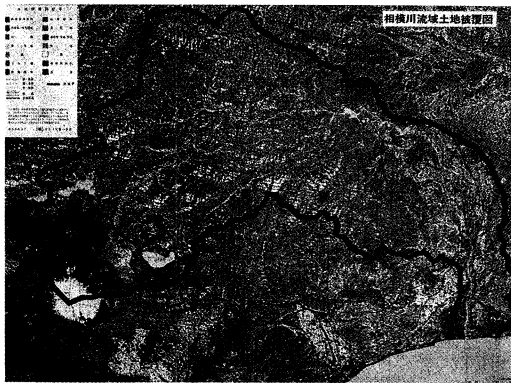
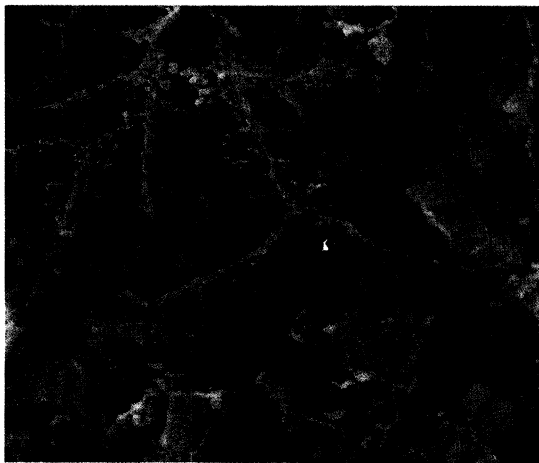


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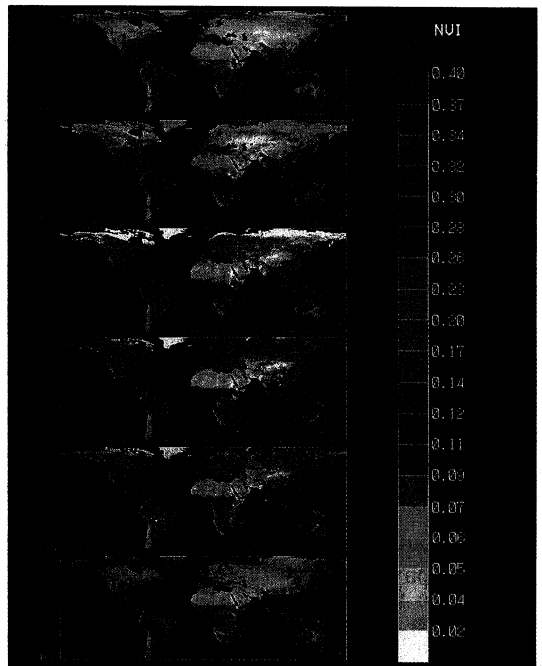


**Figure 1.** Land cover classification by Landsat MSS data (Sagami river basin : see 12.1)

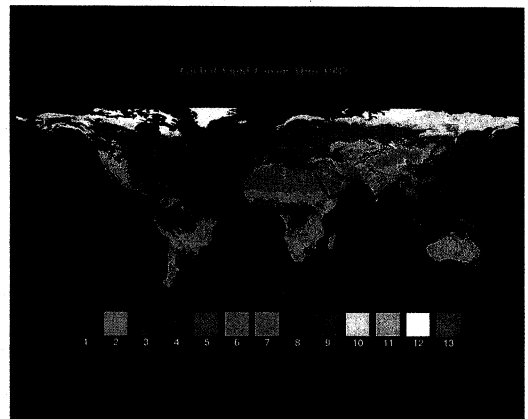


**Figure 2.** Land cover change detection by Landsat TM images (see 12.2)

Color composite of TM band 3 observed on May 9, 1980 (blue) and the same band observed on May 8, 1984 (red). Red color shows the decrease of vegetation.



**Figure 3.** Vegetation seasonal dynamics in odd months by NOAA NDVI image (see 12.3)  
Green color shows vegetation.



**Figure 4.** Global vegetation map by NOAA NDVI data (see 12.3)

1 Tropical rain forest, 2 Savanna, 3 Cold deciduous forest, 4 Cold deciduous forest + evergreen, 5 Monsoon forest, 6 Savanna + grassland, 7 Grassland, 8 Mediterranean scrub, 9 Evergreen needleleaf forest, 10 Cold deciduous forest (high latitude), 11 Scrub + Steppe + Semi-desert, 12 Tundra + ice, 13 Desert



SS concentration (mg/l)

0-2 4 6 8 10 12 14 16 18 18- cloud

(a) : Distribution of SS (suspended sediment)



(b) : Distribution of chlorophyll

Chlorophyll pigment (mg/l)

0 -5 10 10- cloud

Figure 5. Investigation of water quality by aerial MSS (see 12.4)

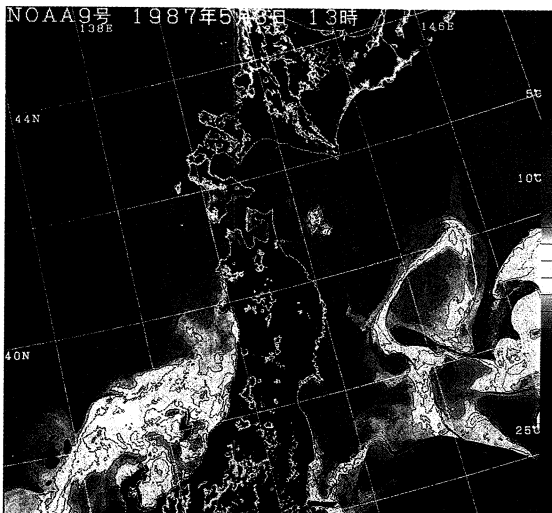
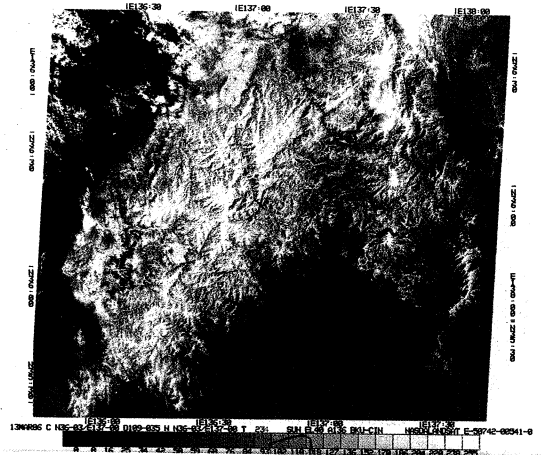
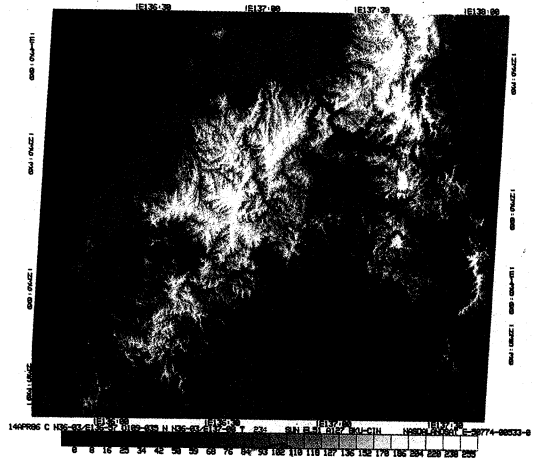


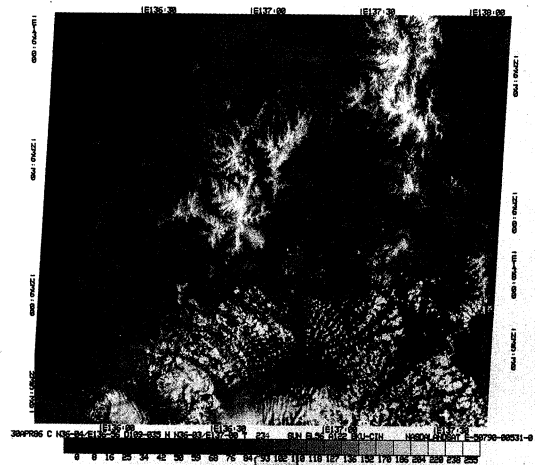
Figure 6. Sea surface temperature map derived from NOAA AVHRR data (see 12.5)



(a) : March 13, 1986



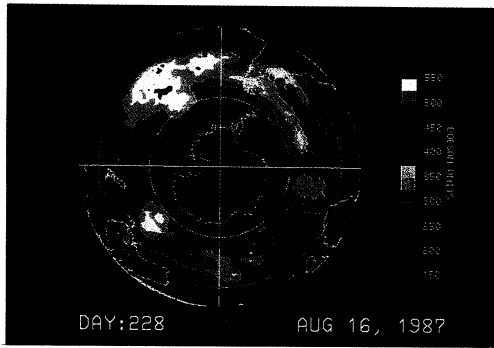
(b) : April 14, 1986



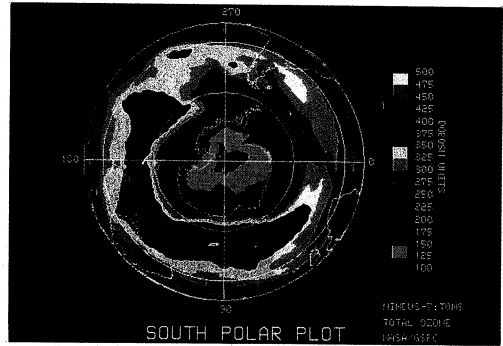
(c) : April 30, 1986

Figure 7. Snow line change by Landsat TM images (see 12.6)

Blue : band 2 Red : band 3 Green : band 4

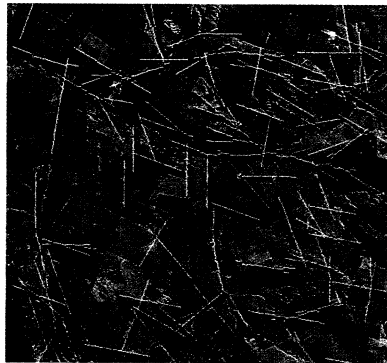


(a) : August 16, 1987

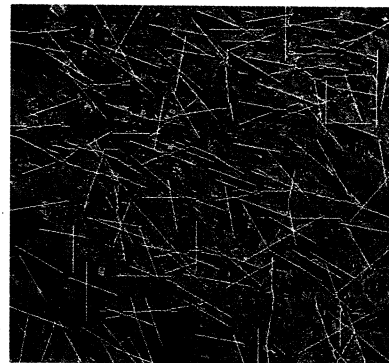


(b) : October 5, 1987  
(Maximum ozone hole)

**Figure 8.** Total ozone map in the south hemisphere by Nimbus TOMS data (see 12.7)

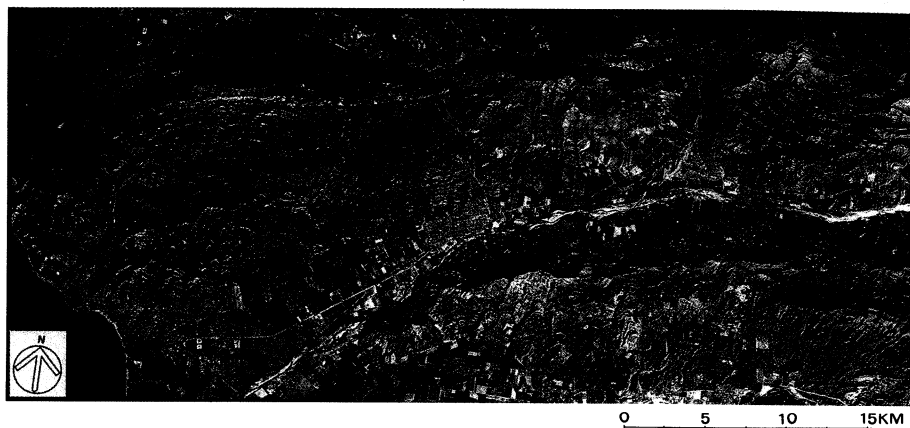


(a):This area features plain and relatively distinctive large lineament. Most lineaments extracted along these topographic features.



(b):This area features topographic undulation and dominated small sized lineaments with well grown drainage patterns. Lineaments area well extracted along these drainage patterns.

**Figure 9.** Semi-Automatic lineament extraction by Landsat TM data (see 12.8)

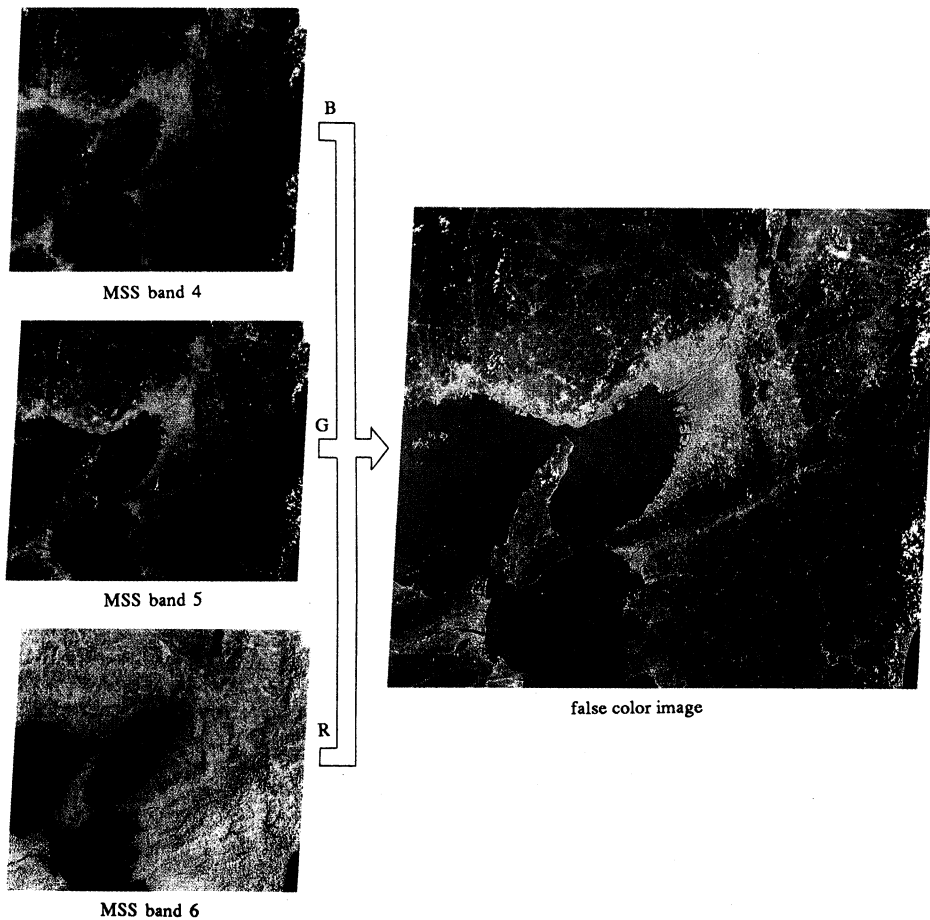


**Figure 10.** Color composite image of Landsat TM band 2, 3, 4, for geological analysis (Ventura basin, California, United States : see 12.9)



**Figure 11 .** Hydrothermal alteration area and gold deposits in Landsat TM image (Goldfield, Nevada in the Unites States : see 12.9)

Landsat TM band 4,5,7, false color image shows alteration area by greenish yellow color. Short wave infrared (TM band 7) has potential to discriminate altered area.



**Figure 12.** Color composite of Landsat MSS image (see 10.4)

# The Editor's Preface

*Professor Shunji Murai*

*President, Japan Association on Remote Sensing(JARS)  
and*

*General Secretary, Asian Association on Remote Sensing(AARS)*

Remote sensing has become popular since Landsat-1 was launched in 1972. In 1974, two years after the launch, the Japan Association on Remote Sensing(JARS) was founded. Since then JARS initiated the publishing of a text book of remote sensing. In 1975, the first Japanese version of a book, "Remote Sensing Notes" was published. This was the first text book of remote sensing in Japan. The book contained about 70 fundamental items each of which was divided in two pages with the left page for text and the right page for illustrations.

Since then this book has been read by many students and scientists and referred to in many technical papers in Japan. However, after 18 years since its publication, the contents should be revised or added to as remote sensing has been advanced to a great extent. For examples, sections on sensors, microwave remote sensing, satellites, image processing, geographic information systems (GIS), application etc., should be newly revised or added to.

This book can be said to be a drastically revised, compared with the original book. The contents are almost twice as long with 13 chapters and 130 items. The authors comprised 30 members, including the five former authors. These authors are 30's and 40's researchers and engineers who are in the 30 to 40 years age group, thus this book is very much a product of the younger generation.

This book serves as a major contribution to the International Space Year, the five hundredth anniversary of the discovery of the American Continent by Columbus.

I am very pleased to publish English version of this book in cooperation with the Asian Association on Remote Sensing. And I would like to thanks Professor Bruce Forster of the University of New South Wales, Australia and Dr. Bob Ryerson of the Canada Centre for Remote Sensing for their kind assistance in correcting and editing the English.

I sincerely hope that this book is useful for those persons who would like to study remote sensing.

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# *Remote Sensing Note*

## **CONTENTS**

### ***The Editor's Preface***

### ***The list of Editors and Authors***

#### **Chapter 1 Fundamentals of Remote Sensing**

1.1	Concept of remote sensing-----	2
1.2	Characteristics of electro-magnetic radiation-----	4
1.3	Interactions between matter and electro-magnetic radiation-----	6
1.4	Wavelength regions of electro-magnetic radiation-----	8
1.5	Types of remote sensing with respect to wavelength regions-----	10
1.6	Definition of radiometry-----	12
1.7	Black body radiation-----	14
1.8	Reflectance-----	16
1.9	Spectral reflectance of land covers-----	18
1.10	Spectral characteristics of solar radiation-----	20
1.11	Transmittance of the atmosphere-----	22
1.12	Radiative transfer equation-----	24

#### **Chapter 2 Sensors**

2.1	Types of sensors-----	26
2.2	Characteristics of optical sensors-----	28
2.3	Resolving power-----	30
2.4	Dispersing element-----	32
2.5	Spectroscopic filter-----	34
2.6	Spectrometer-----	36
2.7	Characteristics of optical detectors-----	38
2.8	Cameras for remote sensing-----	40
2.9	Film for remote sensing-----	42
2.10	Optical mechanical scanner-----	44
2.11	Pushbroom scanner-----	46
2.12	Imaging spectrometer-----	48
2.13	Atmospheric sensors-----	50
2.14	Sonar-----	52
2.15	Laser radar-----	54

#### **Chapter 3 Microwave Remote Sensing**

3.1	Principles of microwave remote sensing-----	56
3.2	Attenuation of microwave-----	58
3.3	Microwave radiation-----	60
3.4	Surface scattering-----	62
3.5	Volume scattering-----	64
3.6	Types of Antenna-----	66
3.7	Characteristics of Antenna-----	68

## **Chapter 4 Microwave Sensors**

4.1	Types of microwave sensor-----	70
4.2	Real aperture radar-----	72
4.3	Synthetic aperture radar-----	74
4.4	Geometry of radar imagery -----	76
4.5	Image reconstruction of SAR-----	78
4.6	Characteristics of radar image-----	80
4.7	Radar images of terrains-----	82
4.8	Microwave radiometer-----	84
4.9	Microwave scatterometer-----	86
4.10	Microwave altimeter-----	88
4.11	Measurement of sea wind-----	90
4.12	Wave measurement by radar-----	92

## **Chapter 5 Platforms**

5.1	Types of platform-----	94
5.2	Atmospheric condition and altitude-----	96
5.3	Attitude of platform-----	98
5.4	Attitude sensors-----	100
5.5	Orbital elements of satellite-----	102
5.6	Orbit of satellite-----	104
5.7	Satellite positioning systems-----	106
5.8	Remote sensing satellites-----	108
5.9	Landsat-----	110
5.10	SPOT-----	112
5.11	NOAA-----	114
5.12	Geostationary meteorological satellites-----	116
5.13	Polar orbit platform-----	118

## **Chapter 6 Data used in Remote Sensing**

6.1	Digital data-----	120
6.2	Geometric characteristics of image data-----	122
6.3	Radiometric characteristics of image data-----	124
6.4	Format of remote sensing image data-----	126
6.5	Auxiliary data-----	128
6.6	Calibration and validation-----	130
6.7	Ground data-----	132
6.8	Ground positioning data-----	134
6.9	Map data-----	136
6.10	Digital terrain data-----	138
6.11	Media for data recording, storage and distribution-----	140
6.12	Satellite data transmission and reception-----	142
6.13	Retrieval of remote sensing data-----	144

## **Chapter 7 Image Interpretation**

7.1	Information extraction in remote sensing-----	146
7.2	Image interpretation-----	148
7.3	Stereoscopy-----	150
7.4	Interpretation elements-----	152
7.5	Interpretation keys-----	154

7.6	Generation of thematic maps-----	156
<b>Chapter 8 Image Processing Systems</b>		
8.1	Image processing in remote sensing-----	158
8.2	Image processing systems-----	160
8.3	Image input systems-----	162
8.4	Image display systems-----	164
8.5	Hard copy systems-----	166
8.6	Storage of image data-----	168
<b>Chapter 9 Image Processing - Correction</b>		
9.1	Radiometric correction-----	170
9.2	Atmospheric correction-----	172
9.3	Geometric distortions of the image-----	174
9.4	Geometric correction-----	176
9.5	Coordinate transformation-----	178
9.6	Collinearity equation-----	180
9.7	Resampling and interpolation-----	182
9.8	Map projection-----	184
<b>Chapter 10 Image Processing - Conversion</b>		
10.1	Image enhancement and feature extraction-----	186
10.2	Gray scale conversion-----	188
10.3	Histogram conversion-----	190
10.4	Color display of image data-----	192
10.5	Color representation -color mixing system-----	194
10.6	Color representation -color appearance system-----	196
10.7	Operations between images-----	198
10.8	Principal component analysis-----	200
10.9	Spatial filtering-----	202
10.10	Texture analysis-----	204
10.11	Image correlation-----	206
<b>Chapter 11 Image Processing - Classification</b>		
11.1	Classification techniques-----	208
11.2	Estimation of population statistics-----	210
11.3	Clustering-----	212
11.4	Parallelpiped classifier-----	214
11.5	Decision tree classifier-----	216
11.6	Minimum distance classifier-----	218
11.7	Maximum likelihood classifier-----	220
11.8	Applications of fuzzy set theory-----	222
11.9	Classification using an expert system-----	224
<b>Chapter 12 Applications of Remote Sensing</b>		
12.1	Land cover classification-----	226
12.2	Land cover change detection-----	228
12.3	Global vegetation map-----	230
12.4	Water quality monitoring-----	232
12.5	Measurement of sea surface temperature-----	234
12.6	Snow survey-----	236

12.7	Monitoring of atmospheric constituents-----	238
12.8	Lineaments extraction-----	240
12.9	Geological interpretation-----	242
12.10	Height measurement (DEM generation)-----	244

**Chapter 13 Geographic Information System (GIS)**

13.1	GIS and remote sensing-----	246
13.2	Model and data structure-----	248
13.3	Data input and editing-----	250
13.4	Spatial query-----	252
13.5	Spatial analysis-----	254
13.6	Use of remote sensing data in GIS-----	256
13.7	Errors and fuzziness of geographic data and their influences on GIS products-----	258

**Appendix**

Appendix-1	Time table of remote sensing satellites -----	260
Appendix-2	List of remote sensing satellites-----	263
Appendix-3	Ground receiving stations-----	283
Appendix-4	Main data distributors of remote sensing Data-----	286

**Reference**

**Index**

**Acronyms**

## REMOTE SENSING NOTE