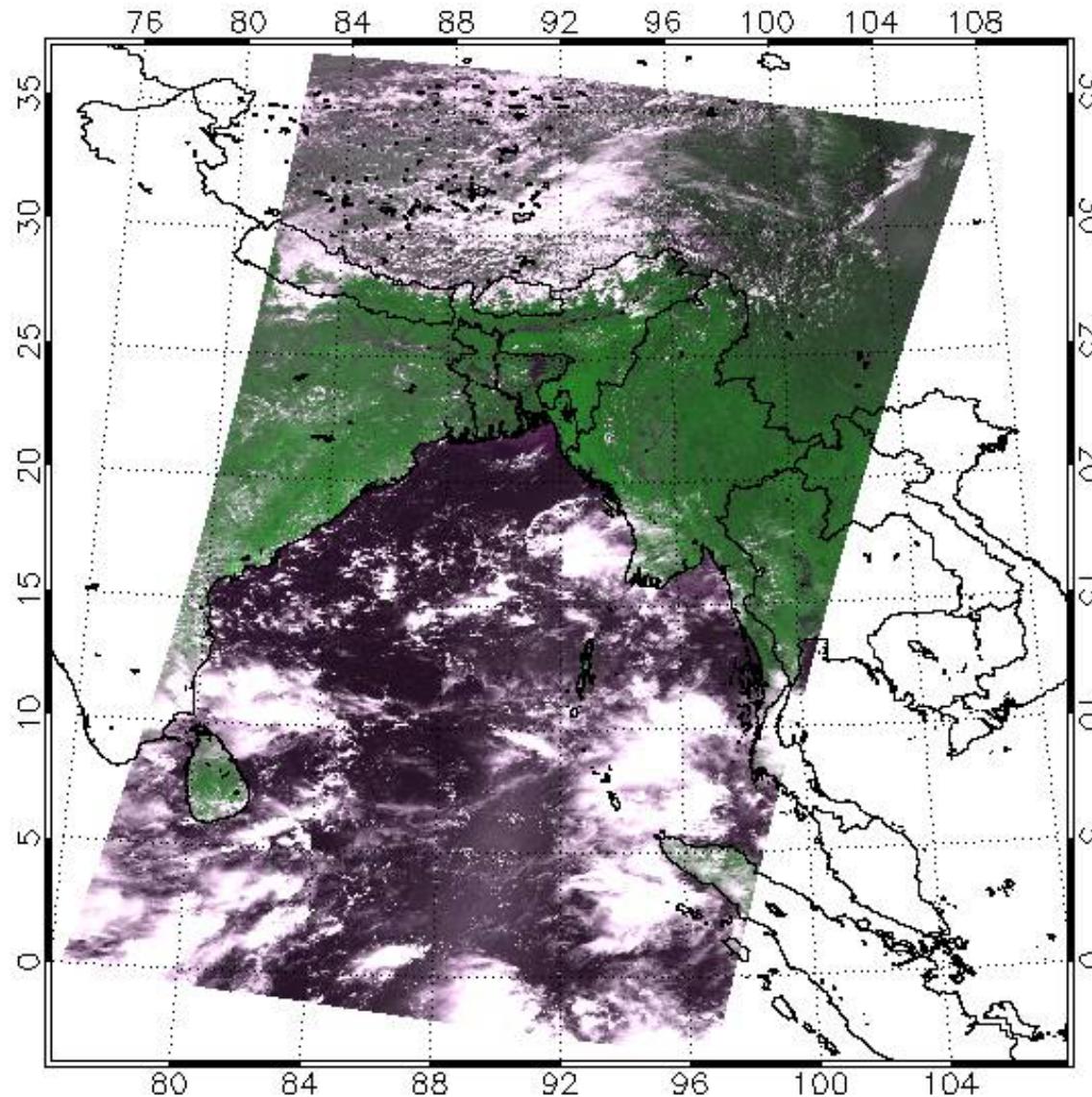




SEASON
South-east East Asia Satellite Observation Network
for Environment and Disaster Monitoring

**Institute of Industrial Science
University of Tokyo**



Direct broadcasting systems for NOAA, GMS and MODIS

NOAA Receiving System



Receiving station
at Bangkok

GMS Receiving System



Sub-real time data transfer by Internet (during night)

MODIS Receiving System



Satellite data server SUN E6500

D3 type archive (100TB capacity)

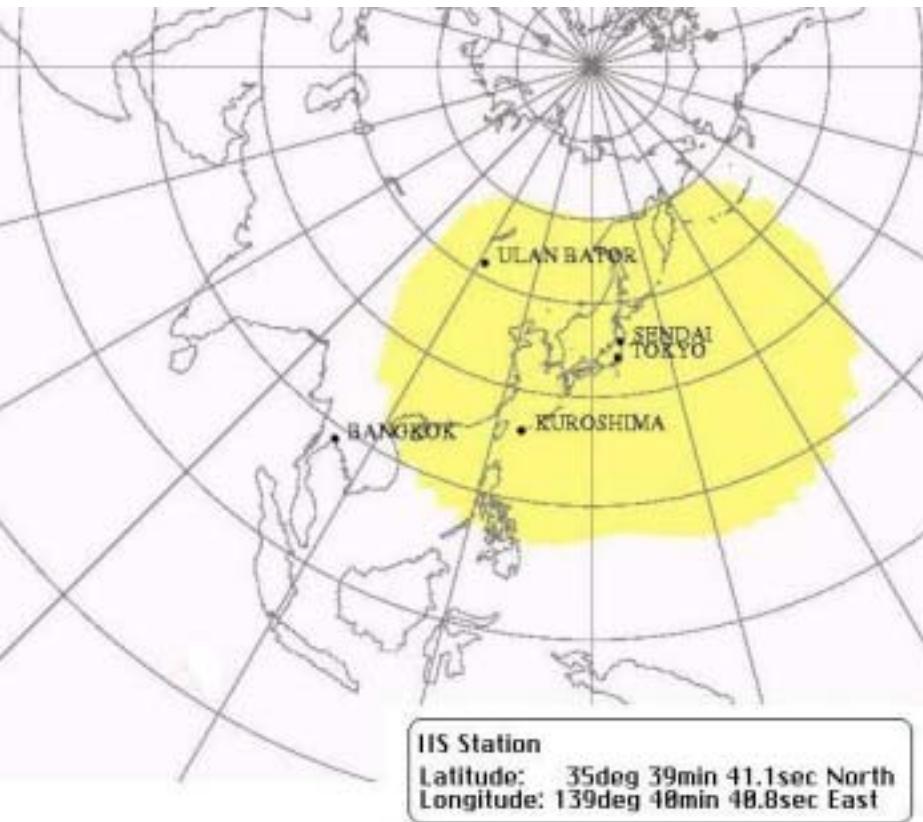
IIS/UT Satellite Data Receiving System

NOAA/AVHRR	Station	Period
# IIS/UT	Tokyo	1986
# AIT(Thailand)	Bangkok	1997
(Network with Chiba Univ., Tohoku University and NIES)		

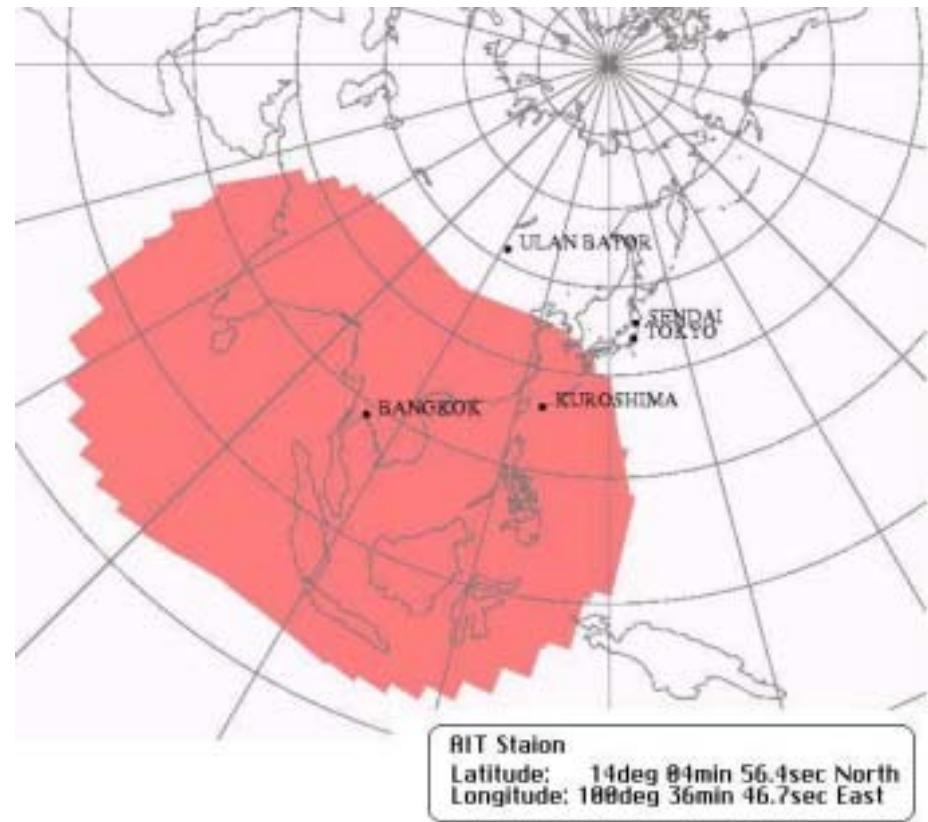
TERRA MODIS

# IIS/UT	Tokyo	2001
# AIT(Thailand)	Bangkok	2001

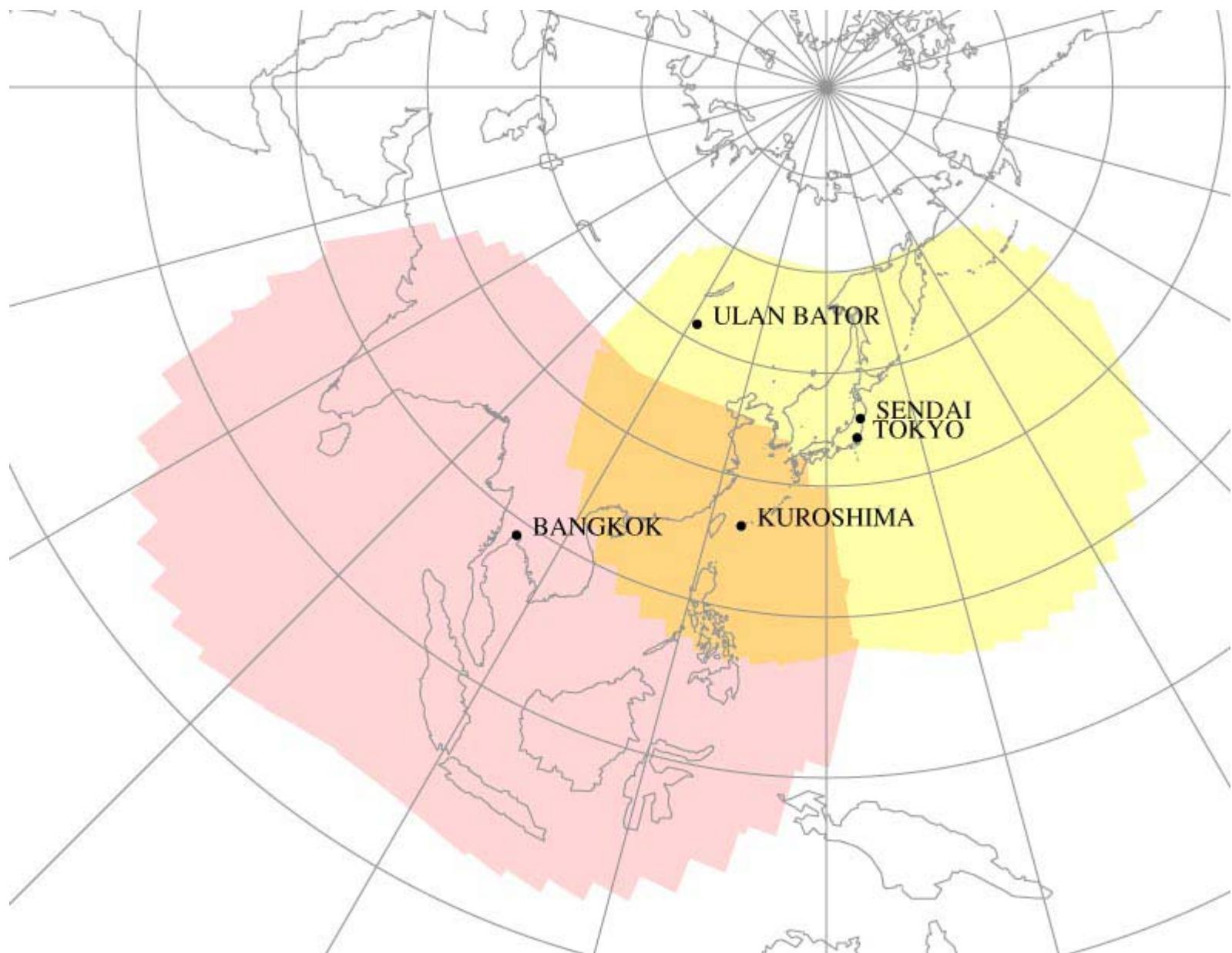
Data coverage

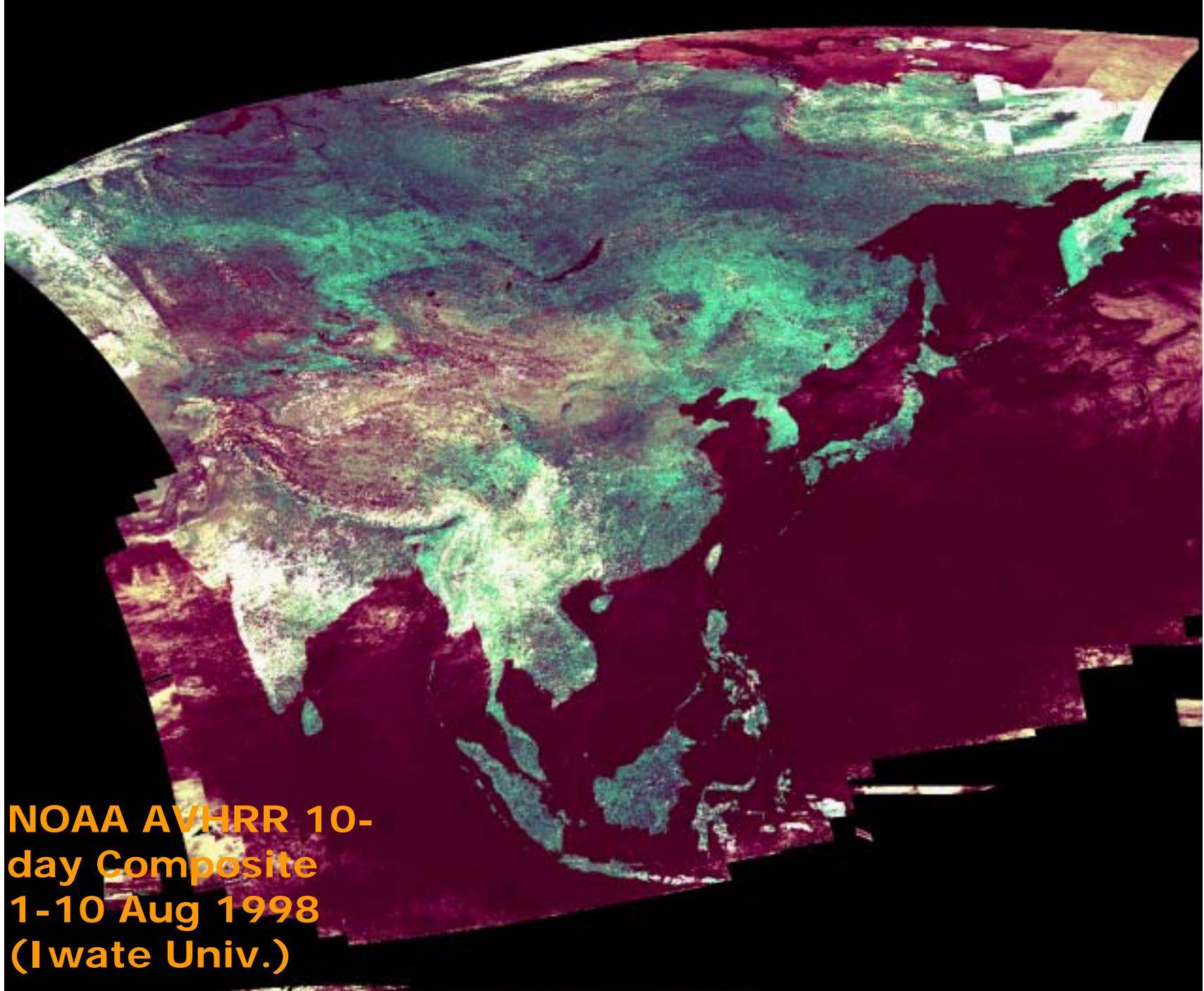


IIS/UT, Tokyo (1986~)



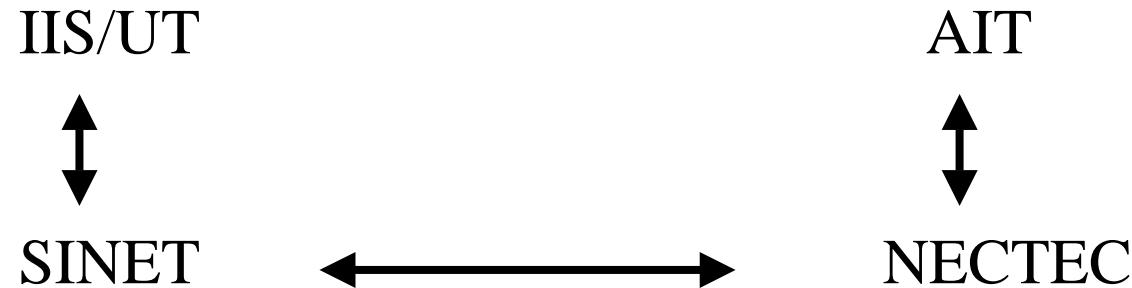
AIT, Bangkok (1997~)





**NOAA AVHRR 10-
day Composite
1-10 Aug 1998
(Iwate Univ.)**

Data Transfer from AIT to IIS



NOAA AVHRR

6scenes / day (2h/day)

TERRA MODIS

5scenes / day (5h /day)



Start operating
since May 18, 2001

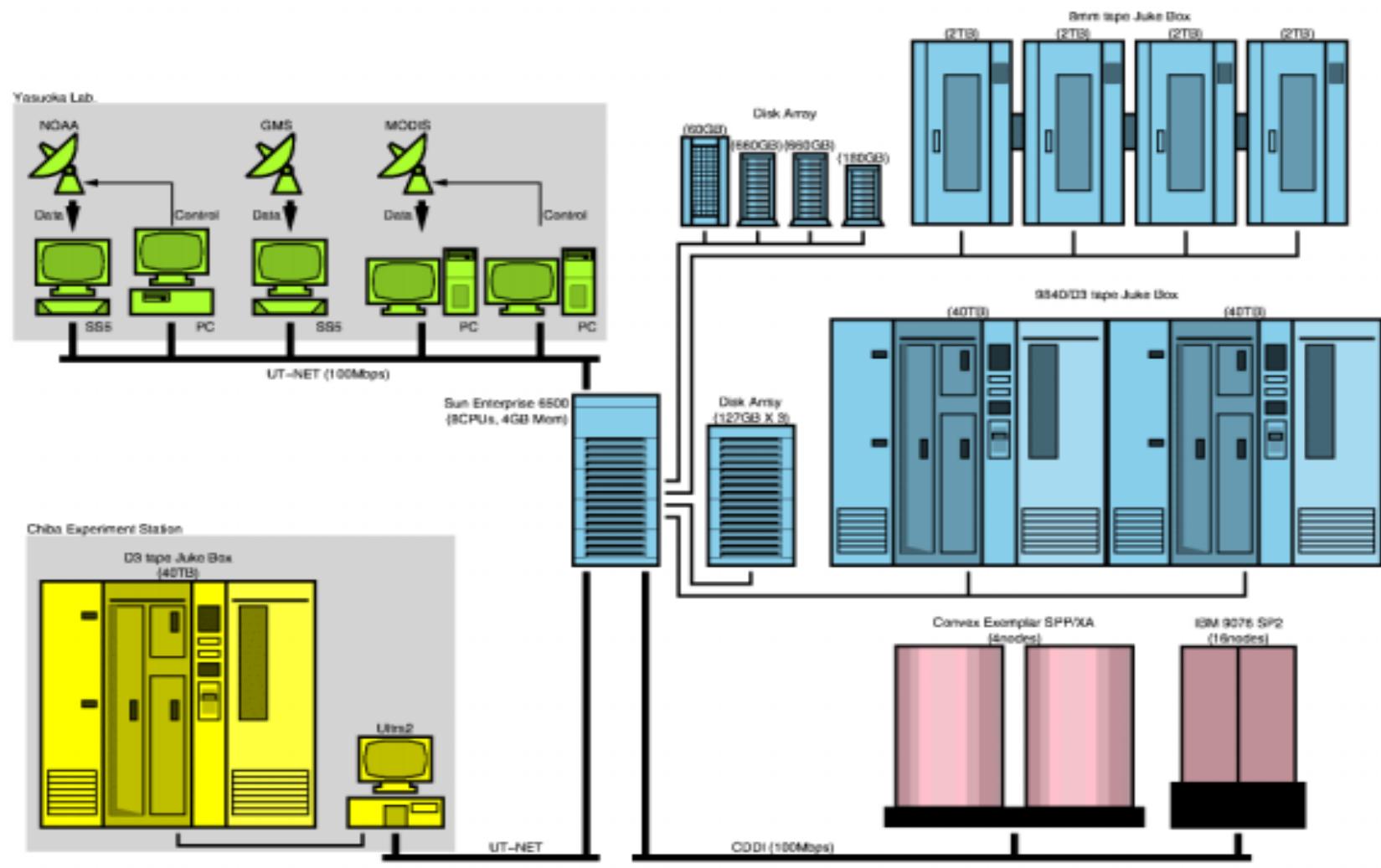


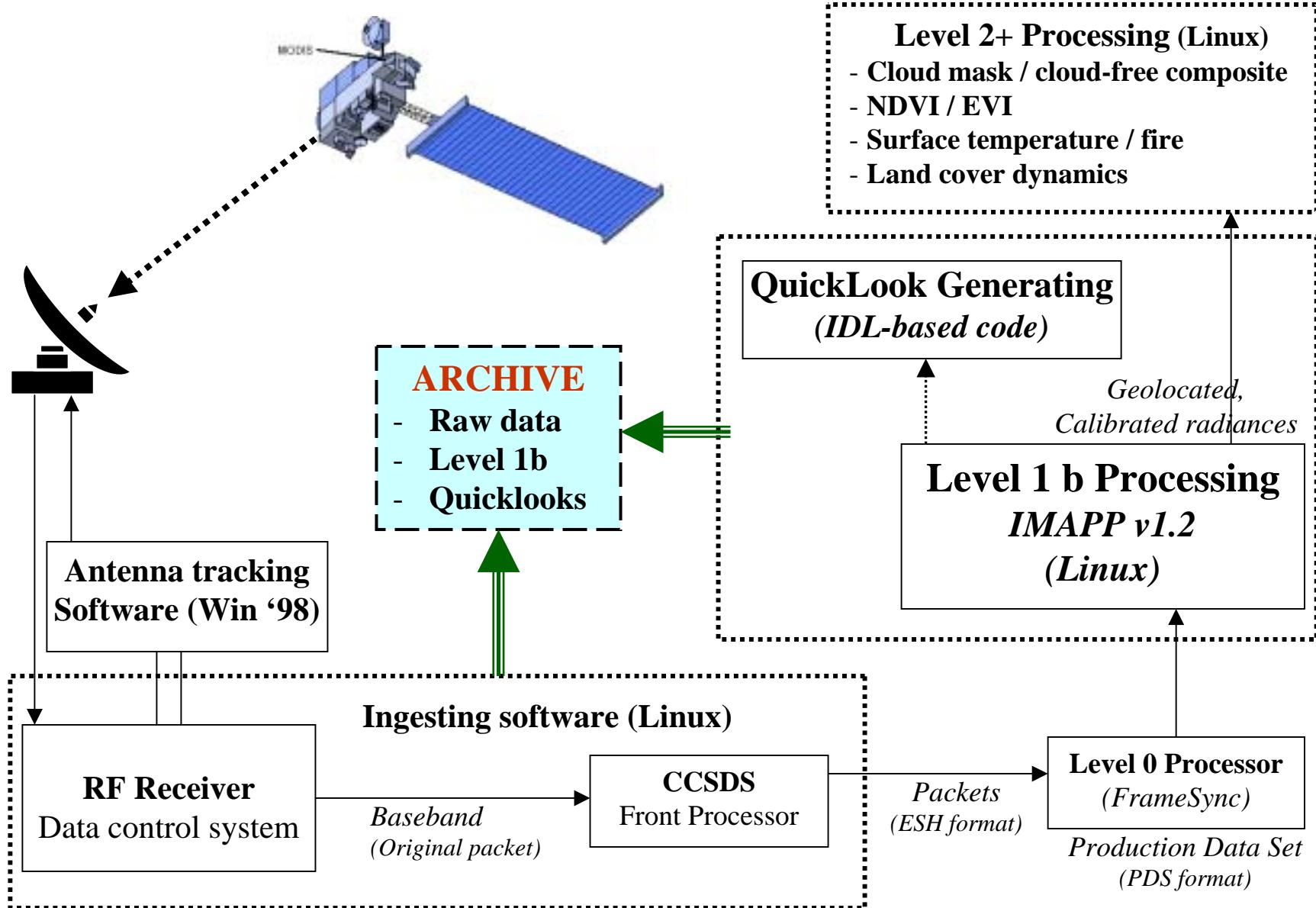
IIS MODIS System

- 2.8m X/Y antenna disk;
- Motor Control Unit, Receiver, Antenna Interface Unit;
- Antenna control PC (Win 98) – Dundee satellite tracking system
- Data ingest PC (Linux RedHat 7.0)

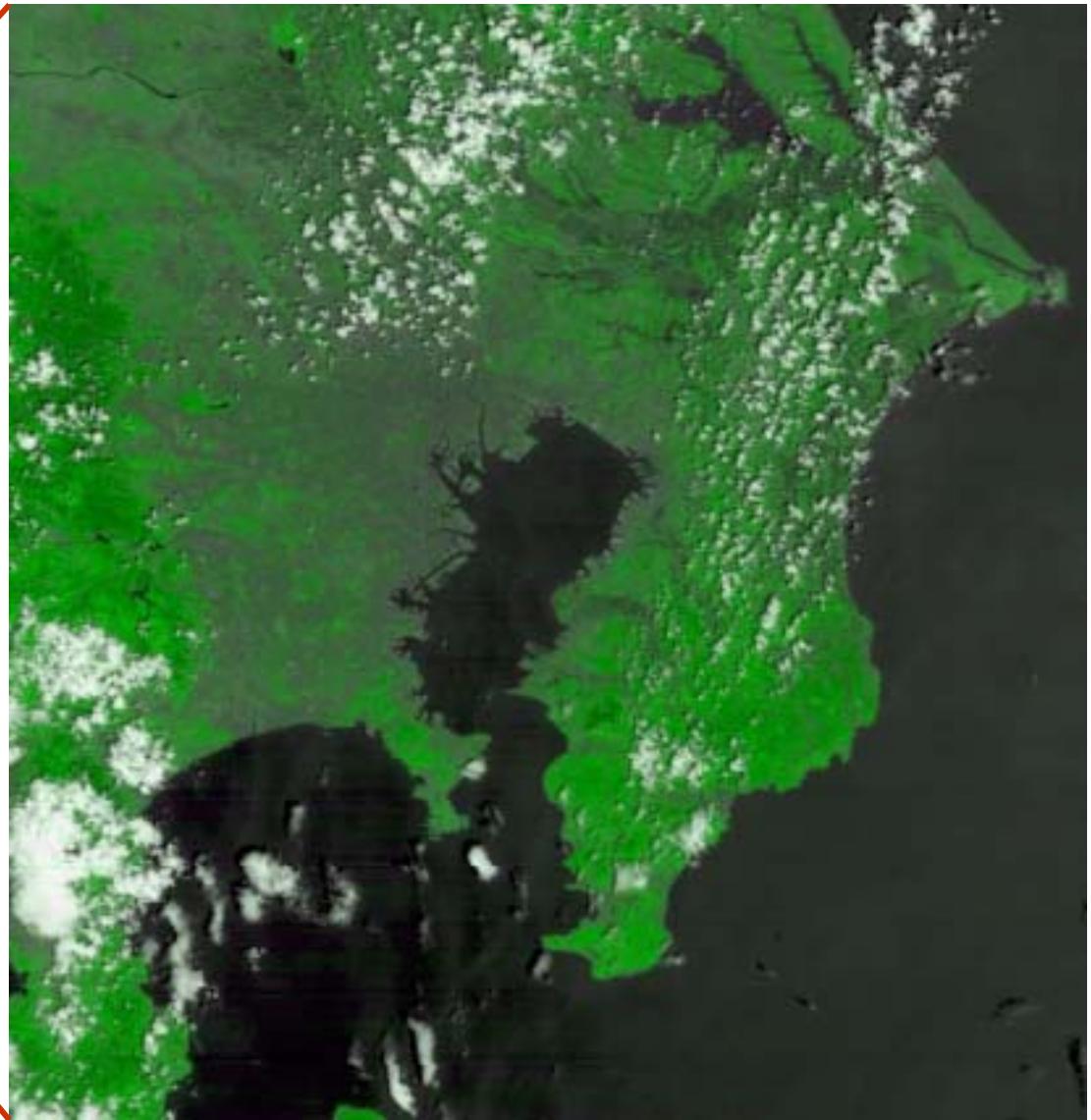
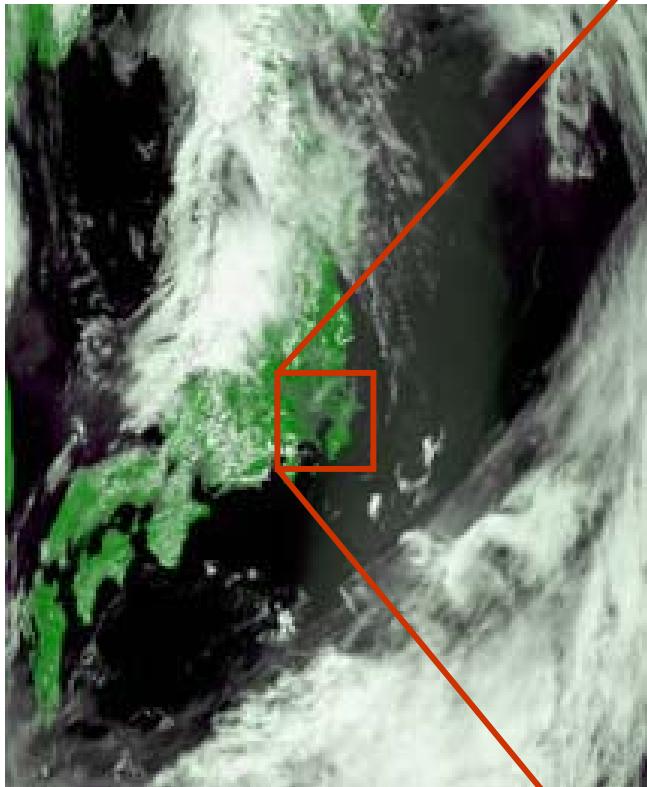


Details of the D3 type archiving system



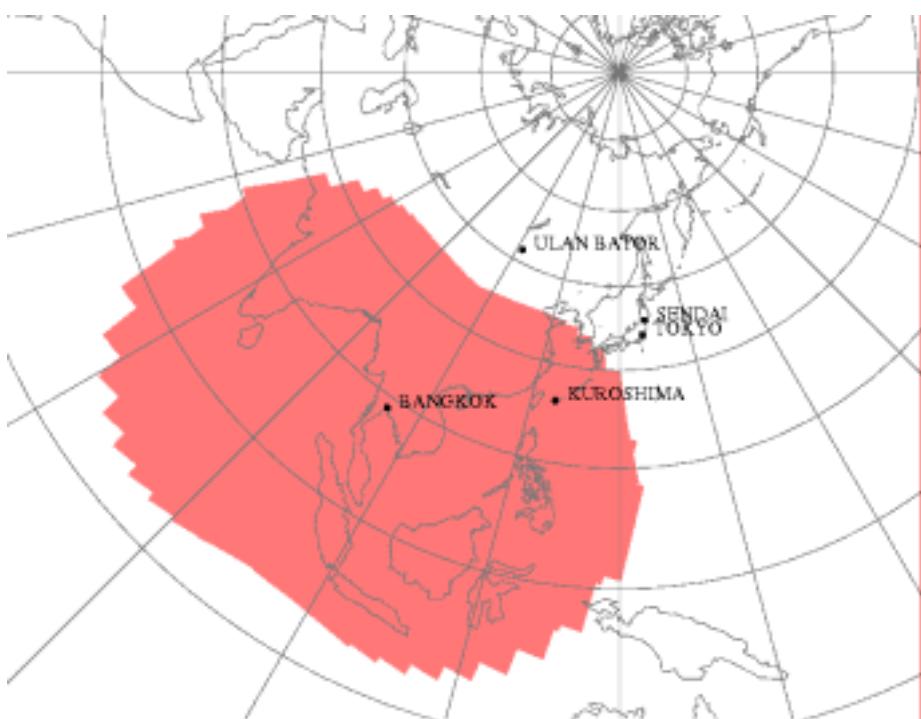


**MODIS image with 250m res.
received at IIS 18 May 2001**



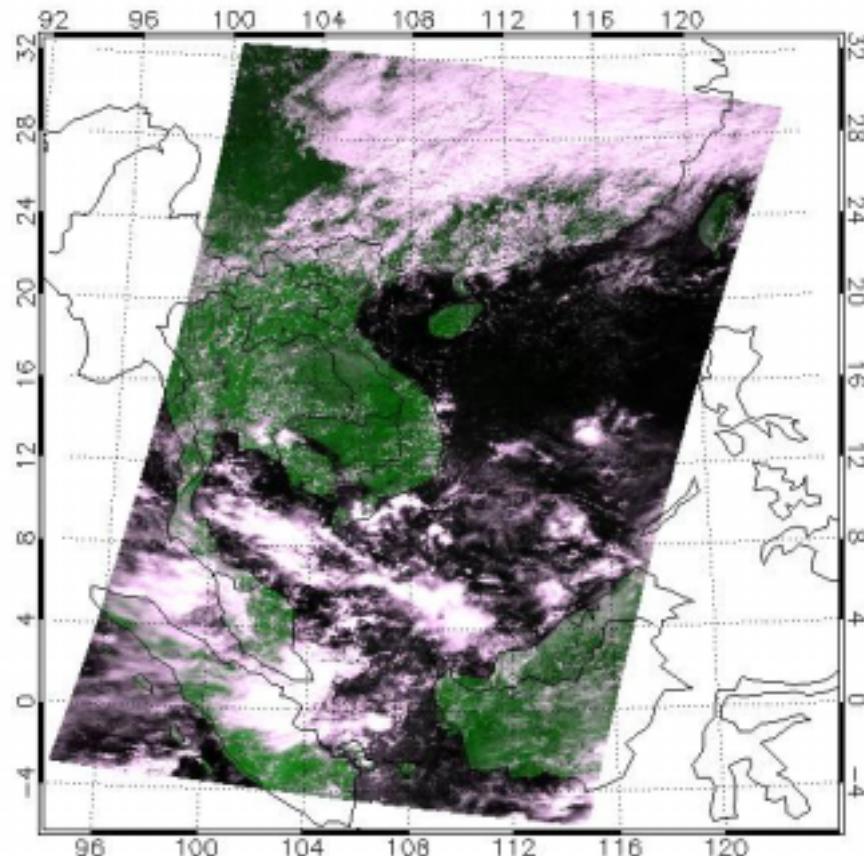
AIT's MODIS system

- Provided by IIS, managed by ACRoRS
- Raw data transferred to IIS through network for archiving (in experimental stage)
- www.acrors.ait.ac.th/modis/index.htm



IIS MODIS System

**MODIS image received at
AIT at 10:36 on 02 Nov 2001**



1km-aggregated, RGB – Bands 1,2,1

Data Production & Archiving/Distribution

- IIS MODIS system acquire about 2-3 day-scenes & 2-3 night scenes, resulting in **4-5 GB** of raw data per day - Raw data in packet format with filenames of the form: YYYYMMDDHHMM
- The system then produces Level 1b earth-view data products (**6-8 GB/day**) - archiving at *komagome* server including
 - Calibrated, Geolocated Radiance (1000 m) – all 36 bands – (*.1000m.hdf)
 - Calibrated, Geolocated Radiance (500 m) – 7 reflected bands – (*.500m.hdf)
 - Calibrated, Geolocated Radiance (250 m) – band 1 & 2 – (*.250m.hdf)
 - MODIS geolocation file (*.geo.hdf)
- Quicklook images for each pass are produced and accessible on MODIS web - <http://yasulab.iis.u-tokyo.ac.jp/>
- Data distribution: free (through INTERNET)





Web references

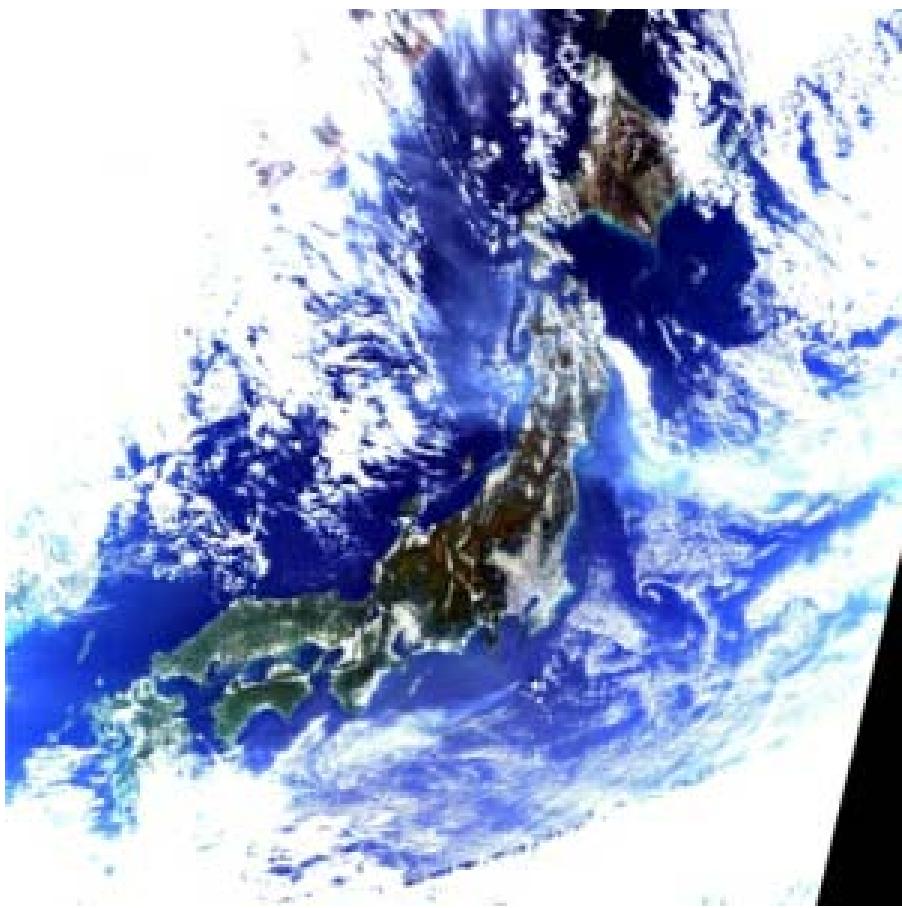
- For IIS DB station:

<http://yasulab.iis.u-tokyo.ac.jp/>

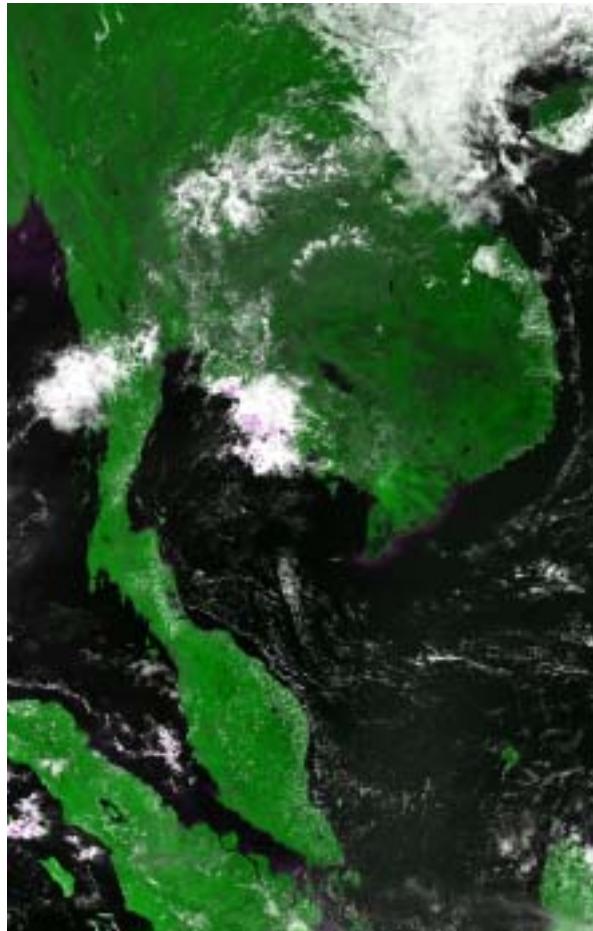
- For AIT DB station:

<http://www.acrors.ait.ac.th/>

MODIS pre-processing system on WWW

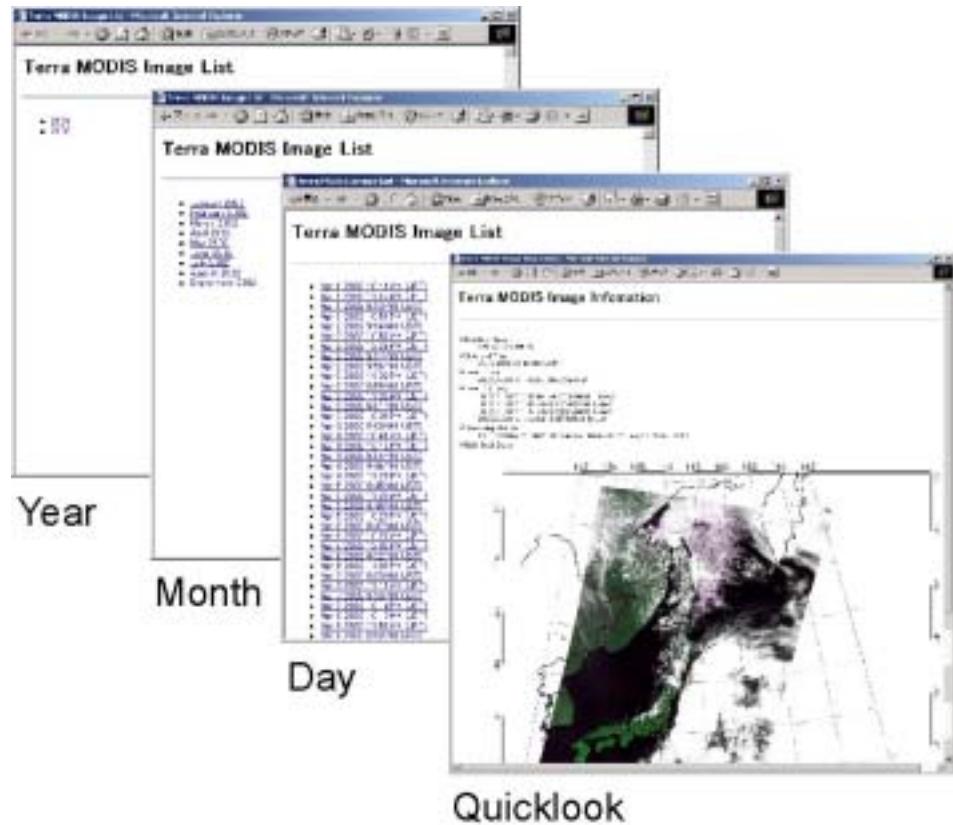
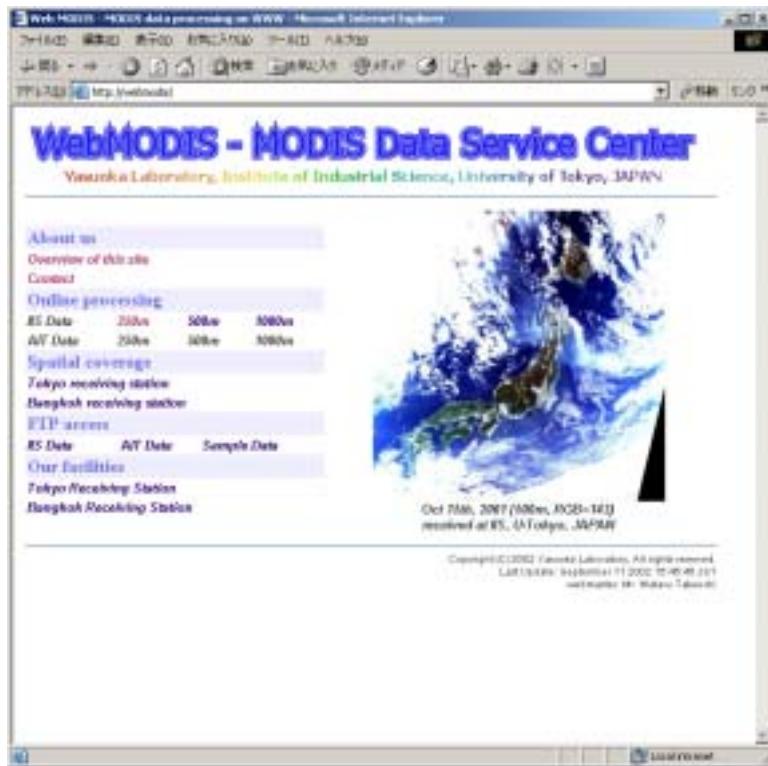


2002 Apr 4, 4:23 (UTC)
Terra MODIS at IIS, U-Tokyo



2002 Feb 4, 6:15 (UTC)
Terra MODIS at AIT in Bangkok

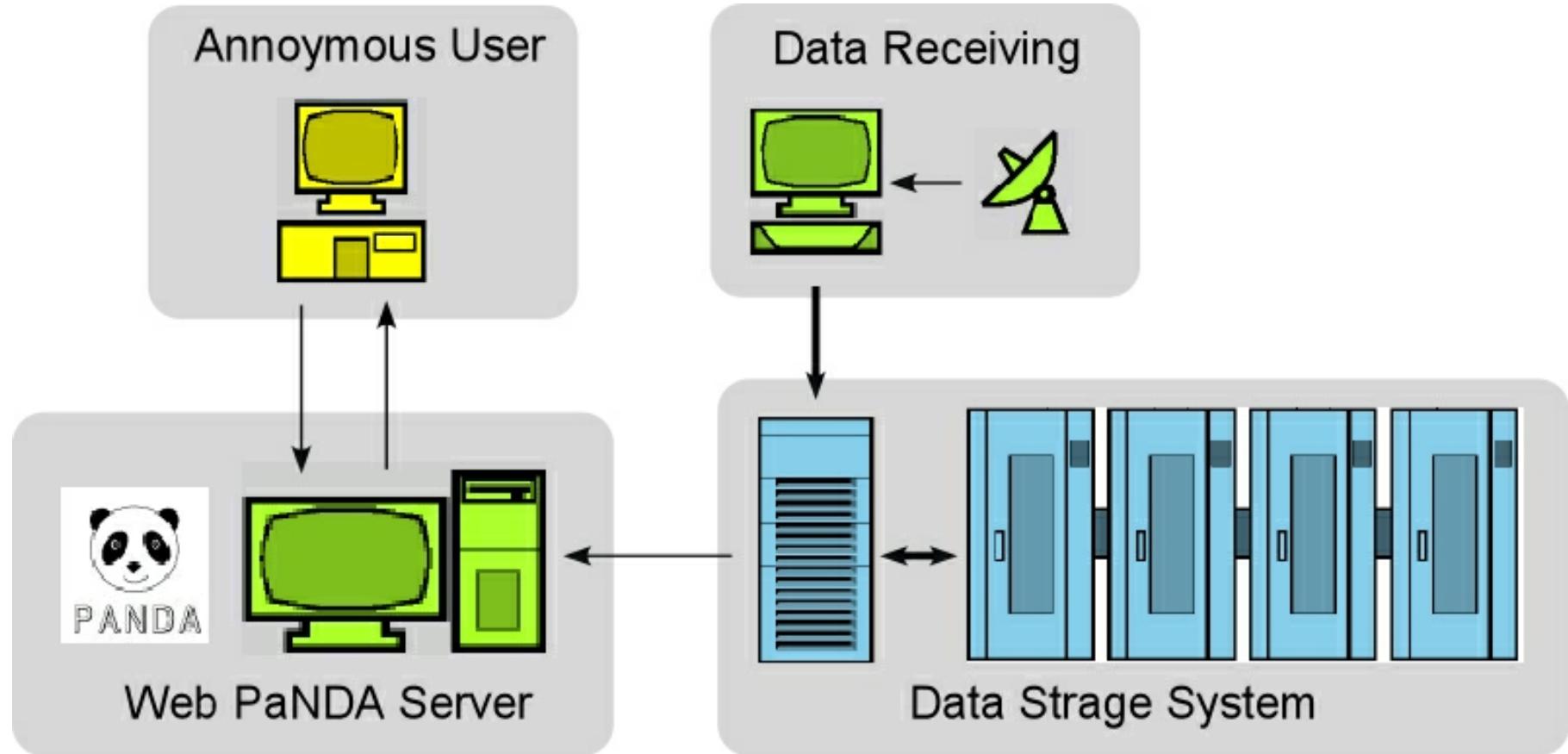
Graphical User Interface



<http://webmodis.iis.u-tokyo.ac.jp>

Hierarchical data search
by mouse click

Data Distribution via web

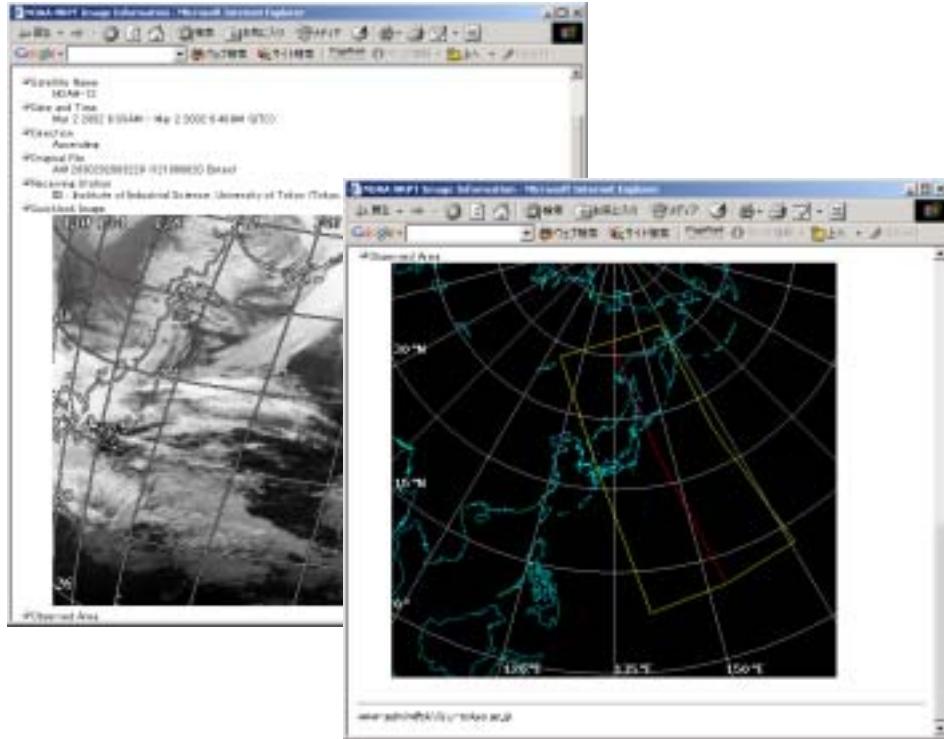


- Region extraction, radiometric correction and geometric correction
- E-mail communication, and data trasfer from FTP

Graphical User Interface

This screenshot shows the main interface of the Web PaNDA system. At the top, there's a banner for 'Web PaNDA - NORR SUHRR Processing System on WWW'. Below it, a large image of the Institute of Industrial Science (IIS) building is displayed, with the IIS logo overlaid. A counter indicates '171 scenes have been processed since February 1 2002'. The interface is divided into several sections: 'Process Data' (with a link to 'ALT Data (IIS, Tokyo)'), 'Information' (including 'Coverage' links to 'Coverage Map (IIS, Tokyo)' and 'Coverage Map (ALT, Bangkok)'), 'System Configuration' (with a link to 'System Configuration'), and 'PaNDA Manual' (with a link to 'Online (htm)' and 'Download (73KB, pdf)'). A 'Contact' section at the bottom includes an icon of a panda, the text 'Web PaNDA Team 2002', 'Watari Takeuchi', and 'E-mail: metaru@iis.u-tokyo.ac.jp'. The status bar at the bottom shows 'General (processes, net)' and 'Internet'.

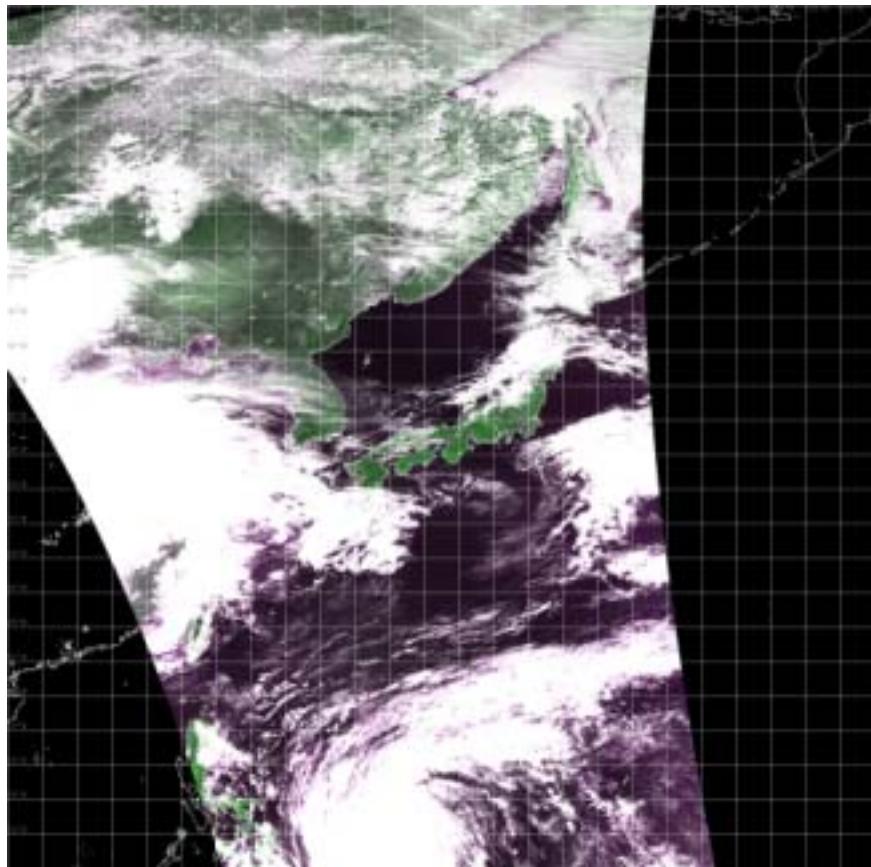
<http://webpanda.iis.u-tokyo.ac.jp>



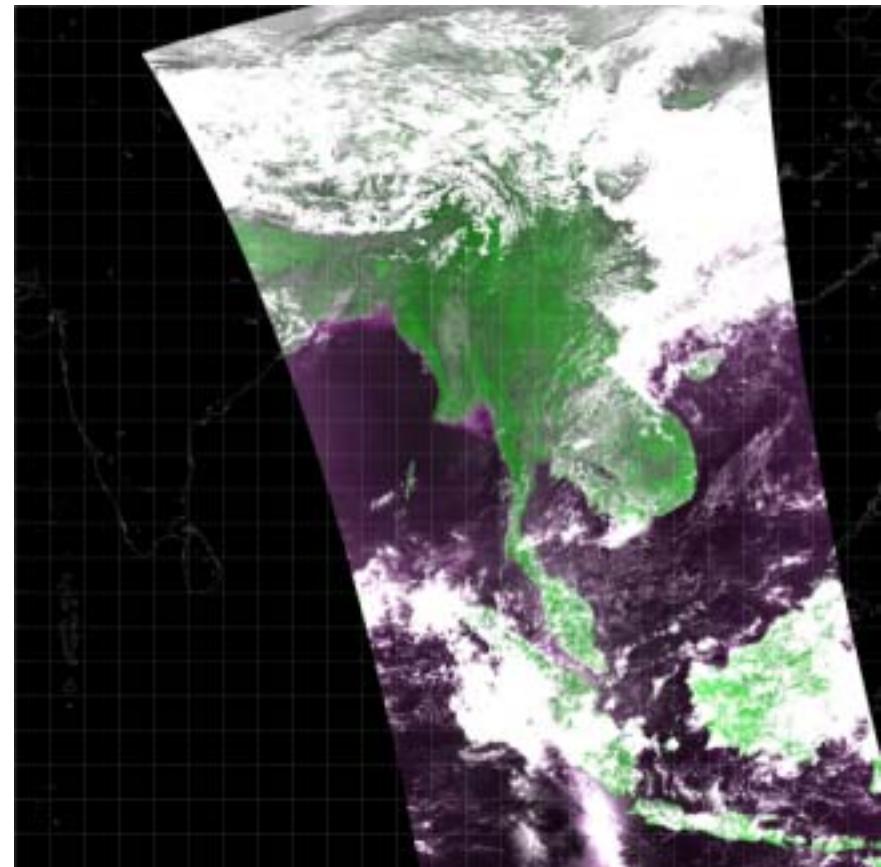
Images can be retrieved by cursor, and an area can be specified by long. & lat.

E-mail is sent after completion.

Examples of Image Rectification

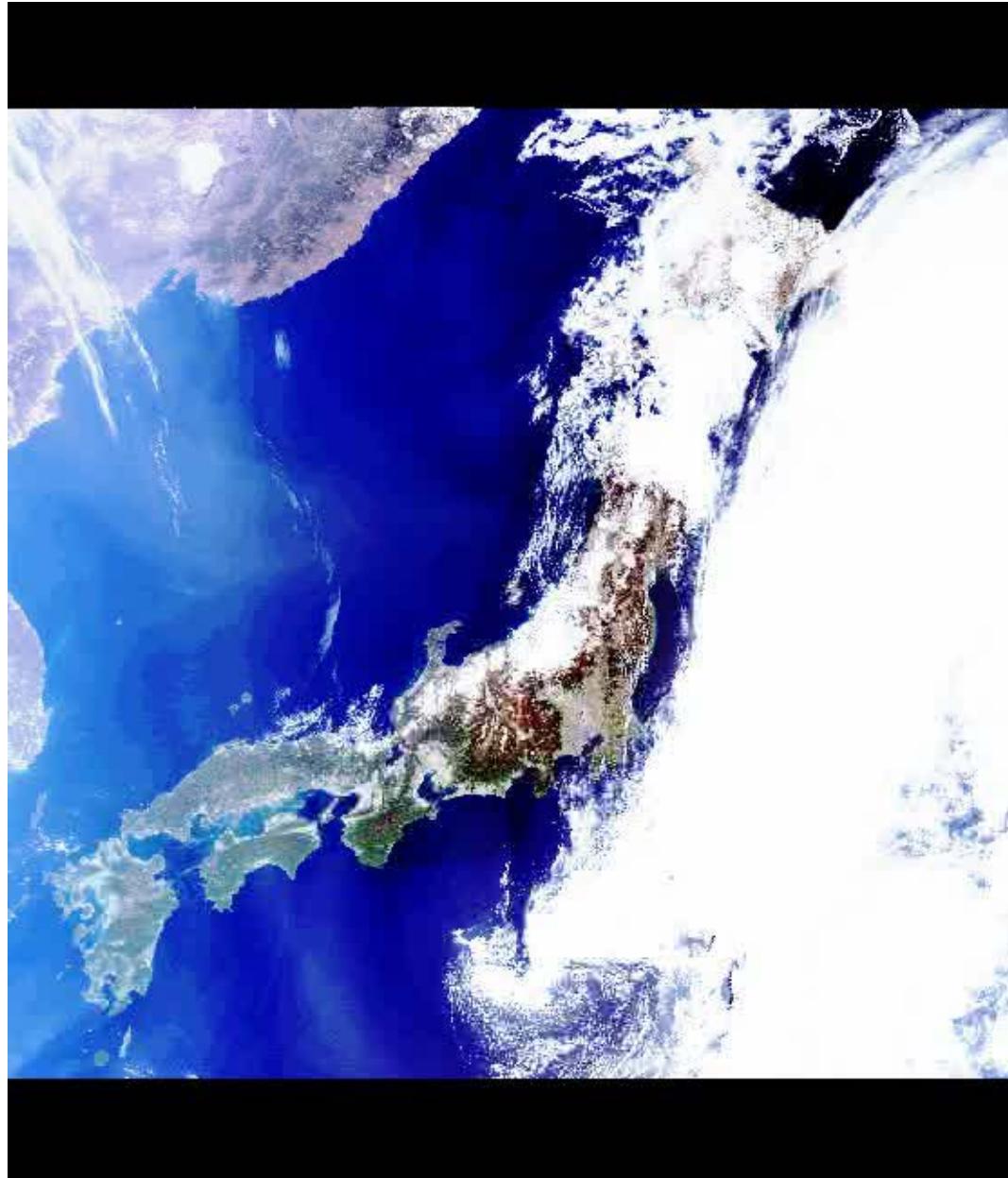


2002/3/4, 4:23 (UTC)
NOAA16 data received at Tokyo

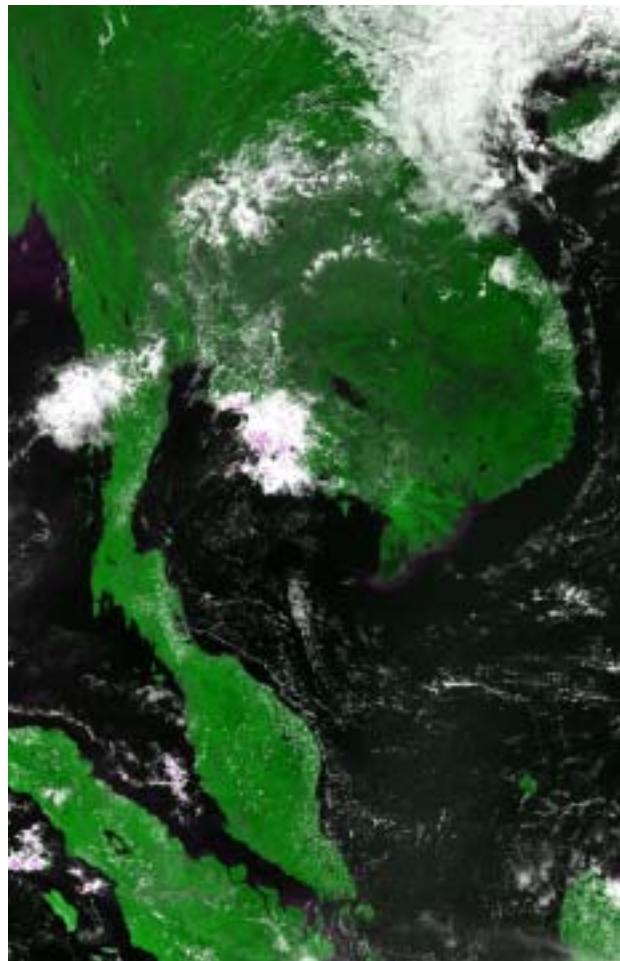


2002/3/1, 6:15 (UTC)
NOAA16 data received at AIT

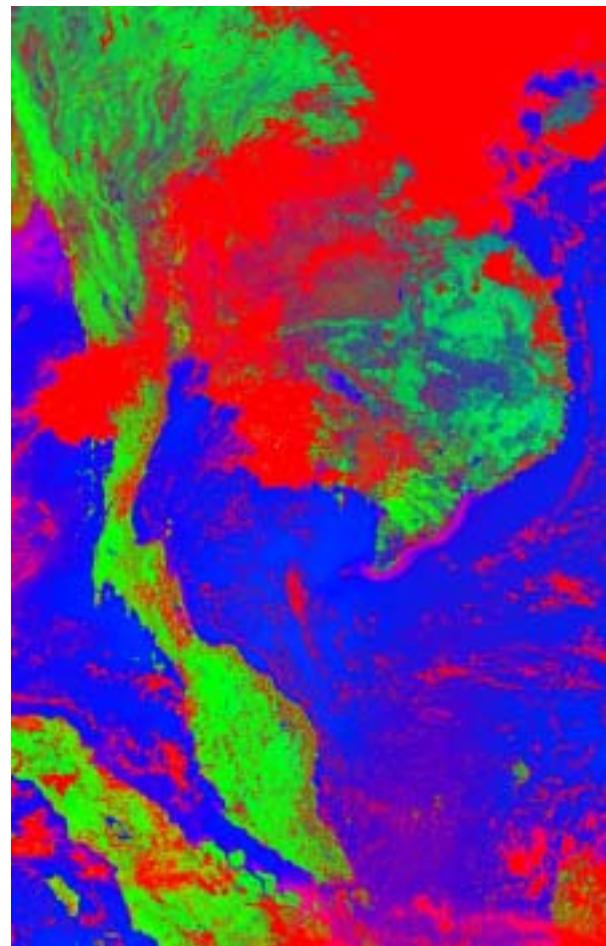
3 - D MODIS



VSW mixing ratio map by scaling between MODIS and ASTER

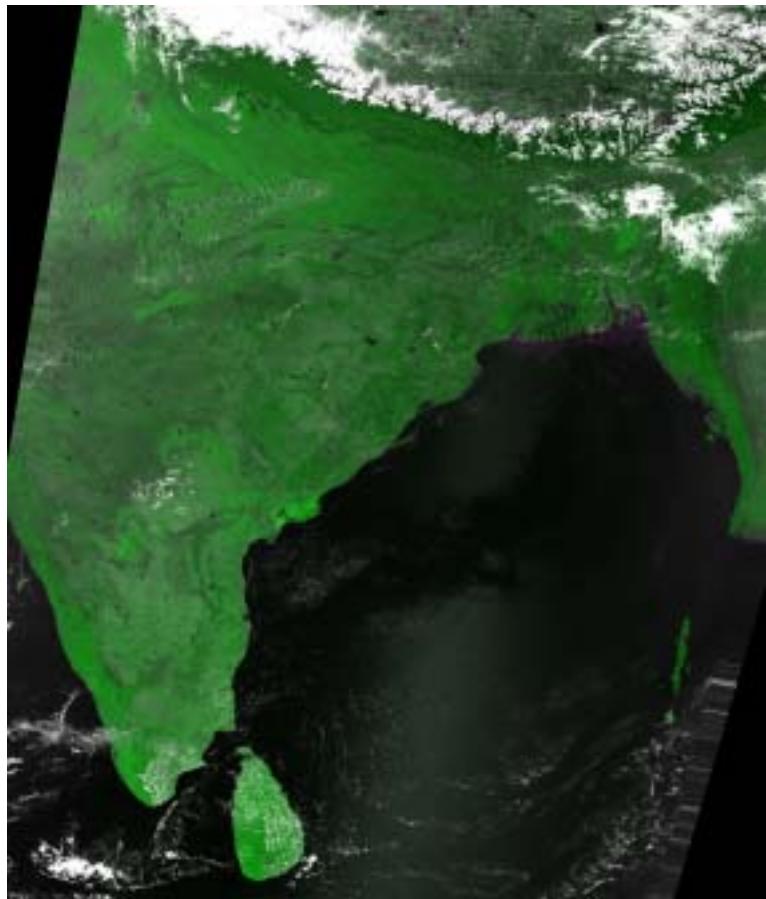


2002/2/4
MODIS-250m

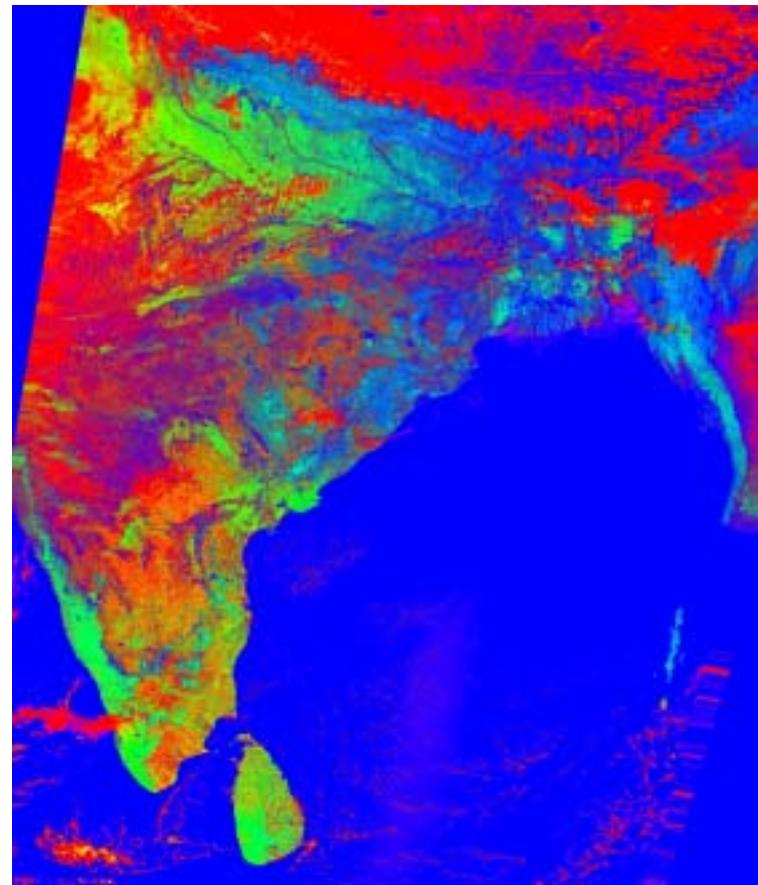


2002/2/4
VSW-MODIS-250m

VSW mixing ratio map by scaling between MODIS and ASTER



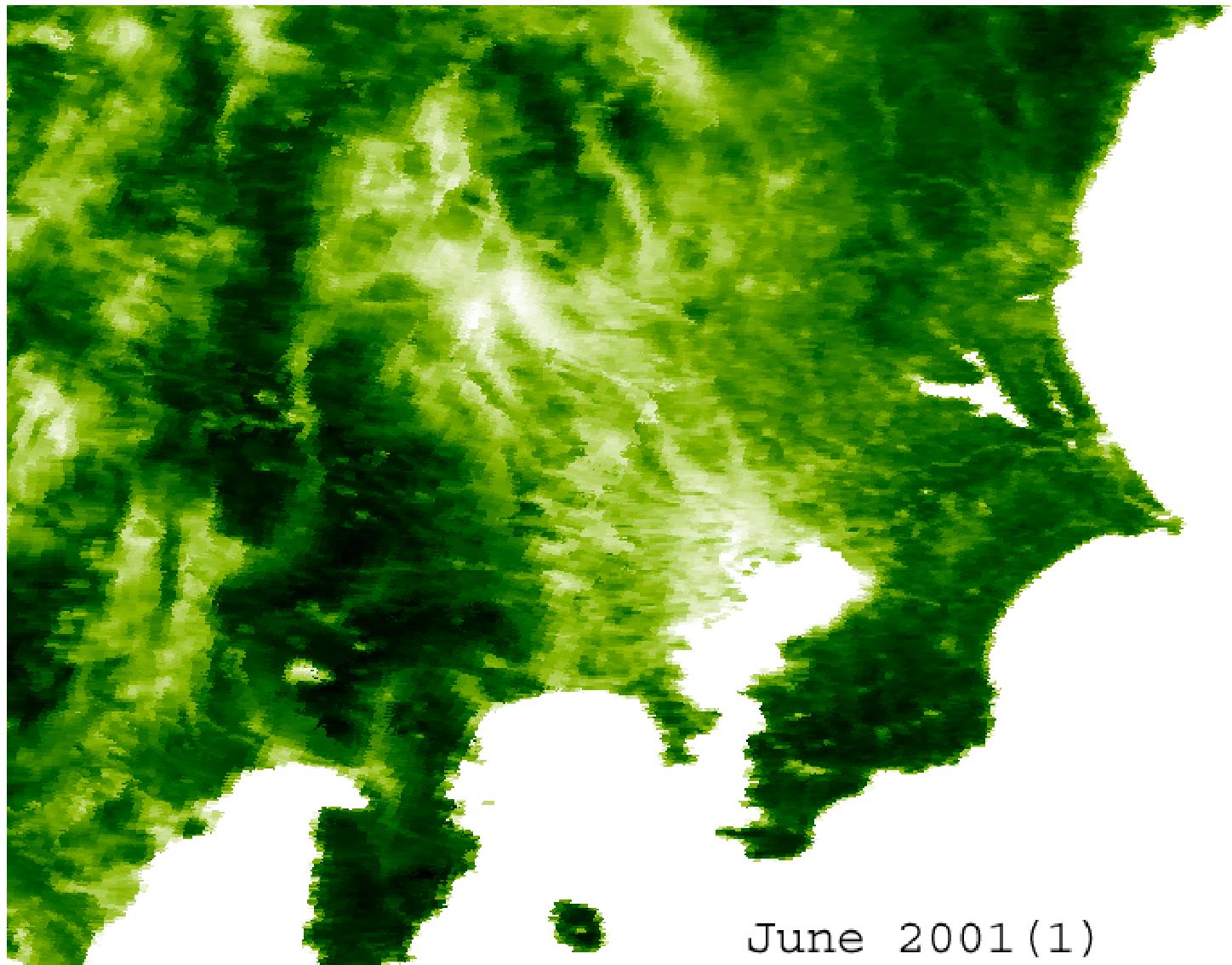
2002/3/10
MODIS-250m



2002/3/10
VSW-MODIS-250m

Tokyo & Kanto Area

NDVI images –
June-Nov 2001



June 2001 (1)

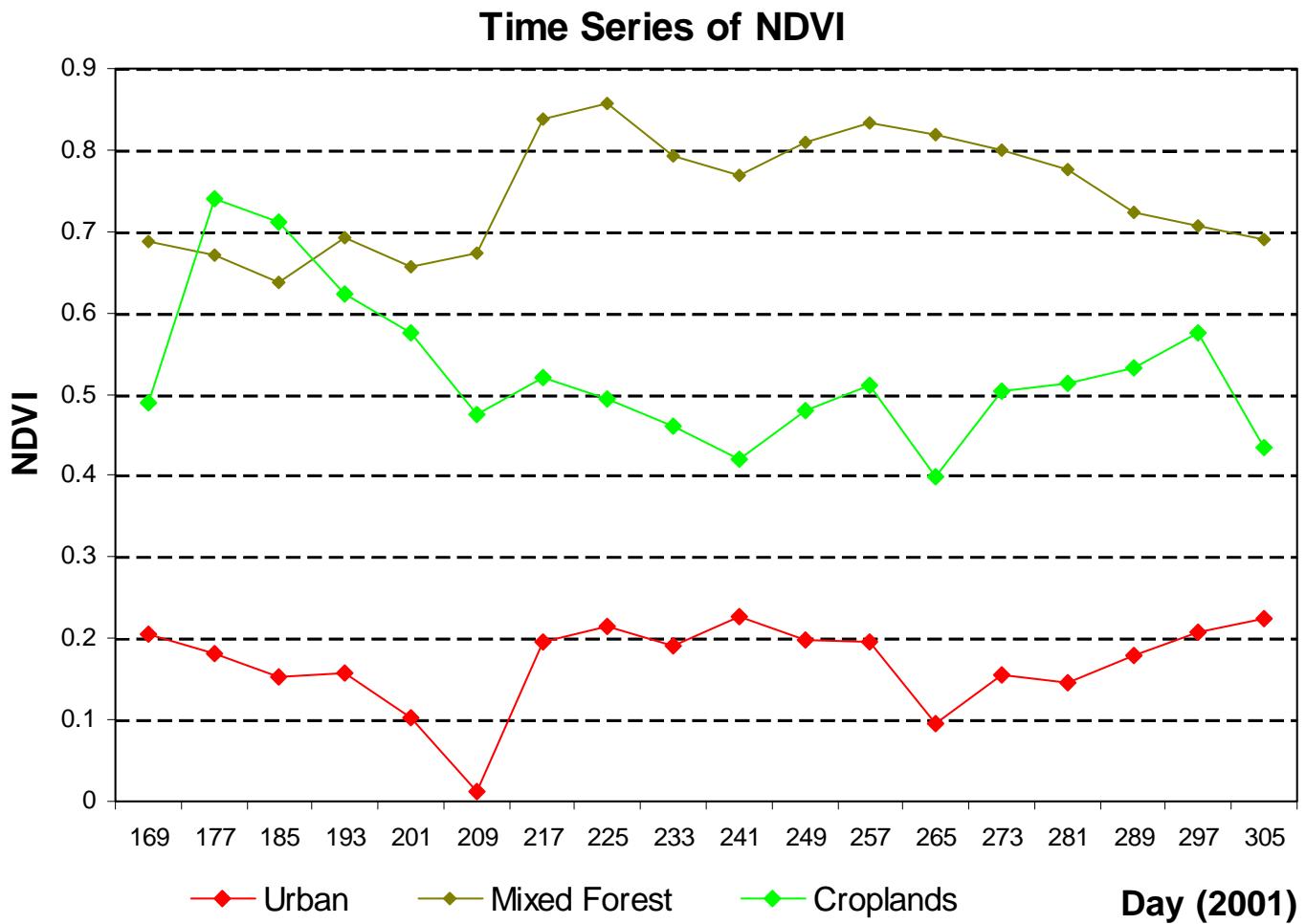
0

1.0



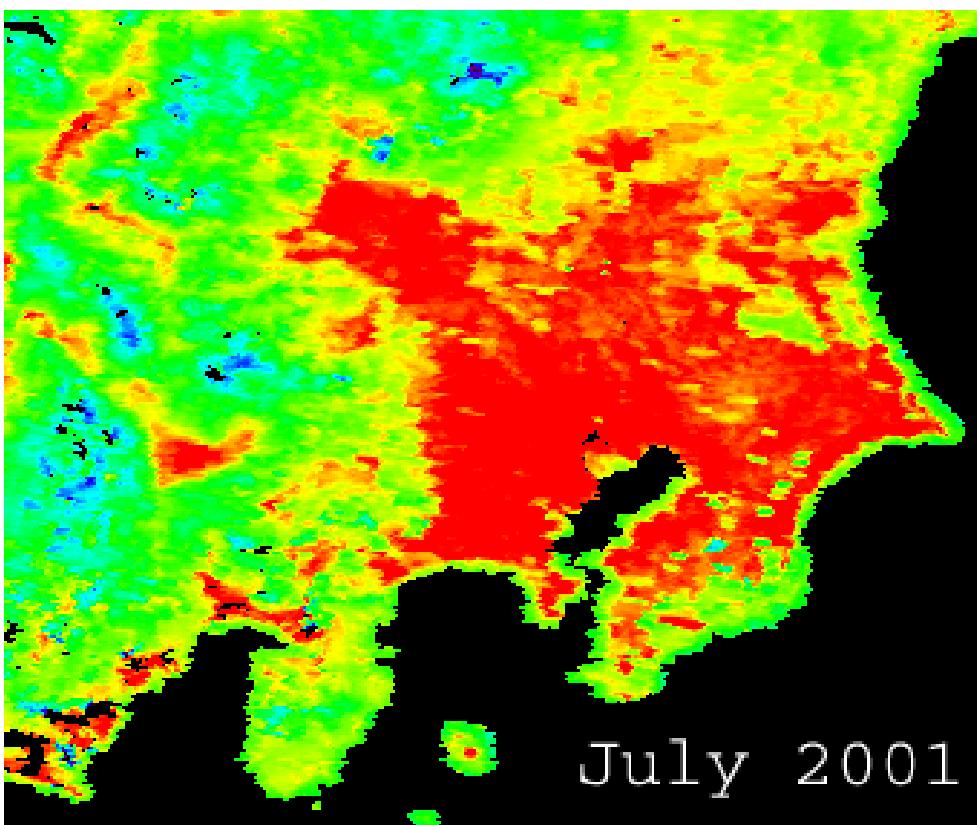
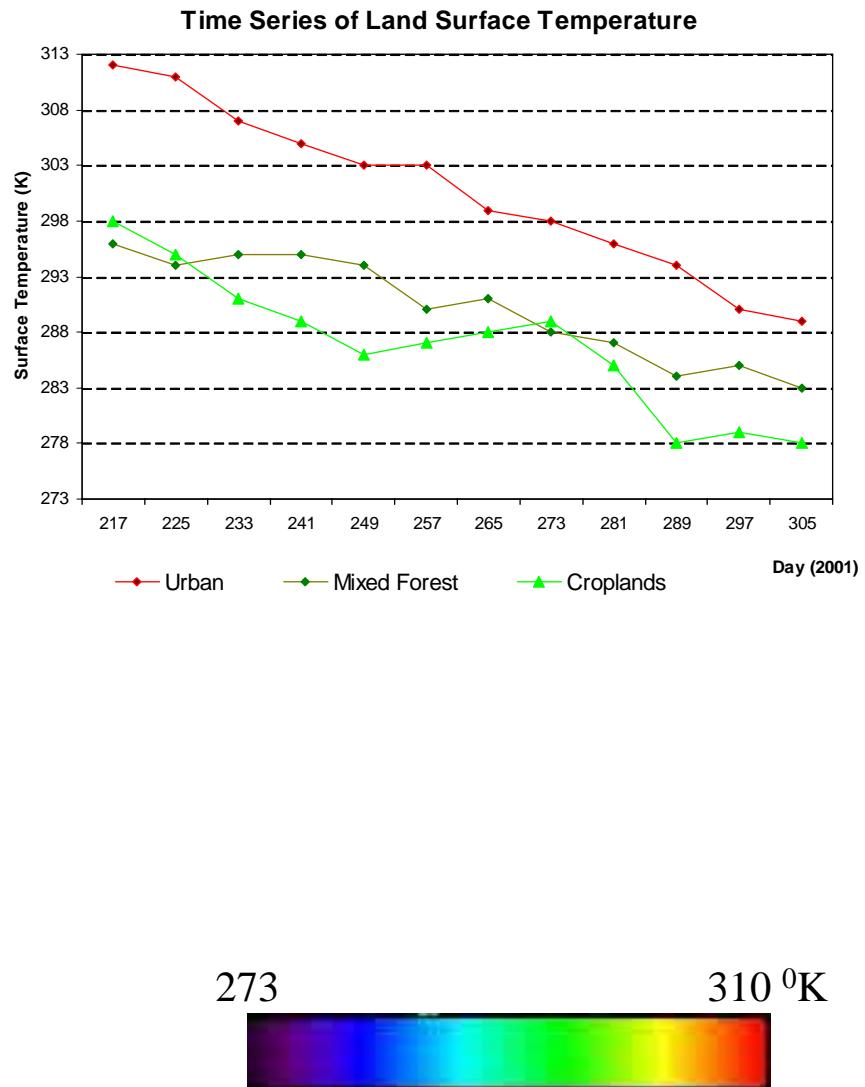
IIS MODIS System

Tokyo & Kanto Area



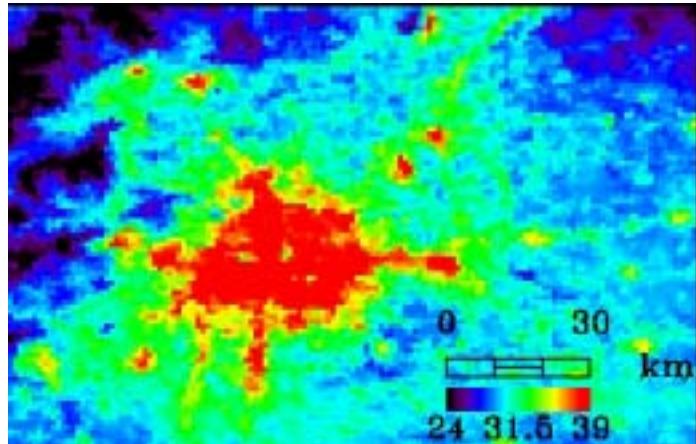
Tokyo & Kanto Area

LST images – July-Nov. 2001

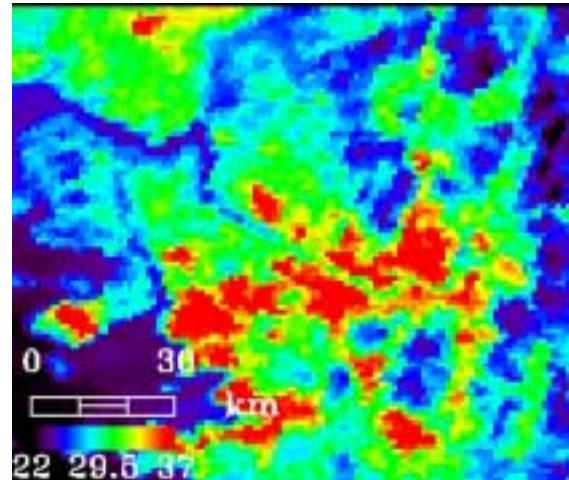


IIS MODIS System

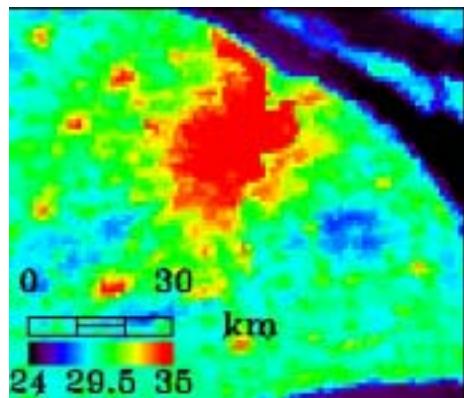
Heat Island in Asian Cities



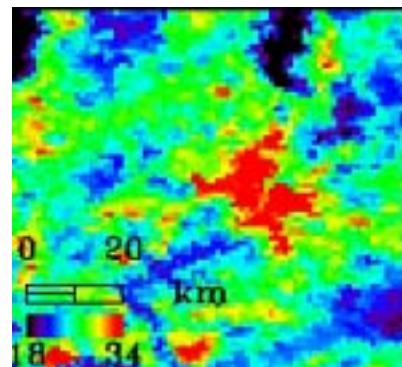
Beijing



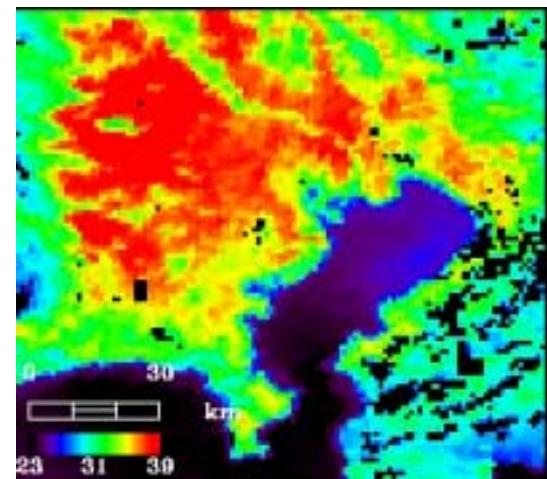
Soul



上海

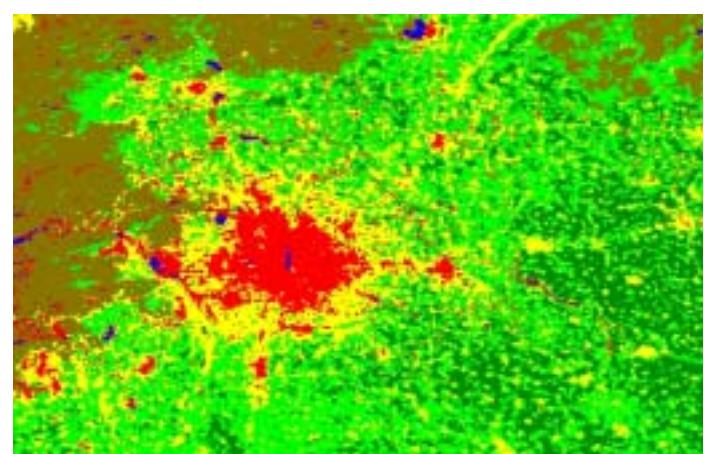


Pyongyang

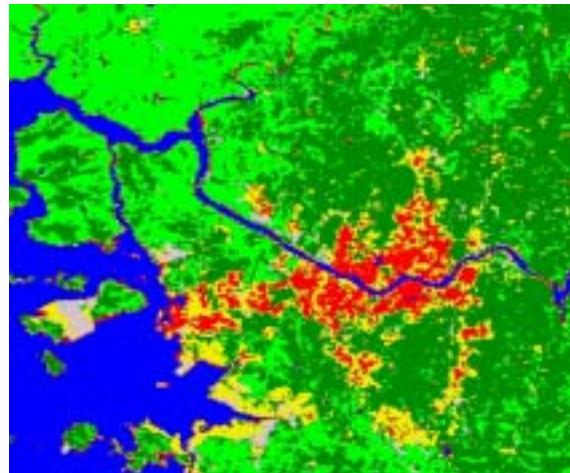


Tokyo

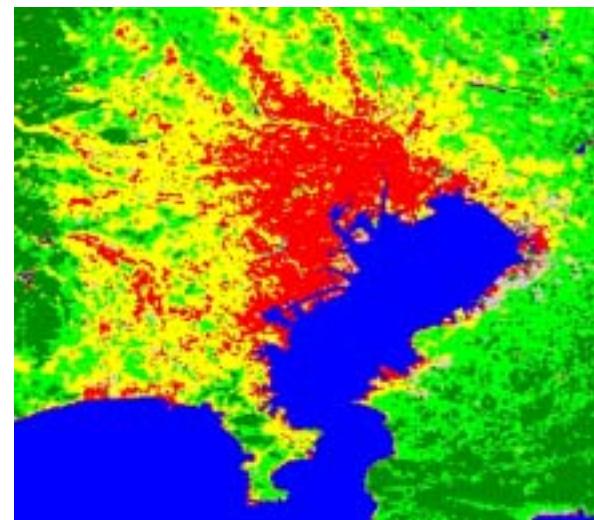
Land-cover distribution



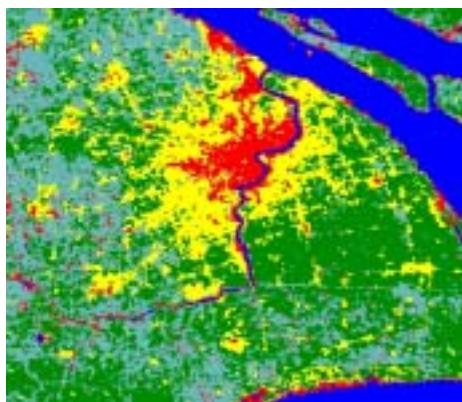
Beijing



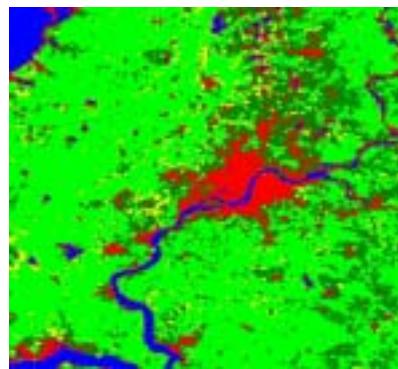
Soul



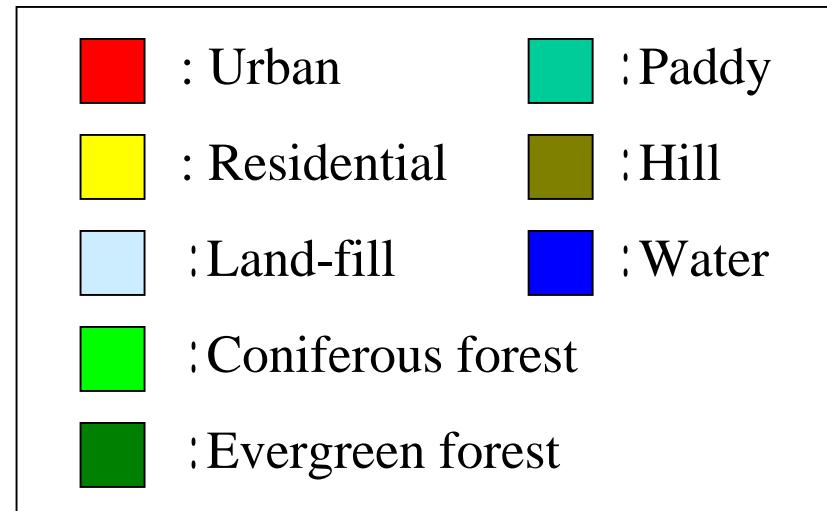
Tokyo

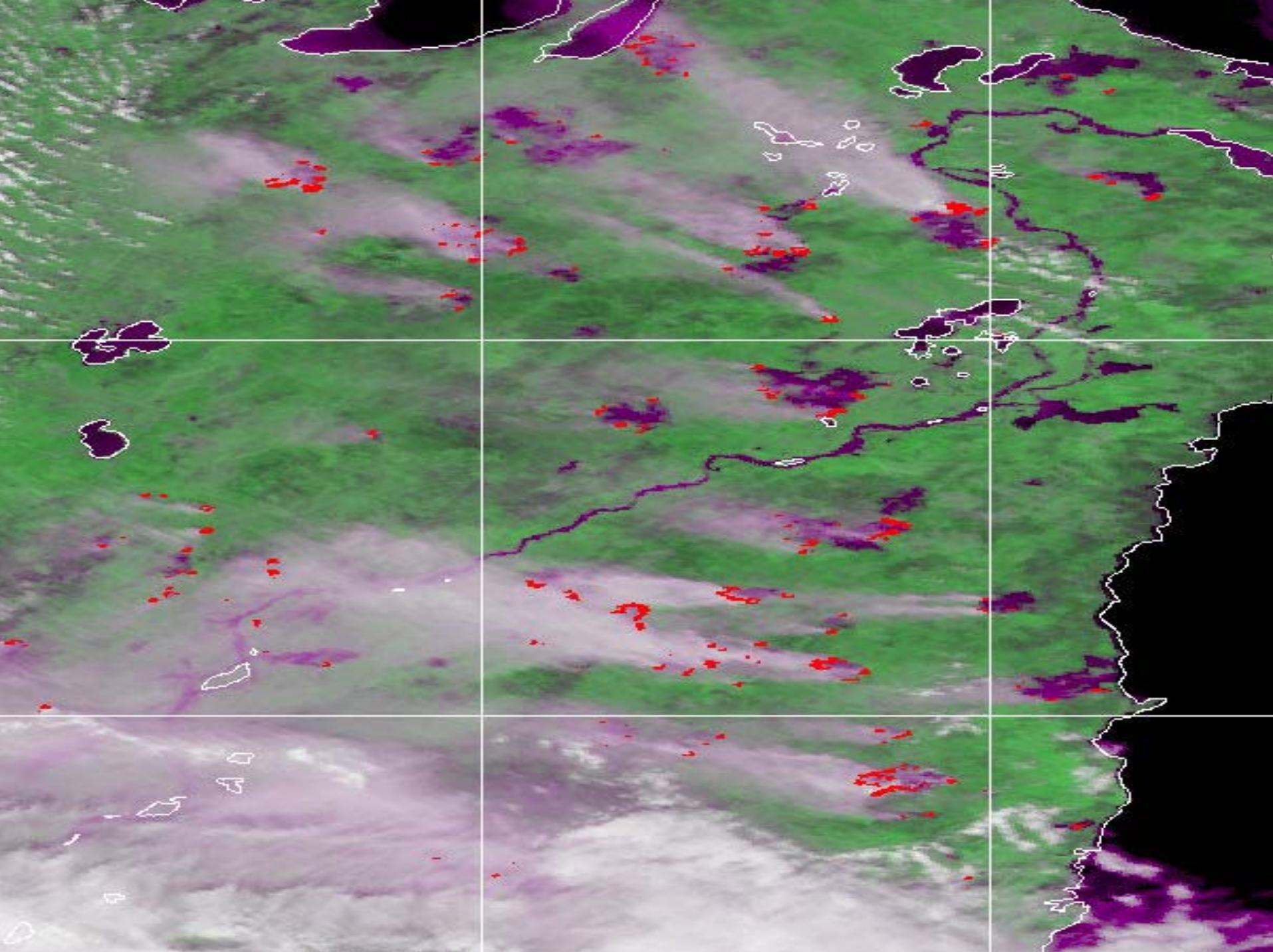


上海



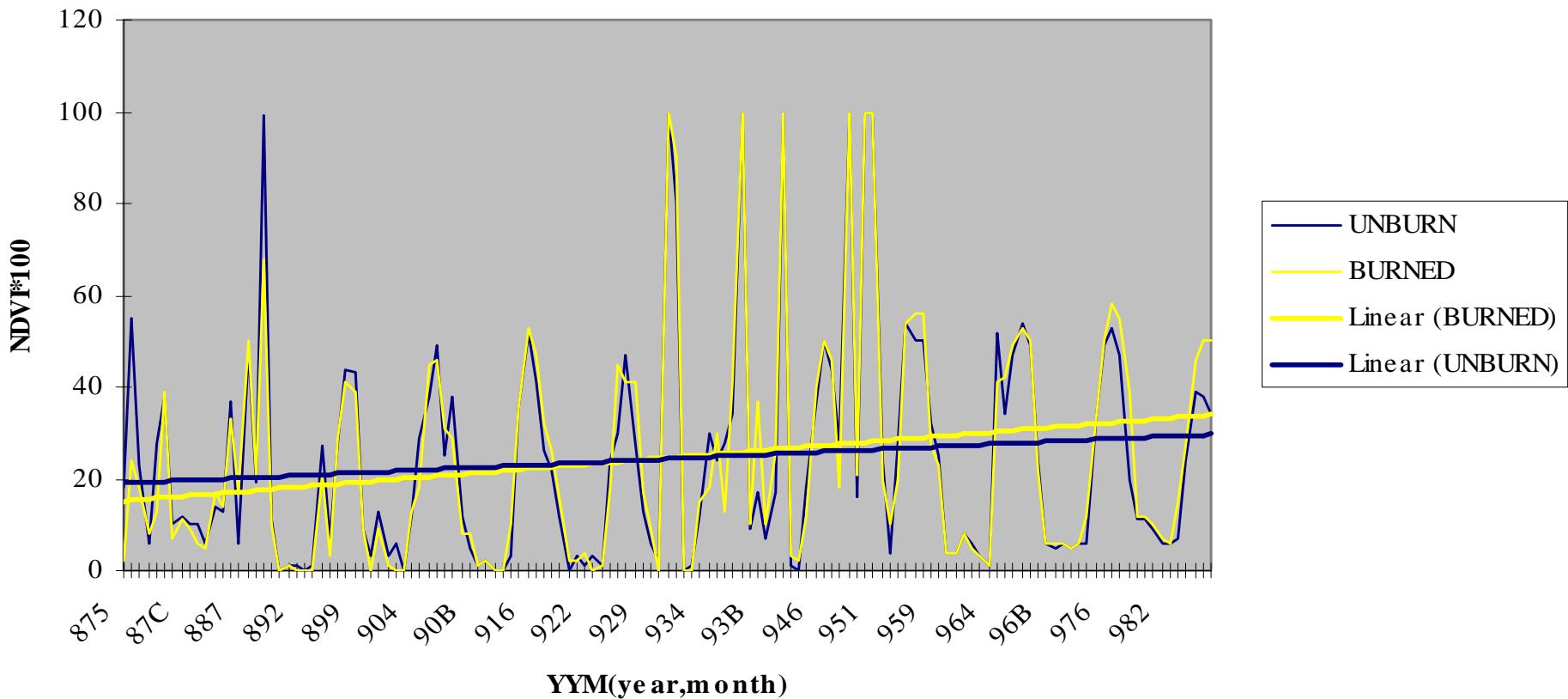
Pyongyang





Burned area recover monitoring - NDVI

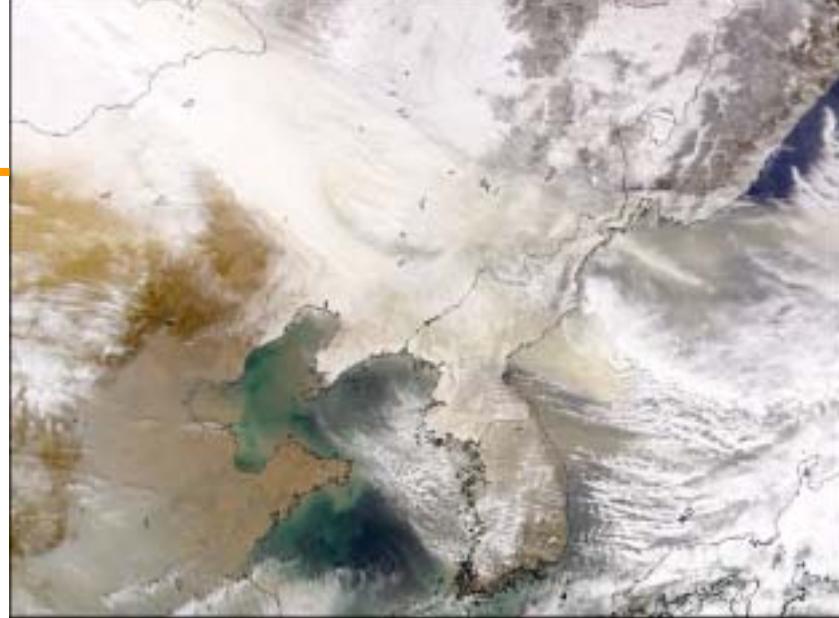
COMPARISON OF NDVI UNBURNED AND BURNED AREA



Asian MODIS DB network

Similar to the US MODIS DB network (GSFC, USF, UW, OSU)

- Data sharing between sites in the region for joint study of extreme weather events at continental scale – dust storms, typhoons, ...
- Generate selected agreed portions of data / products.
- Algorithm/products inter-comparisons.
- Compositing process to generate Asian mosaic (NDVI, LST/SST) in shortest time lag.



Dust storm (Jan 02, 2001)



Typhoon Pabuk (Oct 16, 2001)

