7	500	10	1000	>800	12
8	520	10	1000	>800	12
9	545	10	1000	>800	12
10	565	10	1000	>800	12
11	600	10	1000	>800	12
12	625	10	1000	>800	12
13	667	10	1000	>800	12
14	678	10	1000	>800	12
15	710	10	1000	>800	12
16	748	10	1000	>800	12
17	760	10	1000	>800	12
18	865	10	1000	>800	12
19	465	70	250	>200	12
20	550	60	250	>200	12
21	660	60	250	>200	12
22	830	140	250	>200	12

** underline:piecewise linear*

MISSION REQUIREMENT(SWIR&MTIR)

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	wave length	Δλ	IFOV	S/N	A/D
	nm	nm	m		
23	1050	20	1000	>TBD	12
24	1240	20	1000	>74	12
25	1400	50	1000	>TBD	12
26	1650	200	250	>109	12
27	2215	270	250	>105	12

	wave length	Δλ	IFOV	NEΔT	A/D
	μm	μm	m	K	
28	3.715	0.33	1000	<0.1	12
29	6.7	0.5	1000	<0.1	12
30	7.0	0.5	1000	<0.1	12
31	7.3	0.5	1000	<0.1	12
32	8.3	0.5	1000	<0.1	12
33	10.85	1.1	1000	<0.1	12
34	11.95	1.1	1000	<0.1	12

CURRENT SCHEDULE OF ADEOS-II & GLI

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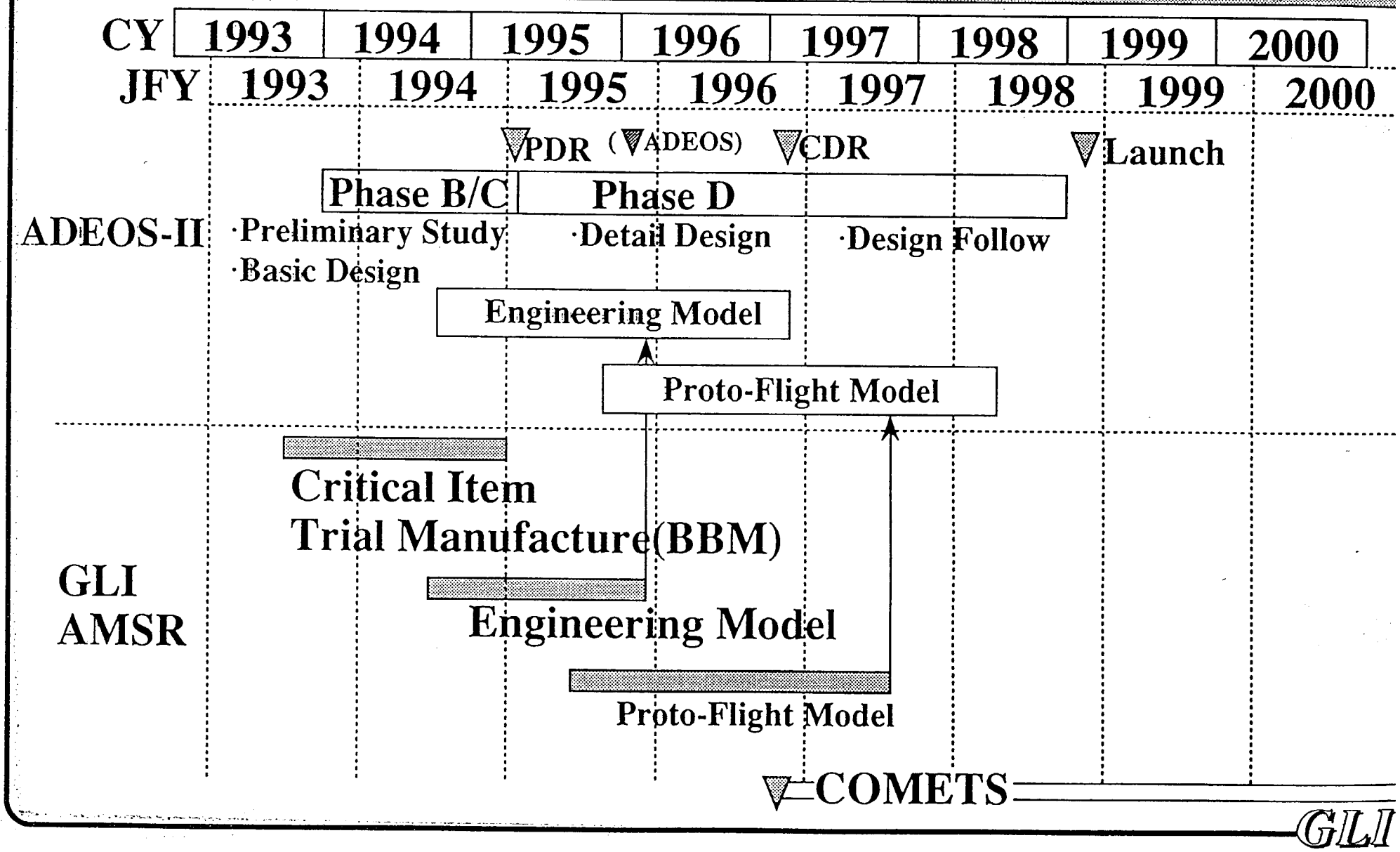

ADEOS-II SATELLITE PROJECT ORGANIZATION

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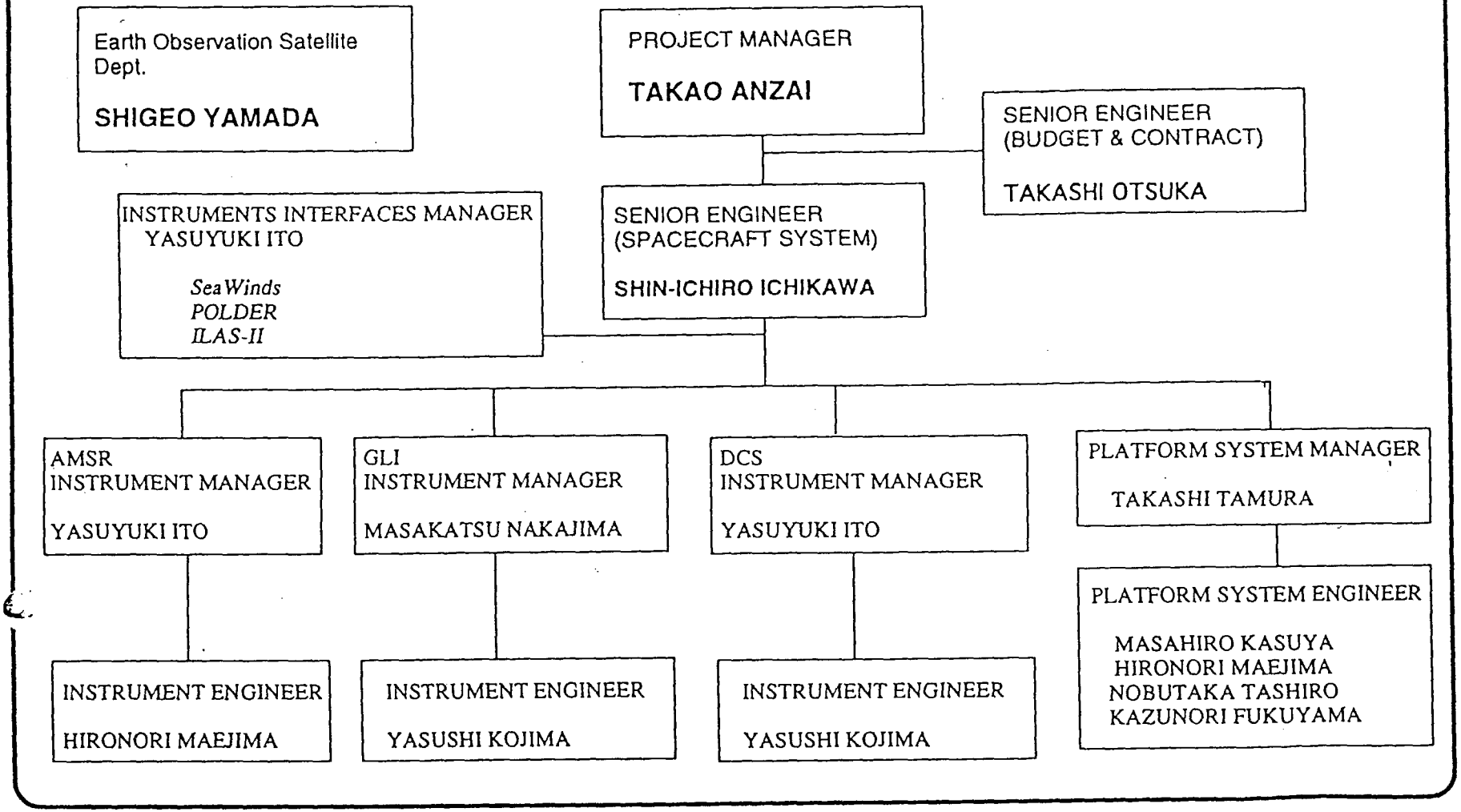
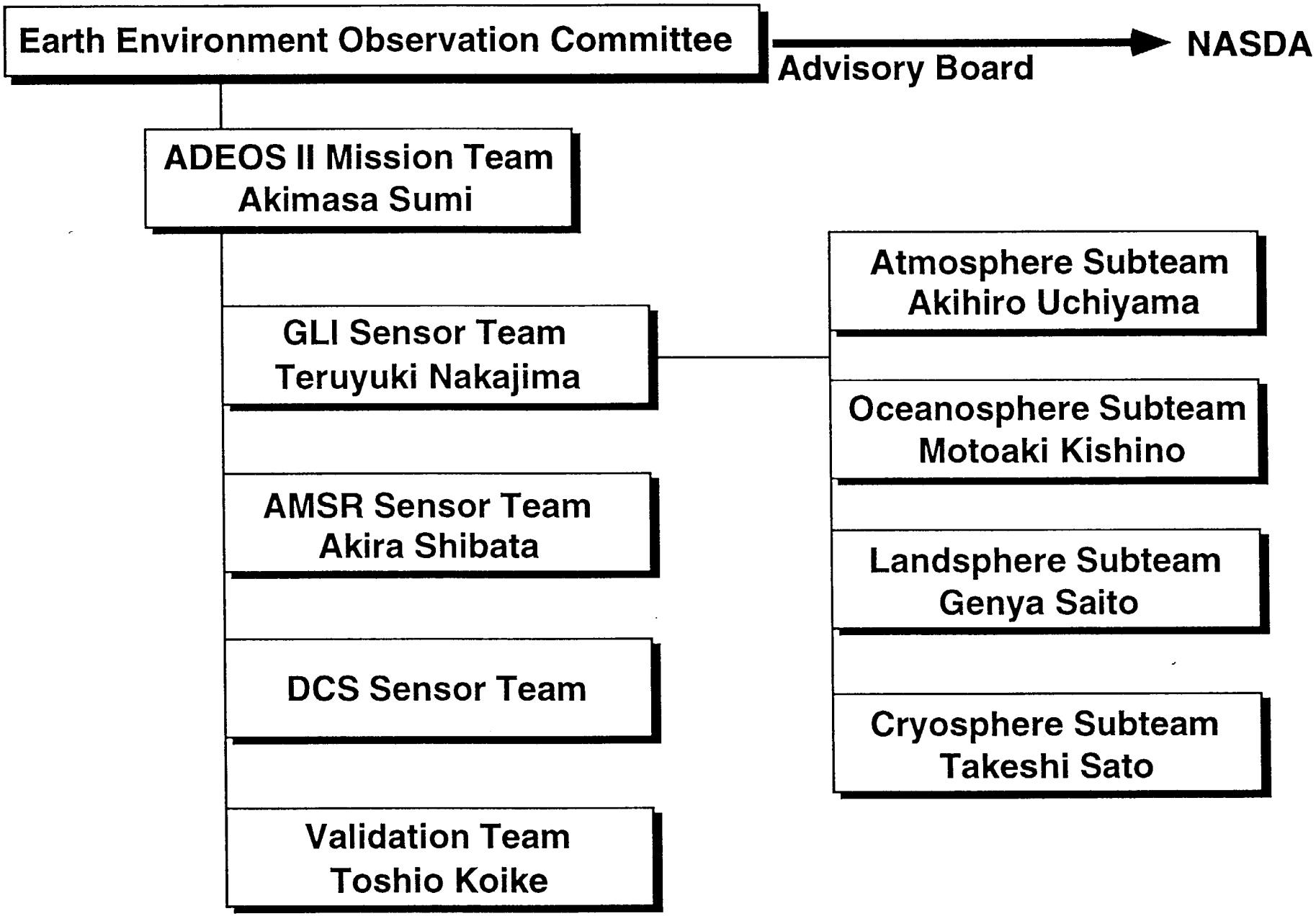
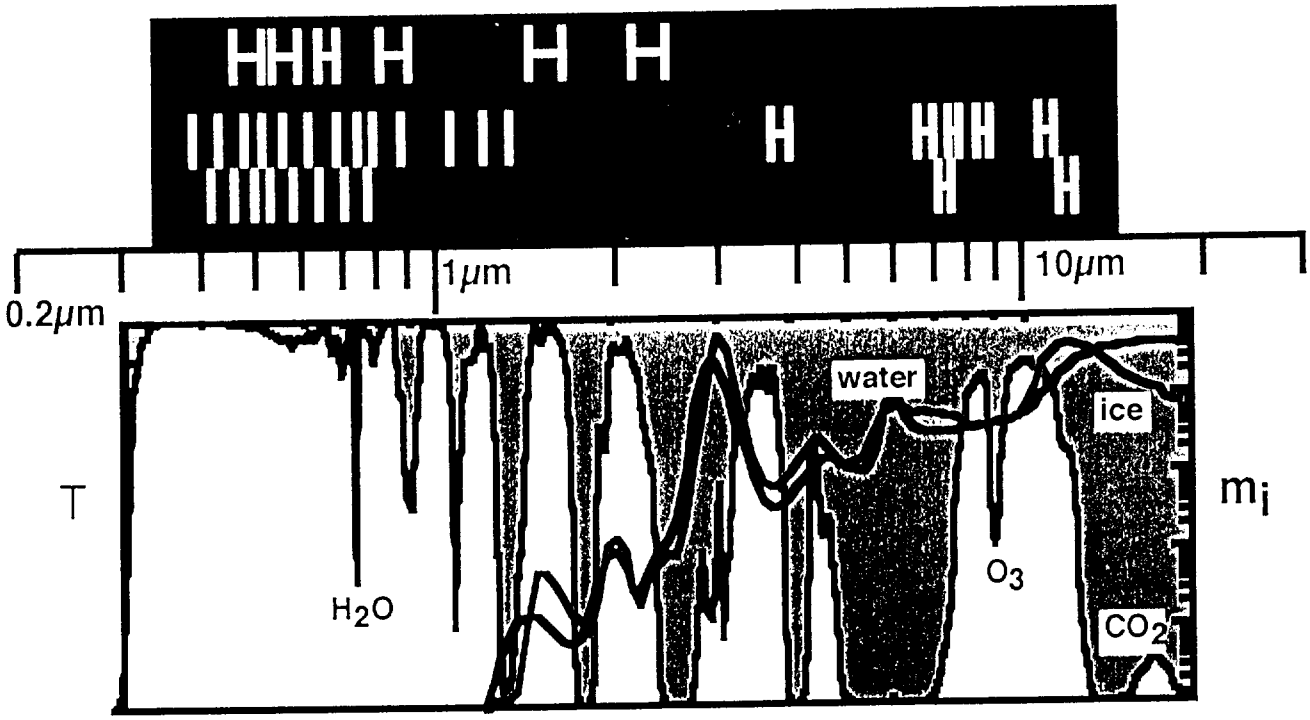
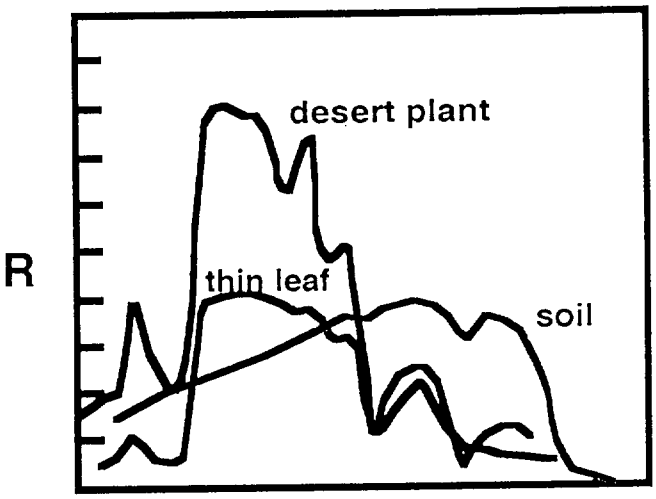


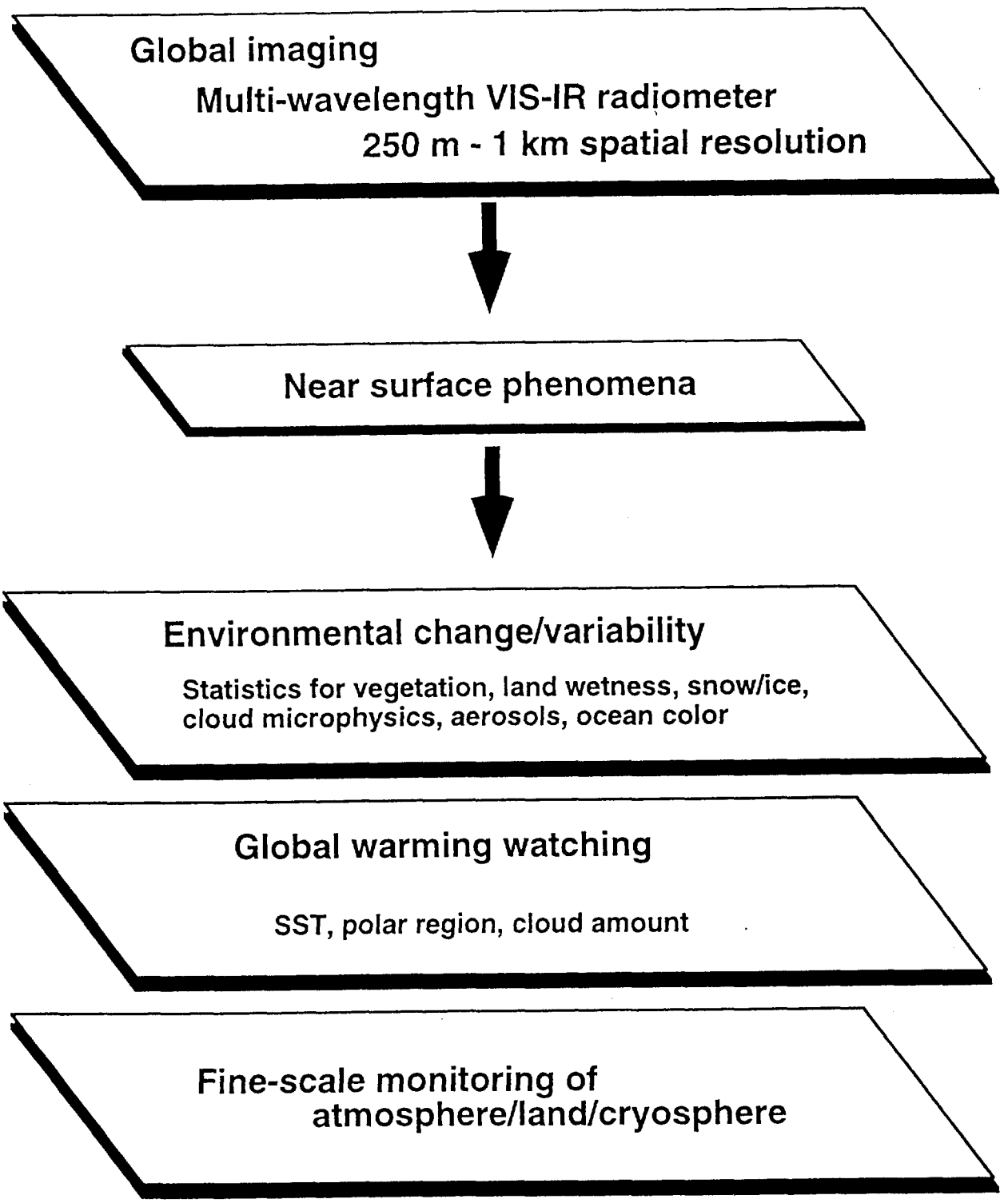

Earth Environment Observation Committee
Advisory Board
NASDA
ADEOS II Mission Team
Akimasa Sumi
GLI Sensor Team
Teruyuki Nakajima
AMSR Sensor Team
Akira Shibata
DCS Sensor Team
Validation Team
Toshio Koike
Atmosphere Subteam
Akihiro Uchiyama
Oceanosphere Subteam
Motoaki Kishino
Landsphere Subteam
Genya Saito
Cryosphere Subteam
Takeshi Sato

ADEOSII/Global Imager





Features of GLI mission



Sciences in the GLI Mission

Science Objectives:

1. Understanding of Energy/Water Circulation
2. Understanding of Carbon Cycle and Biomass Production
3. Global Change Watching

Related International Projects:

WCRP/GEWEX, CLIVAR, ACSYS; IGBP/JGOFS

Issues for High Level Products:

1. Global Scale Land/Ocean Biomass, Primary Production Annual Variability
2. Potential Land Biomass
3. Anthropogenic Pollution Effects on Cloud and Aerosol Fields
4. Water Vapor Field and Poleward Energy Transportation
5. Detection of Climate Change due to Greenhouse Gas increase

Issues for Products:

(A) Atmosphere

1. Cloud Optical Thickness, Cloud Water, Effective Radius
2. Cloud Base Height, Multi-layer Structure
3. Column Water Vapor Amount
4. Water Vapor Profile
5. Aerosol Amount, Effective Radius
6. PAR, SRB
7. Precipitation

(B) Oceanosphere

1. Pigment Concentration
2. Seston Concentration
3. Dissolved Organic Matter Concentration
4. Fluorescence
5. Photo-synthetic Activity, Primary Production
6. SST
7. Water Flow/Sea Ice Tracing by Ocean Color/SST

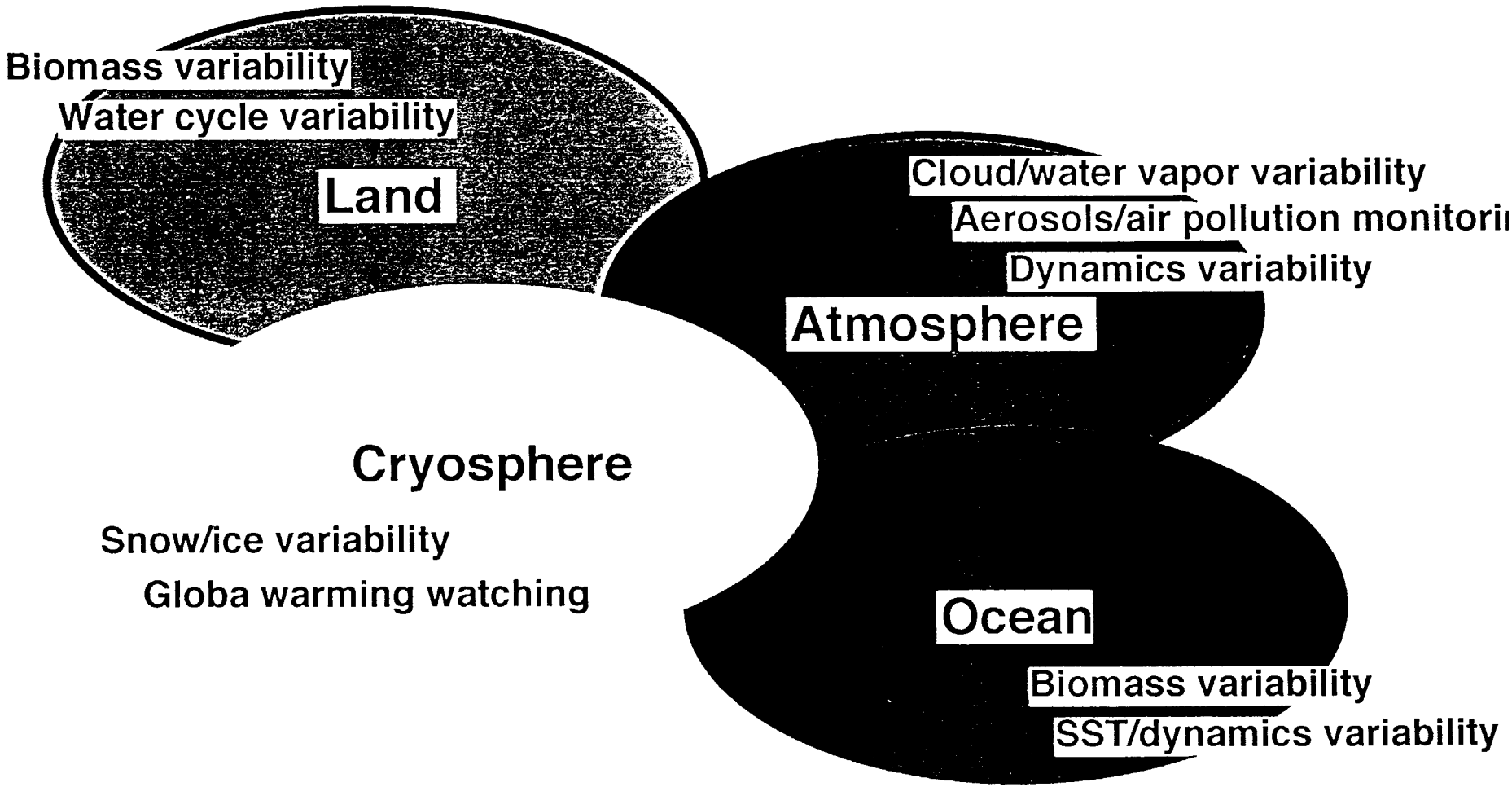
(C) Landsphere

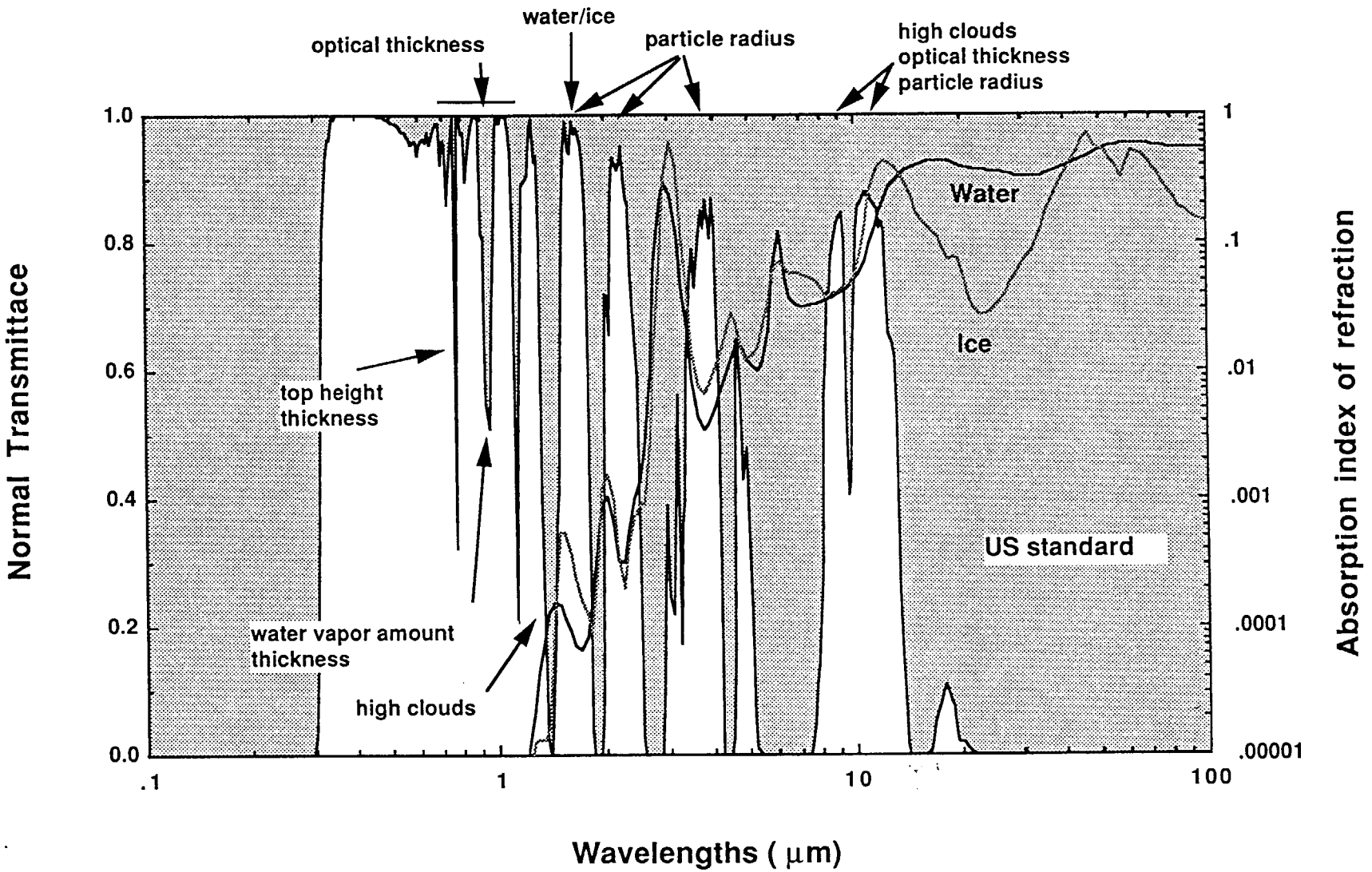
1. Vegetation Classification
2. Land Use Classification
3. Biomass, Primary Production
4. Biomass Burning and Slashing
5. Deforestation, Change in Land Use
6. Chlorophyll Concentration
7. Plant Water Content, Plant Activity
8. Soil Organic Matter, Soil Iron Content
9. Land Surface Temperature
10. Methane Emission from swamps
11. Monitoring of Agricultural Production

(D) Cryosphere

1. Snow/Ice Area
2. Age, Contamination, Water Content
3. Sea Ice Watching
4. Watching of Snow-Vegetation Mixed Area
5. Watching of Permafrost Area
6. Snow/Ice Surface Temperature
7. Snow/Ice Albedo

Global Environment Studies in the GLI mission




optical thickness
water/ice
particle radius
high clouds
optical thickness
particle radius
Water
Ice
US standard
top height
thickness
water vapor amount
thickness
high clouds
Normal Transmittace
Absorption index of refraction
Wavelengths (μm)
1.0
0.8
0.6
0.4
0.2
0.0
1
.1
.01
.001
.0001
.00001
.1
1
10
100