# GLOBCOVER bimonthly image composite evaluation

Prepared by GOFC-GOLD PO/FSU Jena

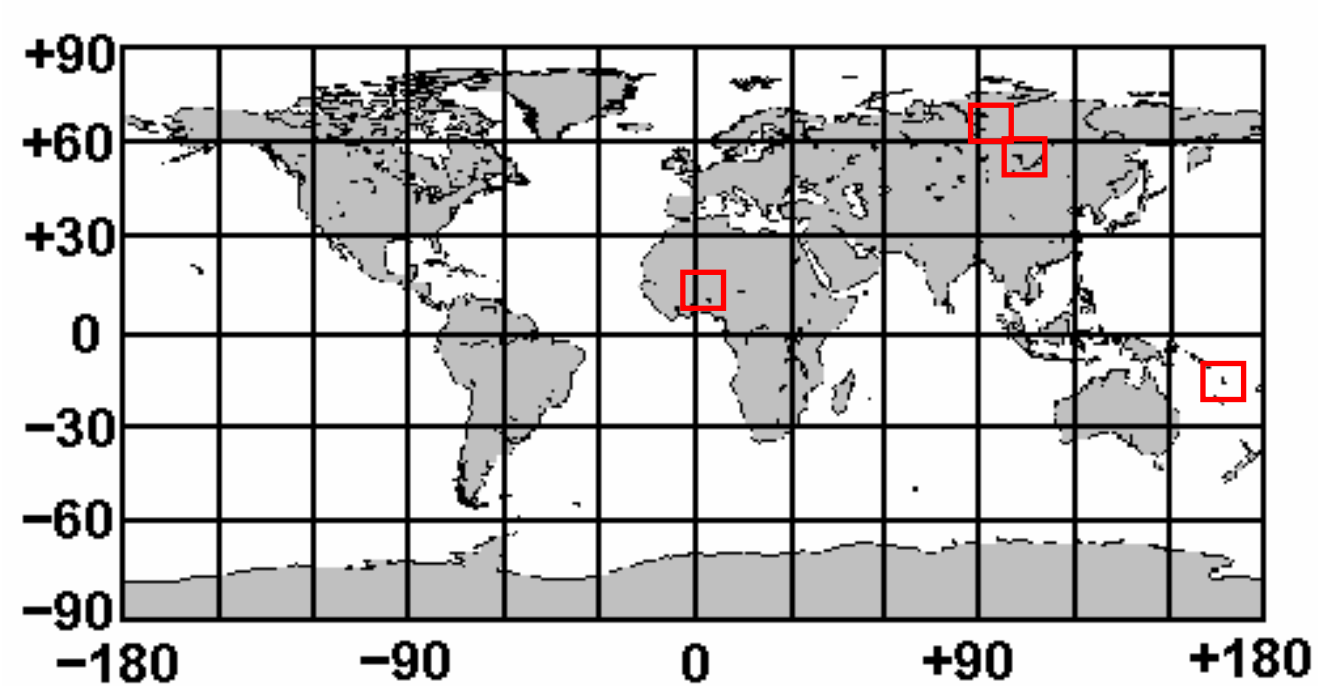
for

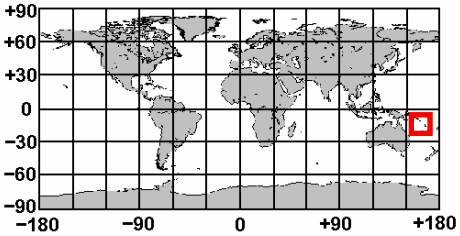
1st User Feedback meeting

20. June 2007

# Locations investigated

- Subsaharan Africa – ESA Aquifer project
- Irkutsk oblast – EU IRIS project
- Norilsk region – SIB-ESS-C
- Vanuatu – Vanuatu forest monitoring



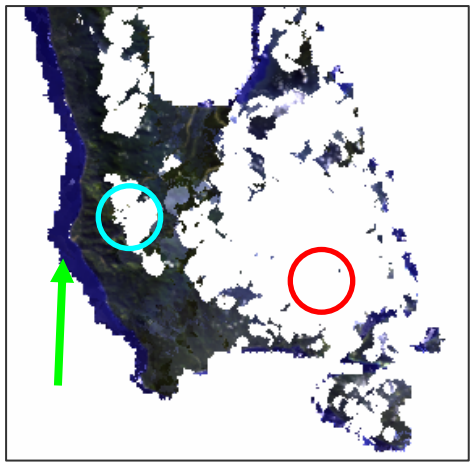



# Vanuatu forest monitoring

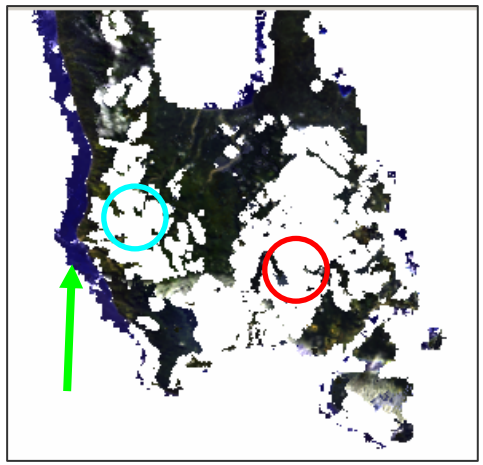
www.vuw.ac.nz/geo/research/climate-change/vanuatu-forests/

**Globcover tile: H69 / V21 (Santo Island/Vanuatu)**

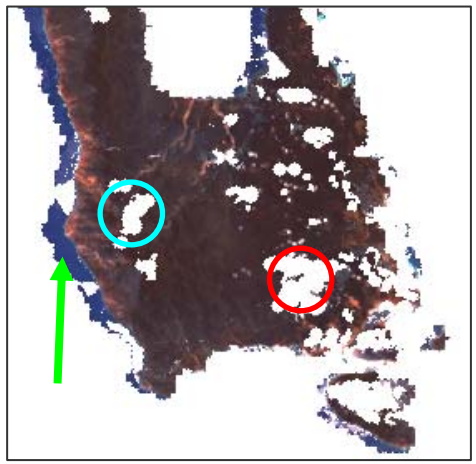
Composite 3/05



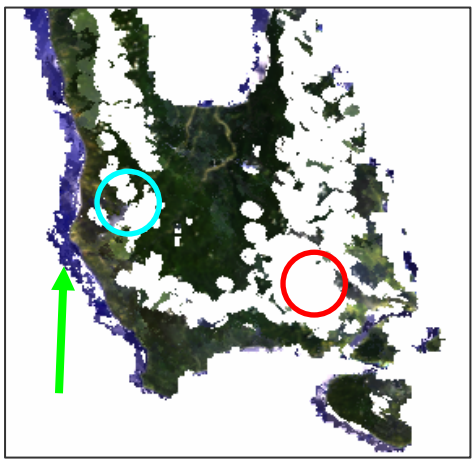
Composite 4/05



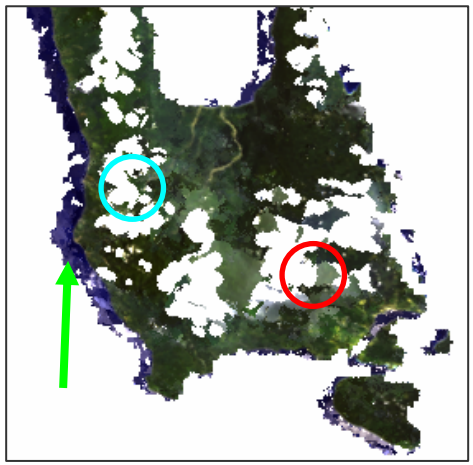
Composite 5/05



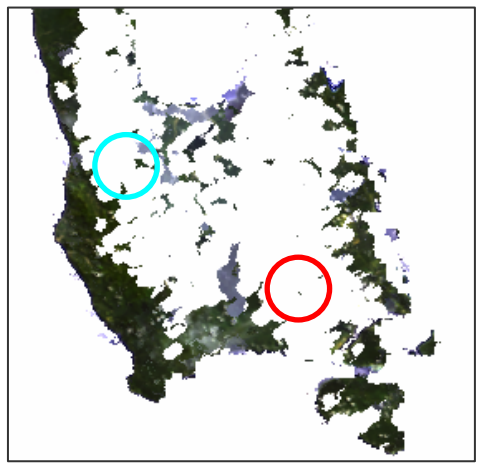
Composite 6/05



Composite 1/06



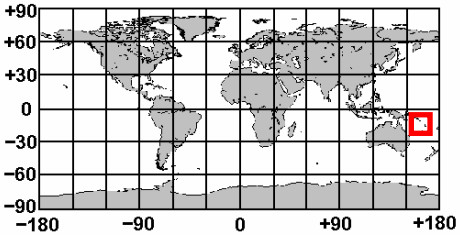
Composite 2/06



Issues:

1. Some areas of persistent cloud cover (circles)

2. Shift (land mask problem?) for 5 of 6 mosaics (arrow)

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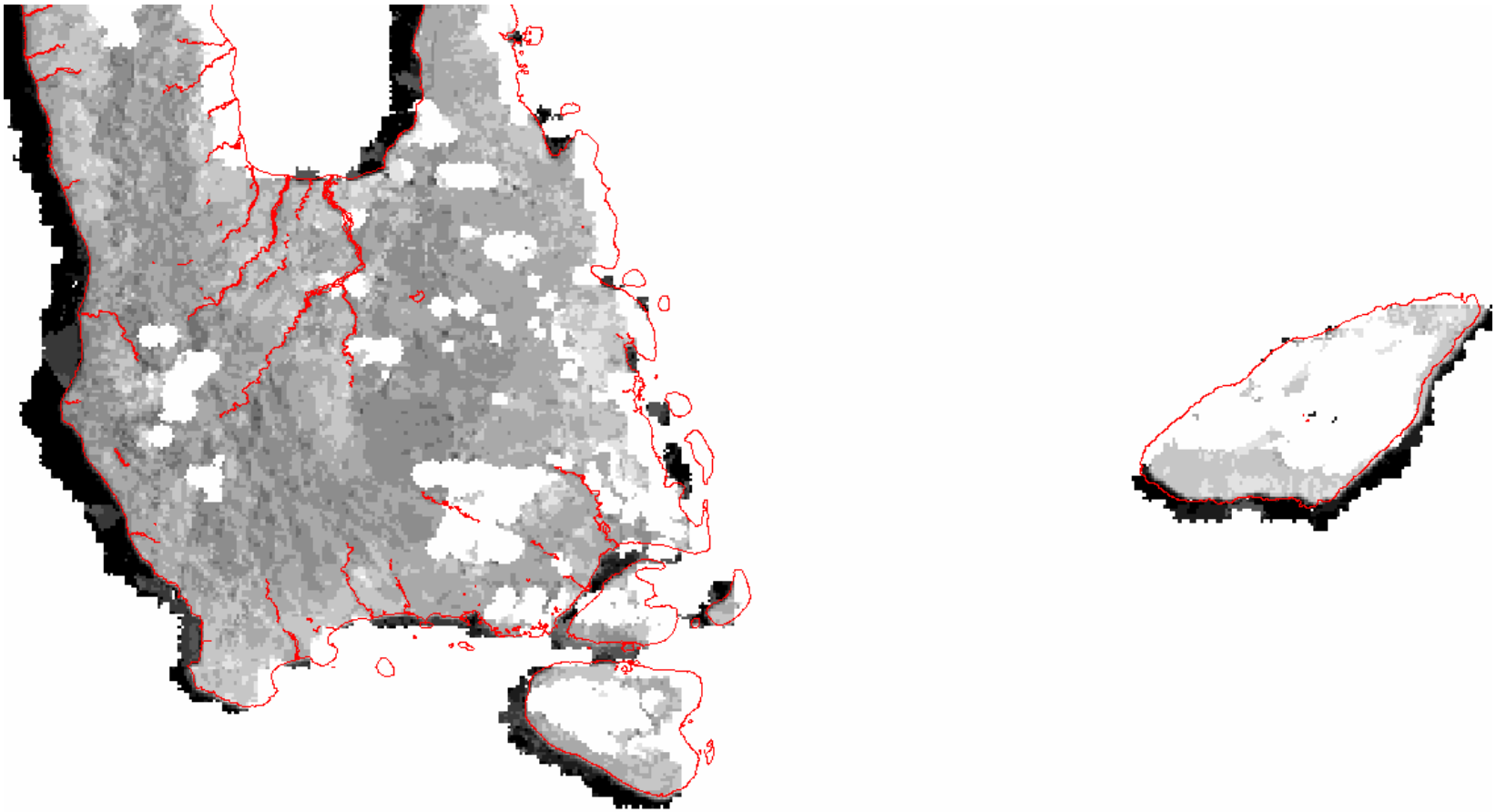
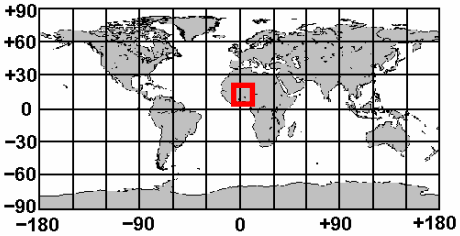
**Globcover tile: H69 / V21 (Santo Island/Vanuatu)**



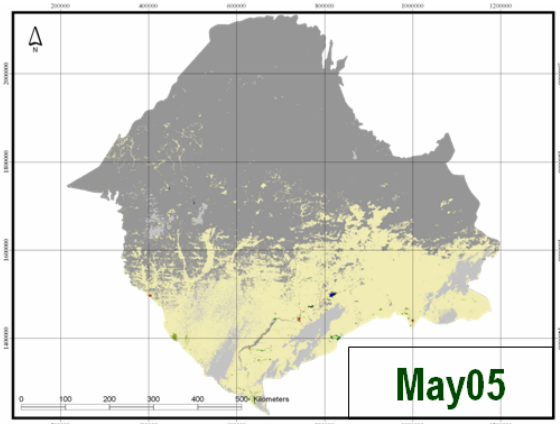
Overlay with VANRIS Coastline data (in red):
Bright areas seem OK and fit well with geolocation reference
Land/sea mask problem, shift to west/south?

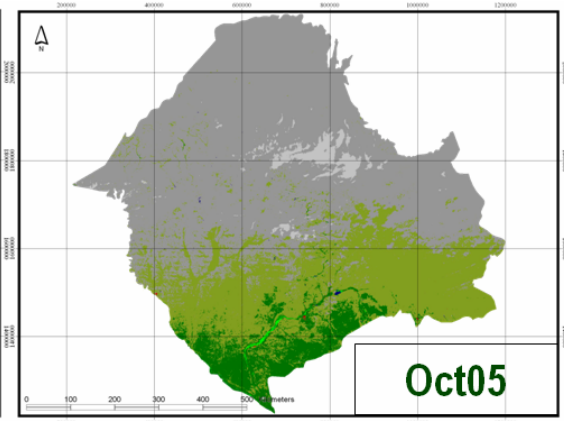


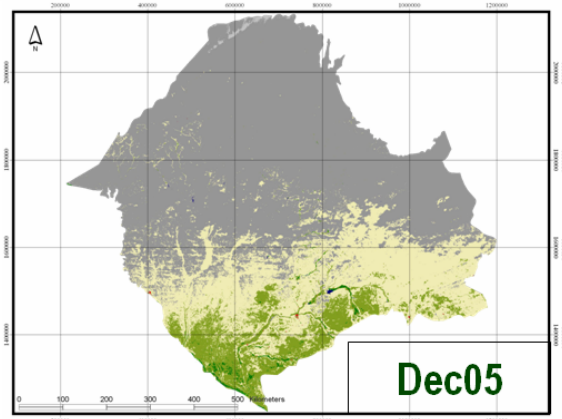

# Aquifer – large scale water and vegetation monitoring

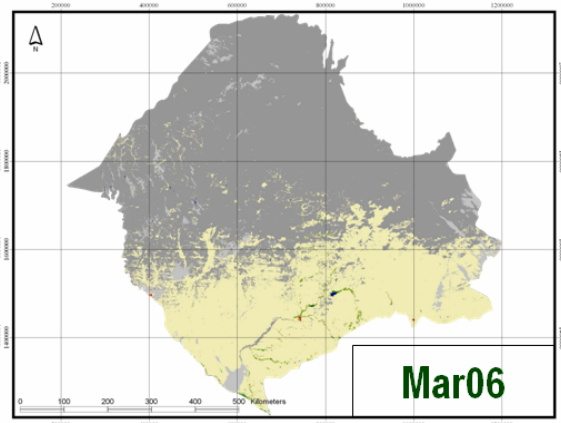
http://www2.gaf.de/aquifer/pages/en/prod_serv08.htm

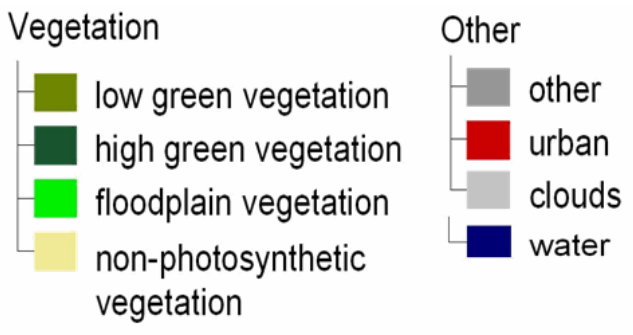
AQUIFER University of Jena esa TIGER due OSS

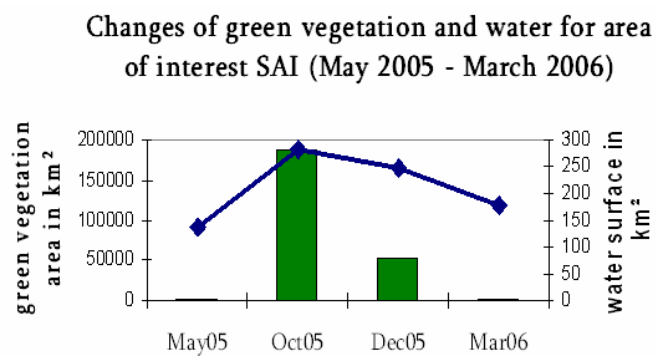


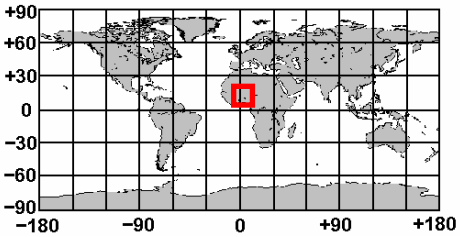






# Aquifer – large scale water and vegetation monitoring

http://www2.gaf.de/aquifer/pages/en/prod_serv08.htm

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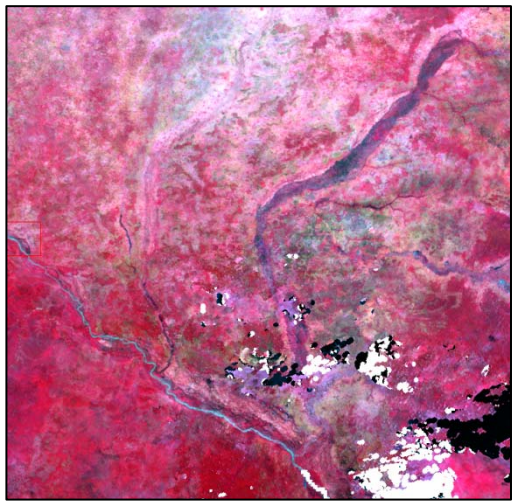
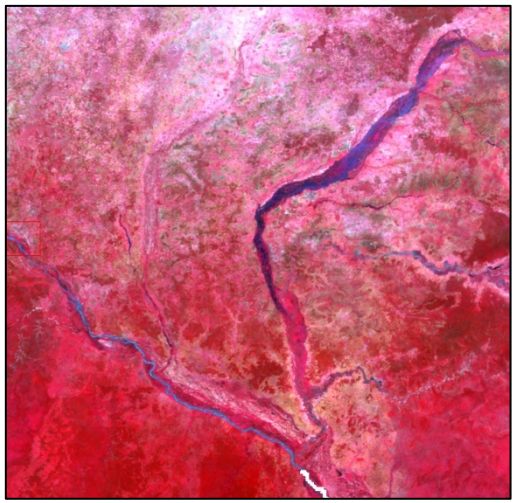
**Globcover tile: H36 / V15 (Sokoto River Floodplain- Nigeria/Niger)**

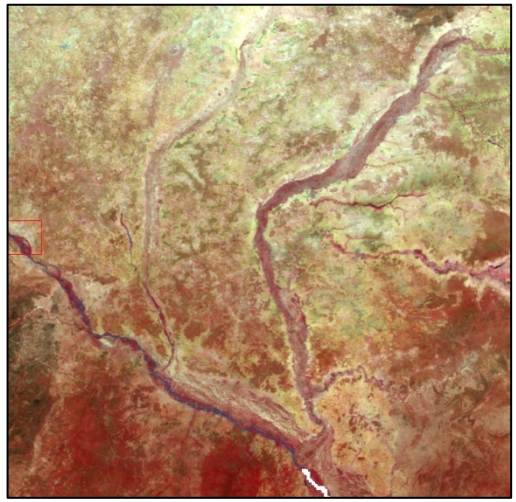
Composite 4/05



Composite 5/05

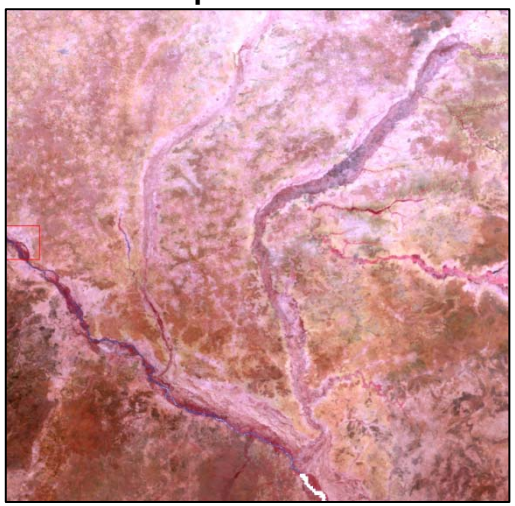


Composite 6/05

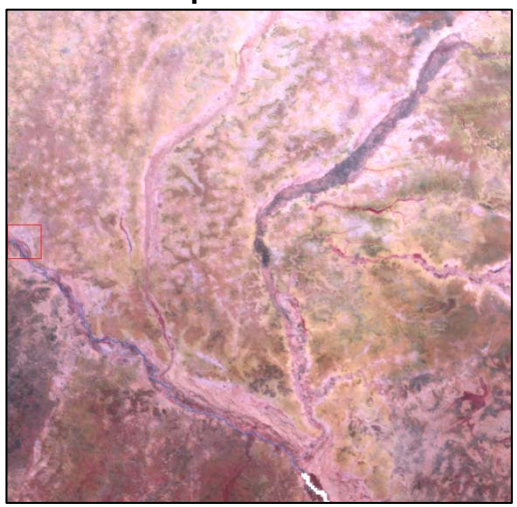


temporal resolution enables to monitor seasonal vegetation and water dynamics

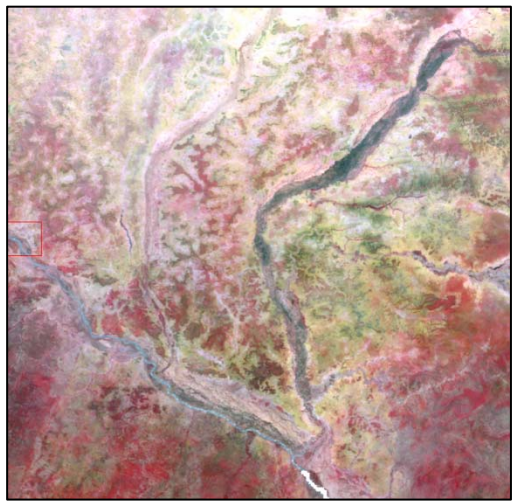
Composite 1/06

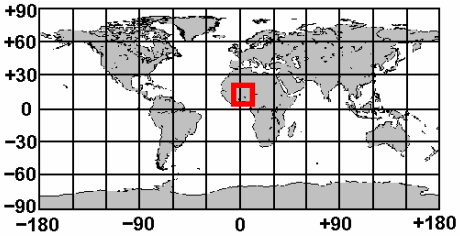


Composite 2/06



Composite 3/06






# Aquifer – large scale water and vegetation monitoring

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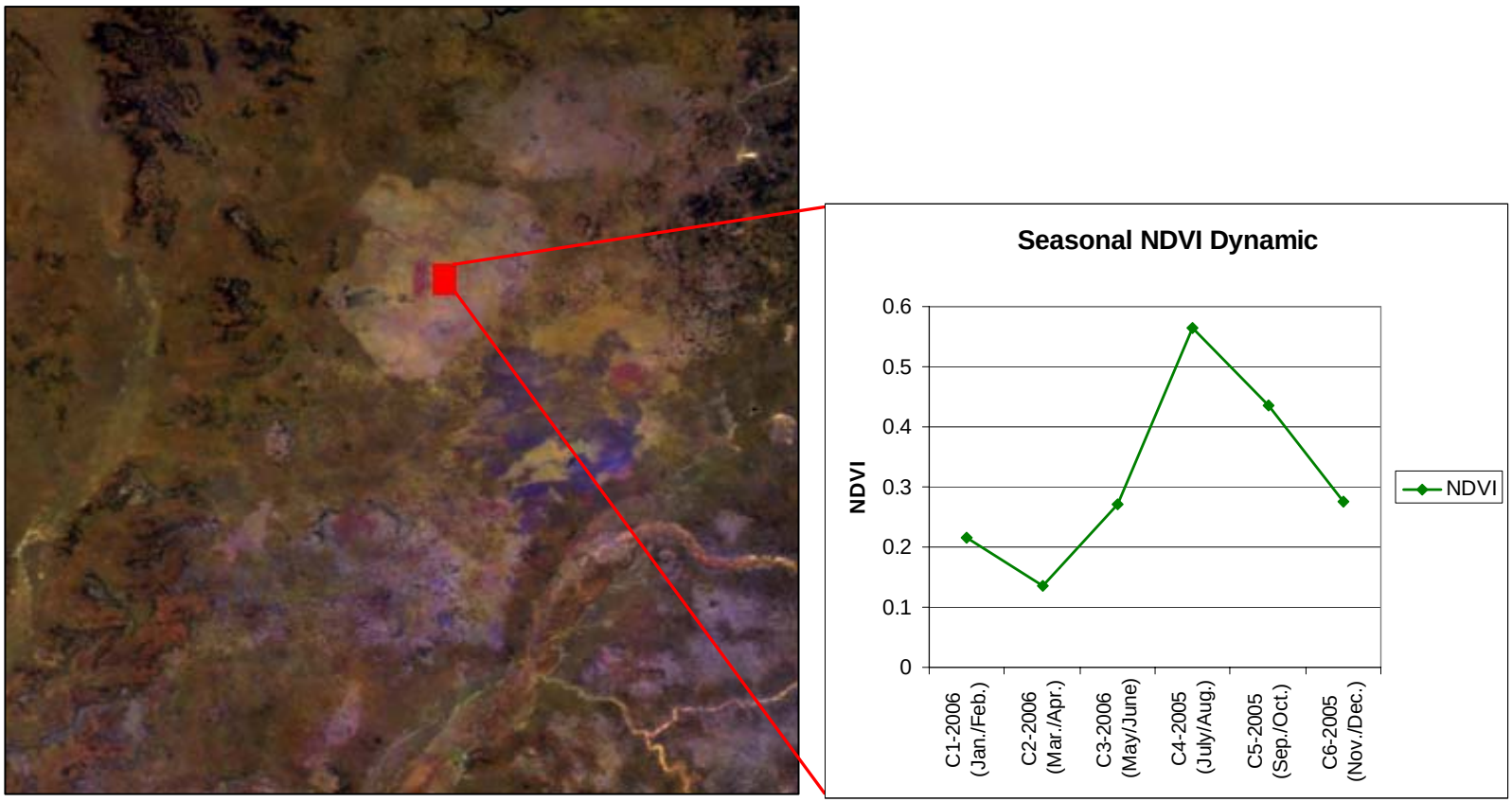
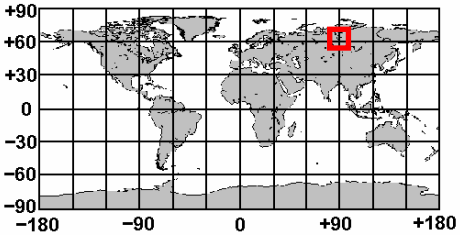
**Globcover tile: H36 / V15 (Sokoto River Floodplain- Nigeria/Niger)**

NDVI Composite bimonthly: 1/2/3 - 2006





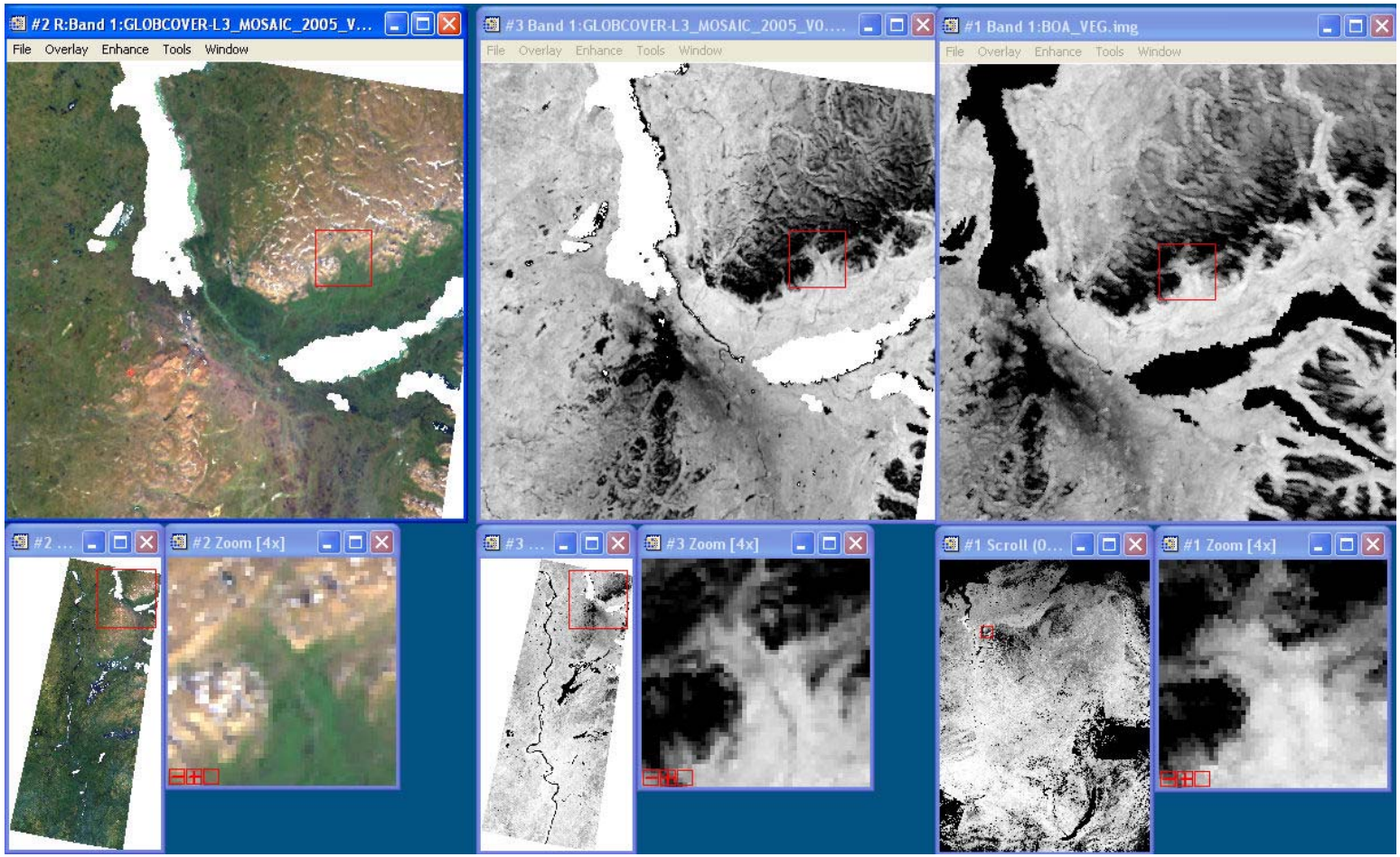

# Siberian Earth System Science Cluster

## Globcover tile: H53 / V4 (Norilsk Area / Russia)

Globcover 4/05 8/5/2

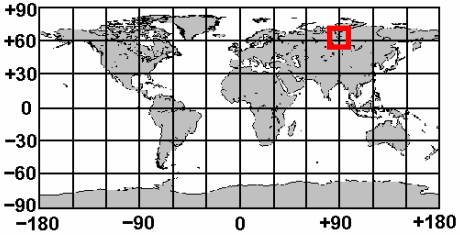
Globcover 4/05 NDVI

SIBERIA-2 monthly Mosaic 07/2003
Meris_FR_2P_BOA_VEG




SIBERIA-2 monthly mosaics were created using a Max. NDVI approach on MER_FR_2P scenes

Globcover geometric accuracy appears to be much better than previously possible with single MERIS Level 2 scenes



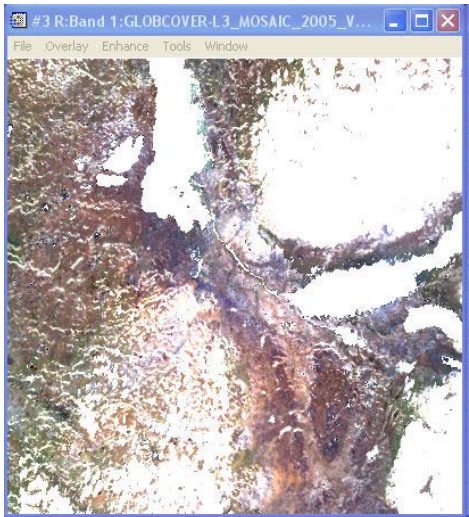

# SIB-ESS-C

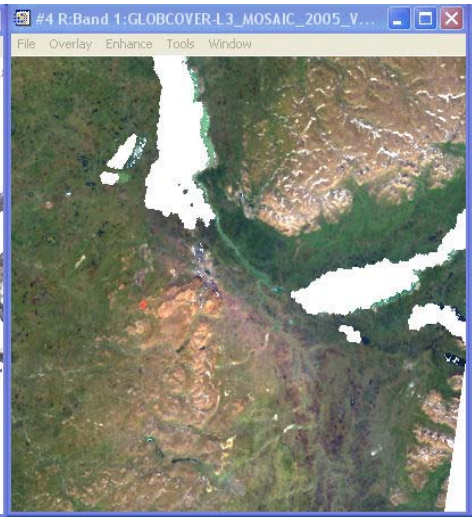
## Globcover tile: H53 / V4 (Norilsk Area / Russia)

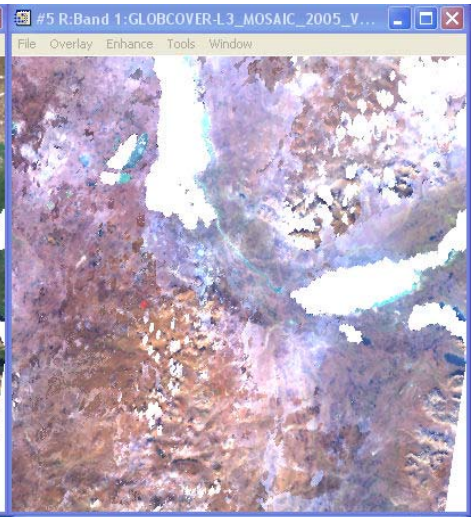
Globcover 3/05 8/5/2

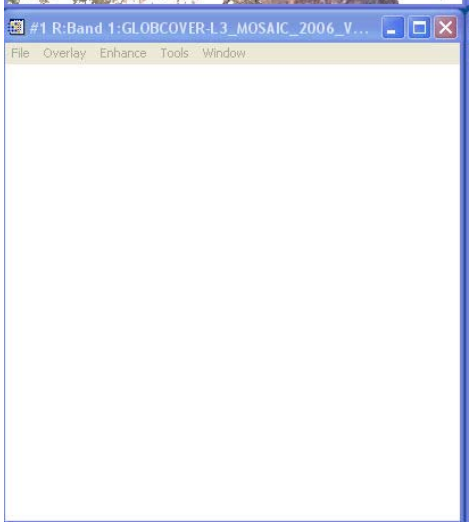
Globcover 4/05 8/5/2

Globcover 5/05 8/5/2

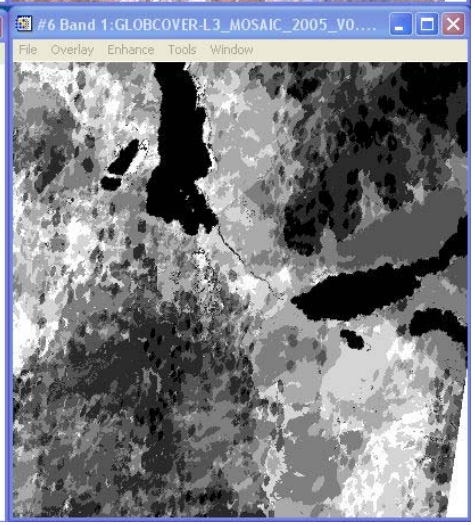






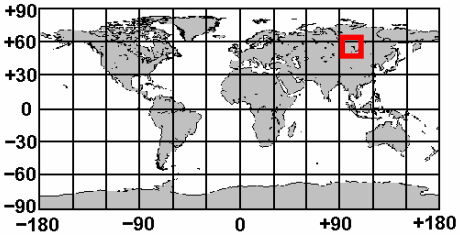

The quality seems to rapidly decrease, when there are only a few observations per pixel (< 5)

No coverage for 1/06 and 2/06 due to snow / cloud (?)

Globcover 1/06 8/5/2

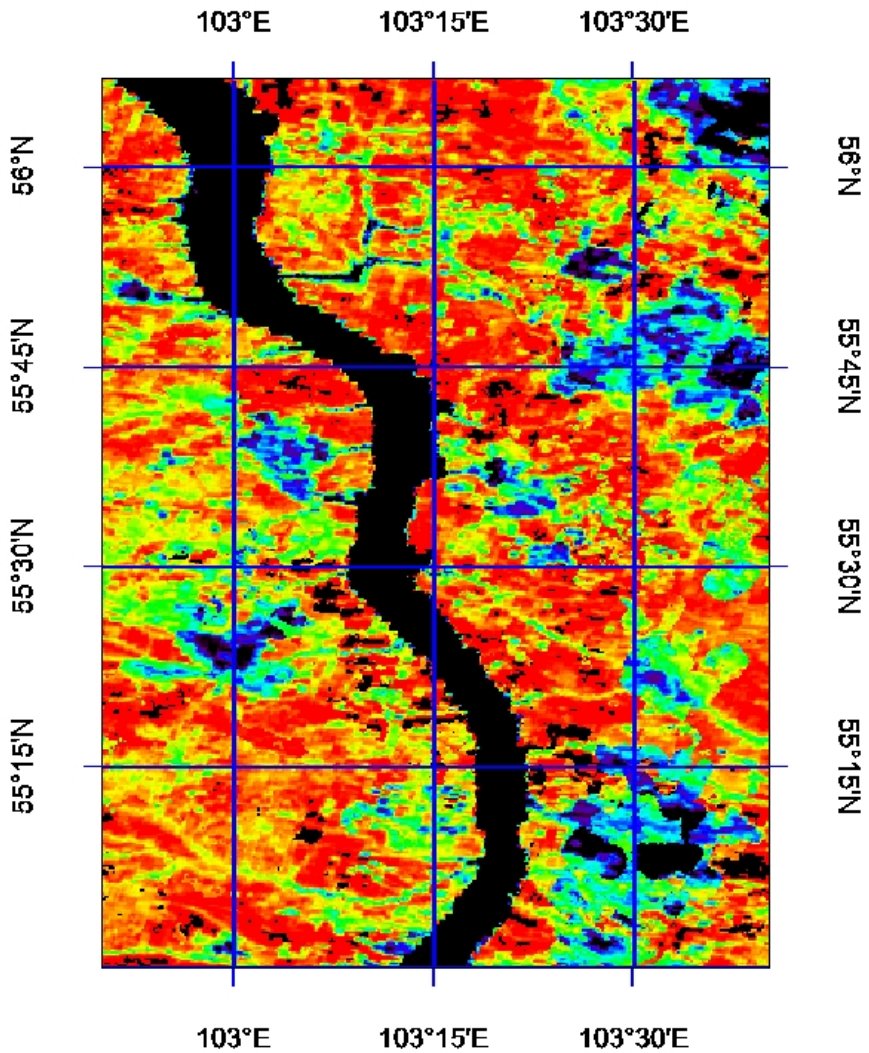
Globcover 2/06 8/5/2

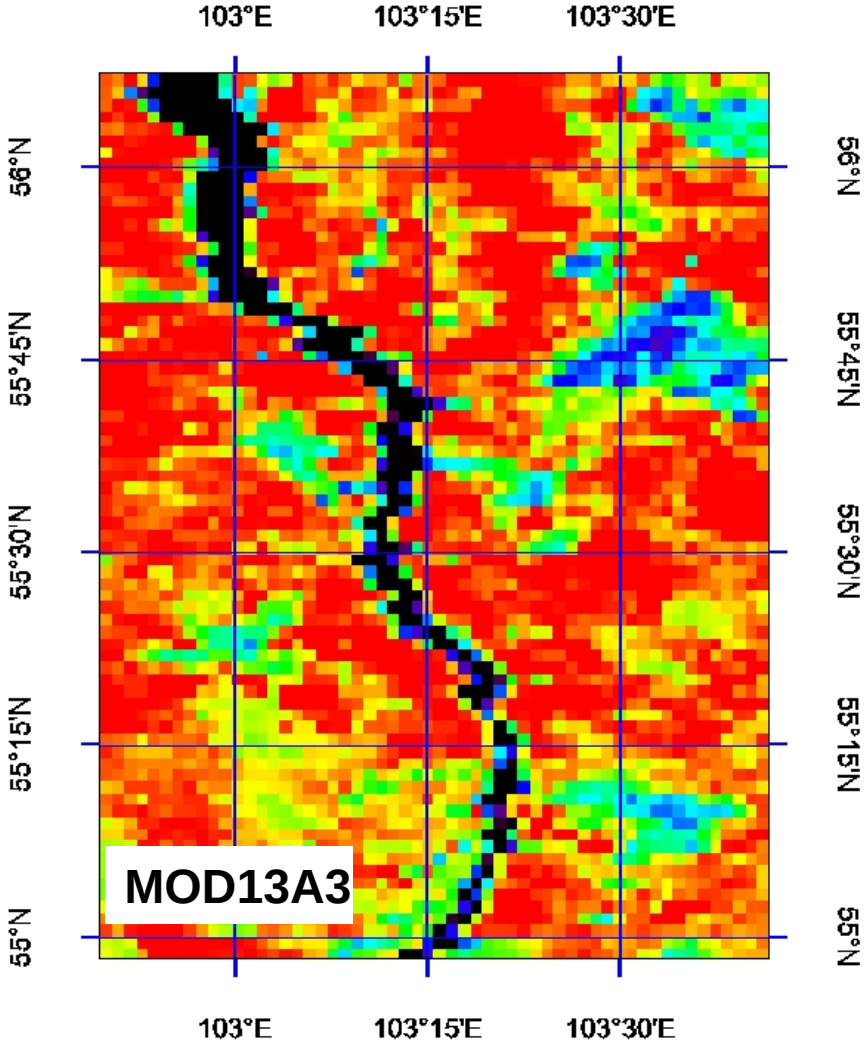
Globcover 5/05 NMOD




# GLOBCOVER/MERIS vs. MODIS - NDVI

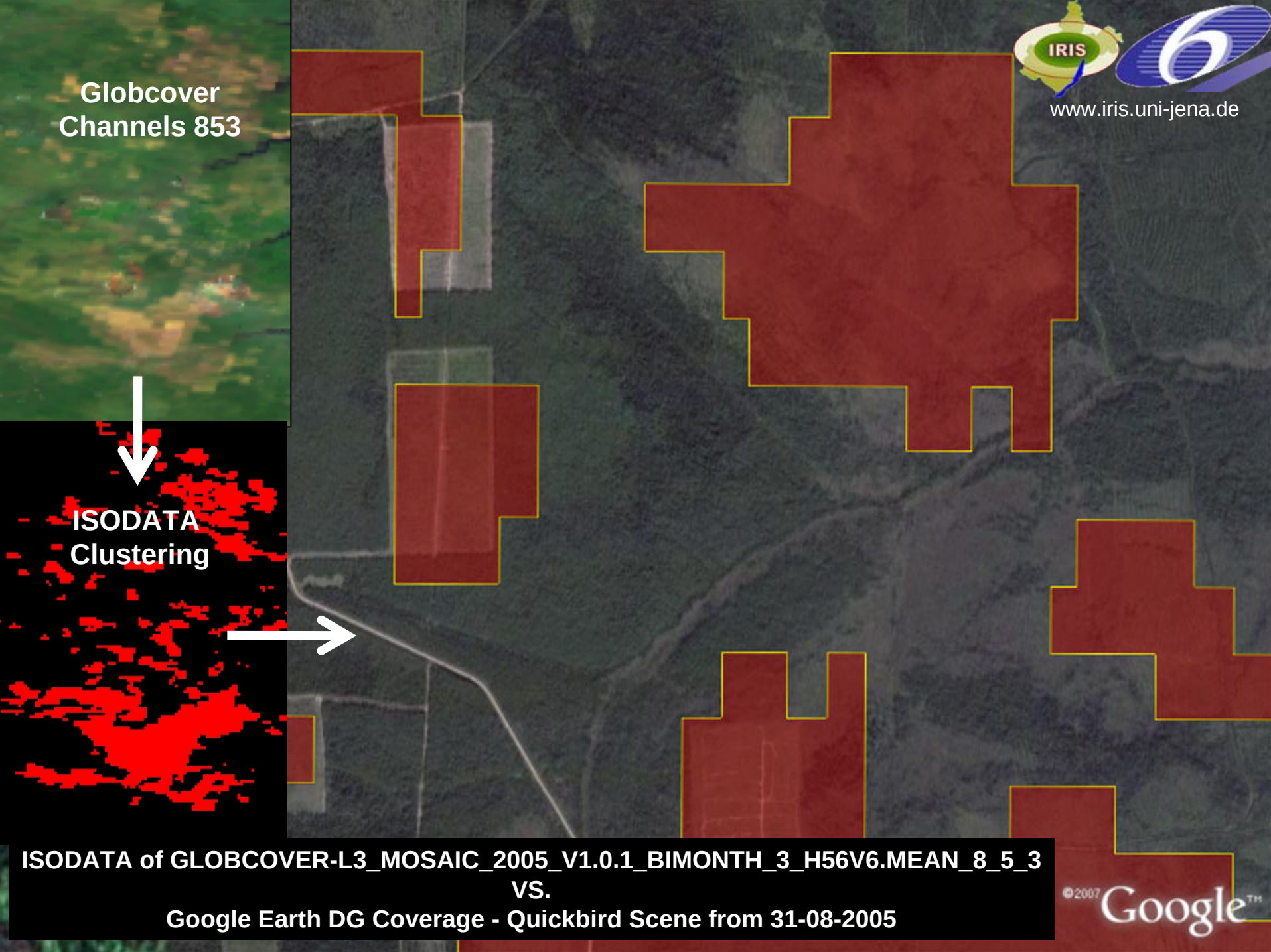
www.iris.uni-jena.de

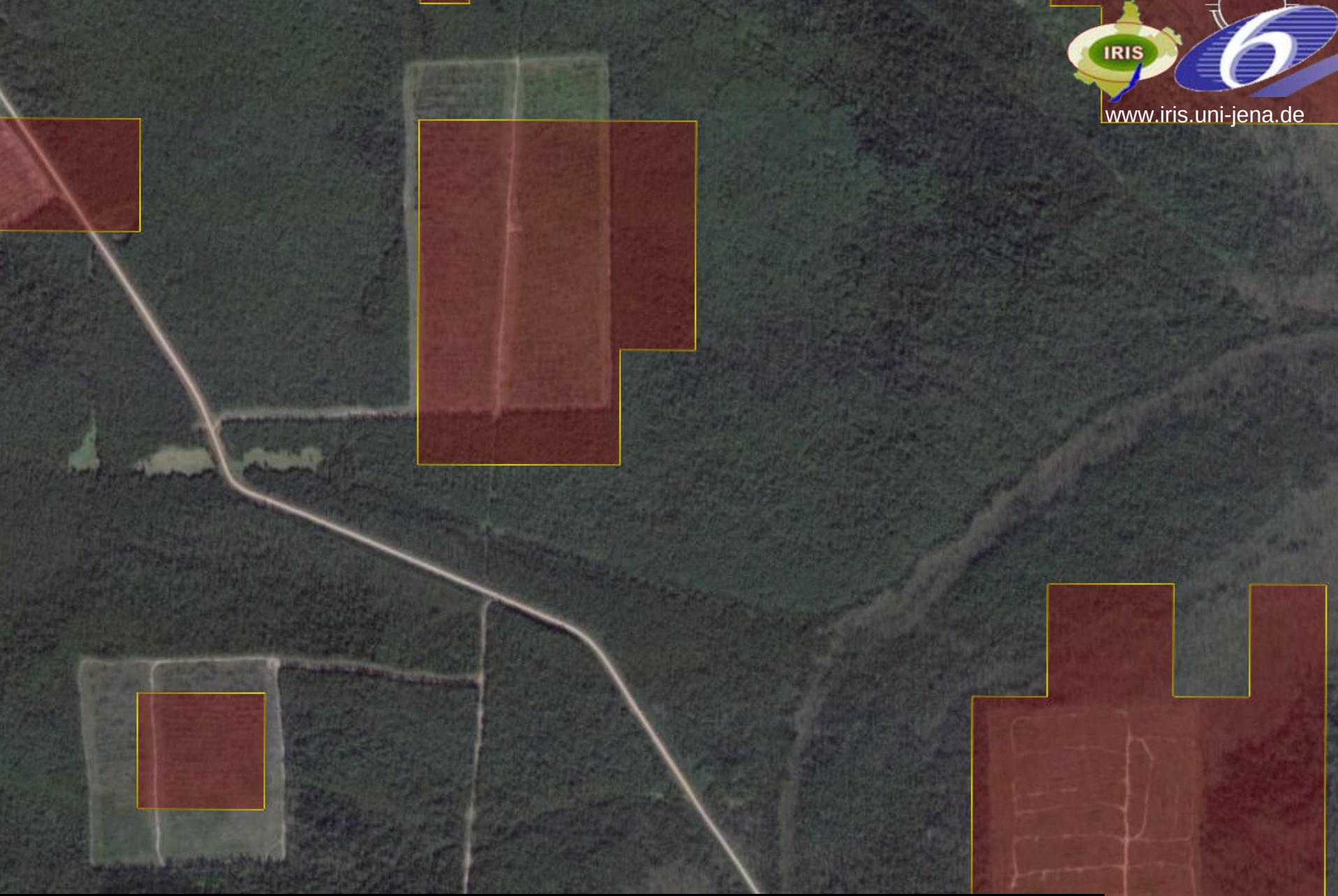



**GLOBCOVER-L3_MOSAIC_2005_V1.0.1_BIMONTH_3_H56V6.NDVI**
Pixel size: 0.002778 degrees

**MODIS/Terra Monthly NDVI**
averaged NDVI May & June from:
MOD13A3.A2006121.h23v03.004.2006170195934.hdf
Pixel size: 0.01551 degrees (~ 1 km)


Globcover
Channels 853
ISODATA
Clustering
IRIS
www.iris.uni-jena.de
ISODATA of GLOBCOVER-L3_MOSAIC_2005_V1.0.1_BIMONTH_3_H56V6.MEAN_8_5_3
VS.
Google Earth DG Coverage - Quickbird Scene from 31-08-2005
©2007 Google™




**ISODATA of GLOBCOVER-L3_MOSAIC_2005_V1.0.1_BIMONTH_3_H56V6.MEAN_8_5_3**
**vs.**
**Google Earth DG Coverage - Quickbird Scene from 31-08-2005**

# Summary

- **Improved geometric accuracy**
  - land mask problem for pacific islands?
- **Well reflected temporal dynamics**
  - More detailed/flexible temporal observations?
- **Suitable recognition of spatial pattern:**
  - MODIS versus MERIS NDVI
  - Disturbance pattern Russia
- **Areas with limited observations:**
  - Persistent clouds in tropics
  - High latitudes - solar illumination/snow
- **Data format:**
  - hdf suitable for image data (larger tiles, geolocation info?)
  - Geotiff preferred for land cover products including aggregated mosaic (mapping areas)

# Future activities

- Land cover product evaluation and user feedback assessment:
  - GOFC-GOLD land cover team
  - Regional Networks
  - Support of validation efforts (next LC-IT meeting October 2007 at Boston Uni.)
- Comparative assessment with existing global datasets (harmonization)
- Synergy potential with available SAR data