REMOTE SENSING NOTE

Japan Association on Remote Sensing

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

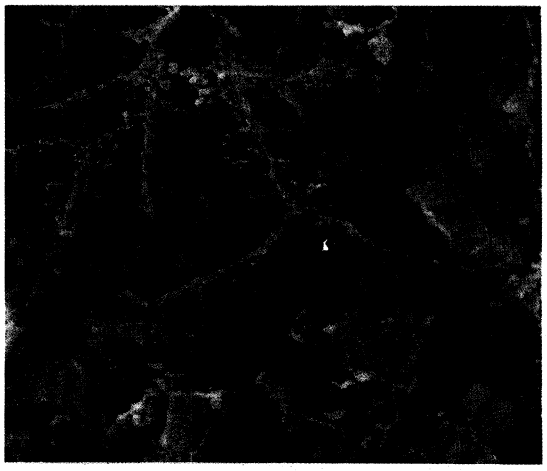


Figure 2. Land cover change detection by Landsat TM images (see 12.2)

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.

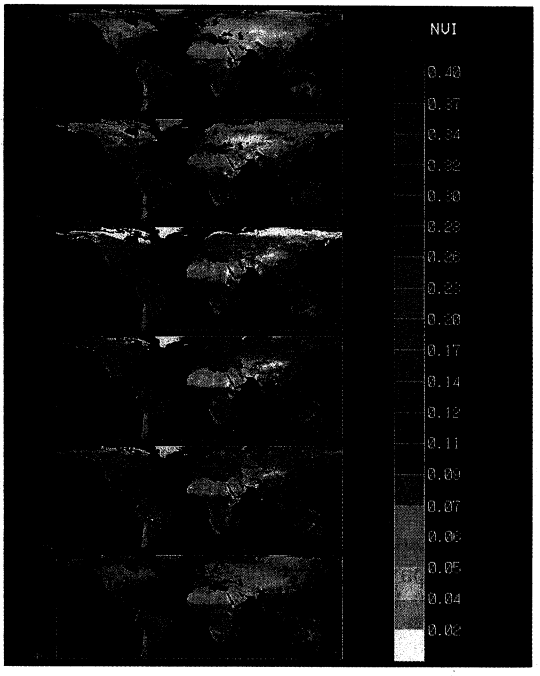


Figure 3. Vegetation seasonal dynamics in odd months by NOAA NDVI image (see 12.3)

Green color shows vegetation.

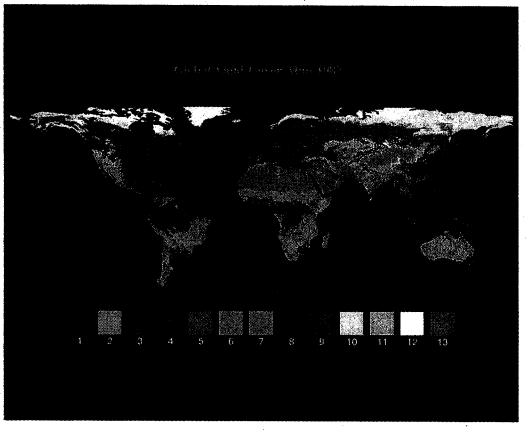


Figure 4. Global vegetation map by NOAA NDVI data (see 12.3)

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), 11Scrub + 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)

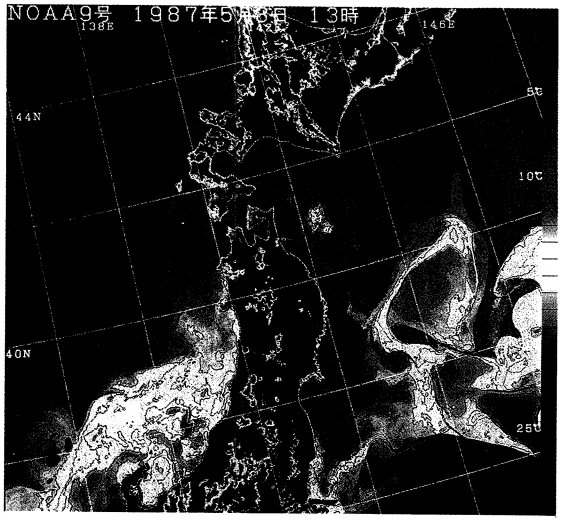
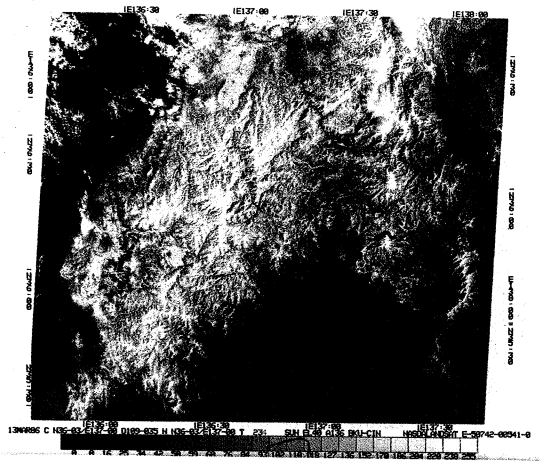
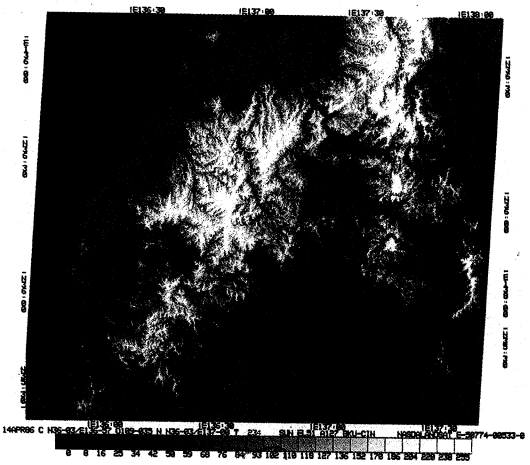


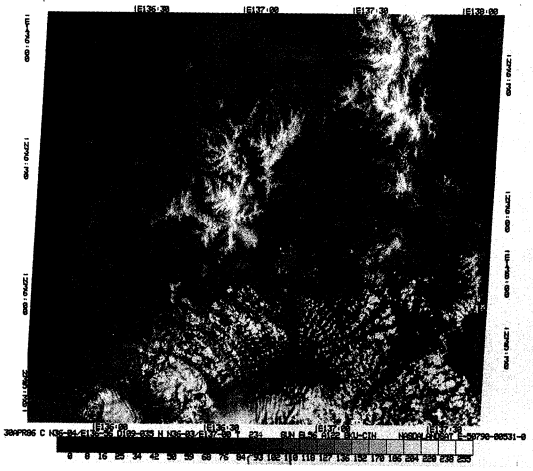
Figure 6. Sea surface temperature map derived from NOAA AVHRR data (see 12.5)



(a) : March 13, 1986



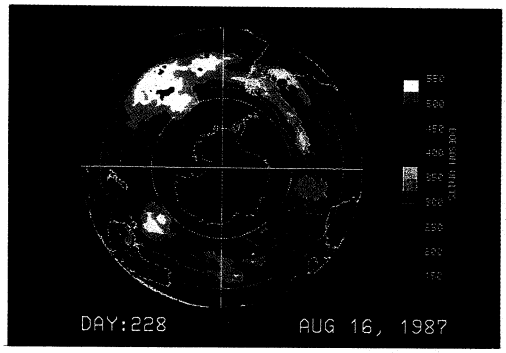
(b) : April 14, 1986



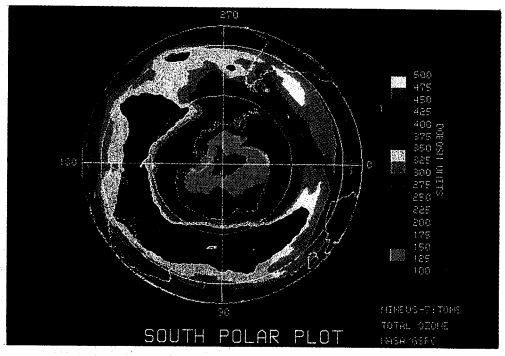
(c) : April 30, 1986

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

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



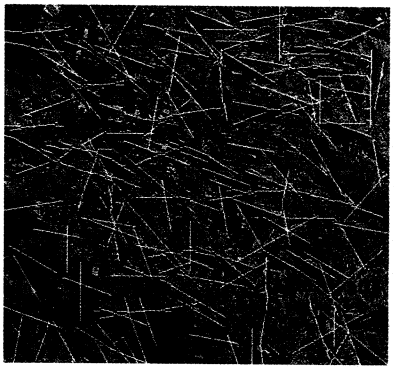
(a) : August 16, 1987



(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)

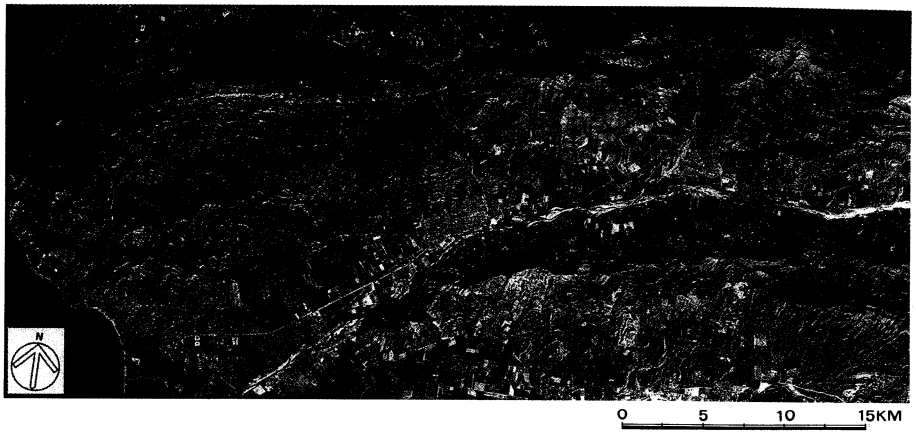


Figure 10. Color composite image of Landsat TM band 2, 3, 4, for geological analysis (Ventura basin, California, United States : see 12.9)

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.

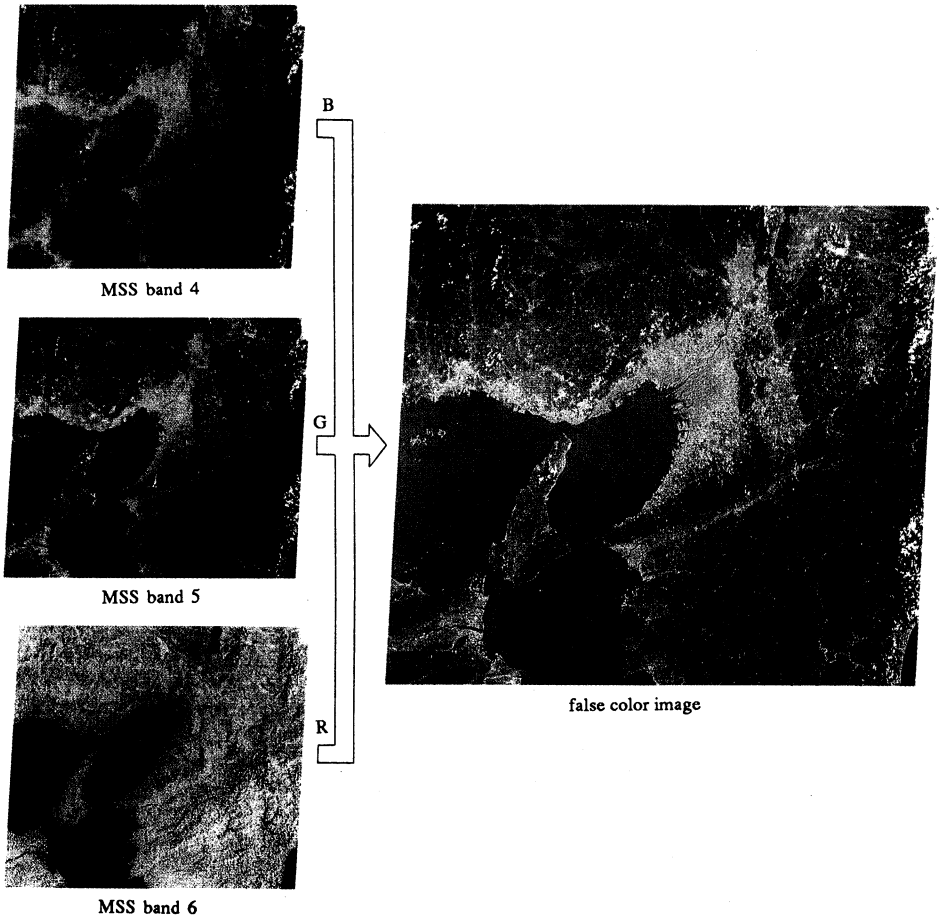


Figure 12. Color composite of Landsat MSS image (see 10.4)

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