JAXA mosaic project status for mosaic theme

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General:
JAXA’s rolls in the KC/mosaic theme are

To build up the ortho-rectification algorithm and implement in the SIGMA-SAR.

To generate the path products for the following mosaic dataset.

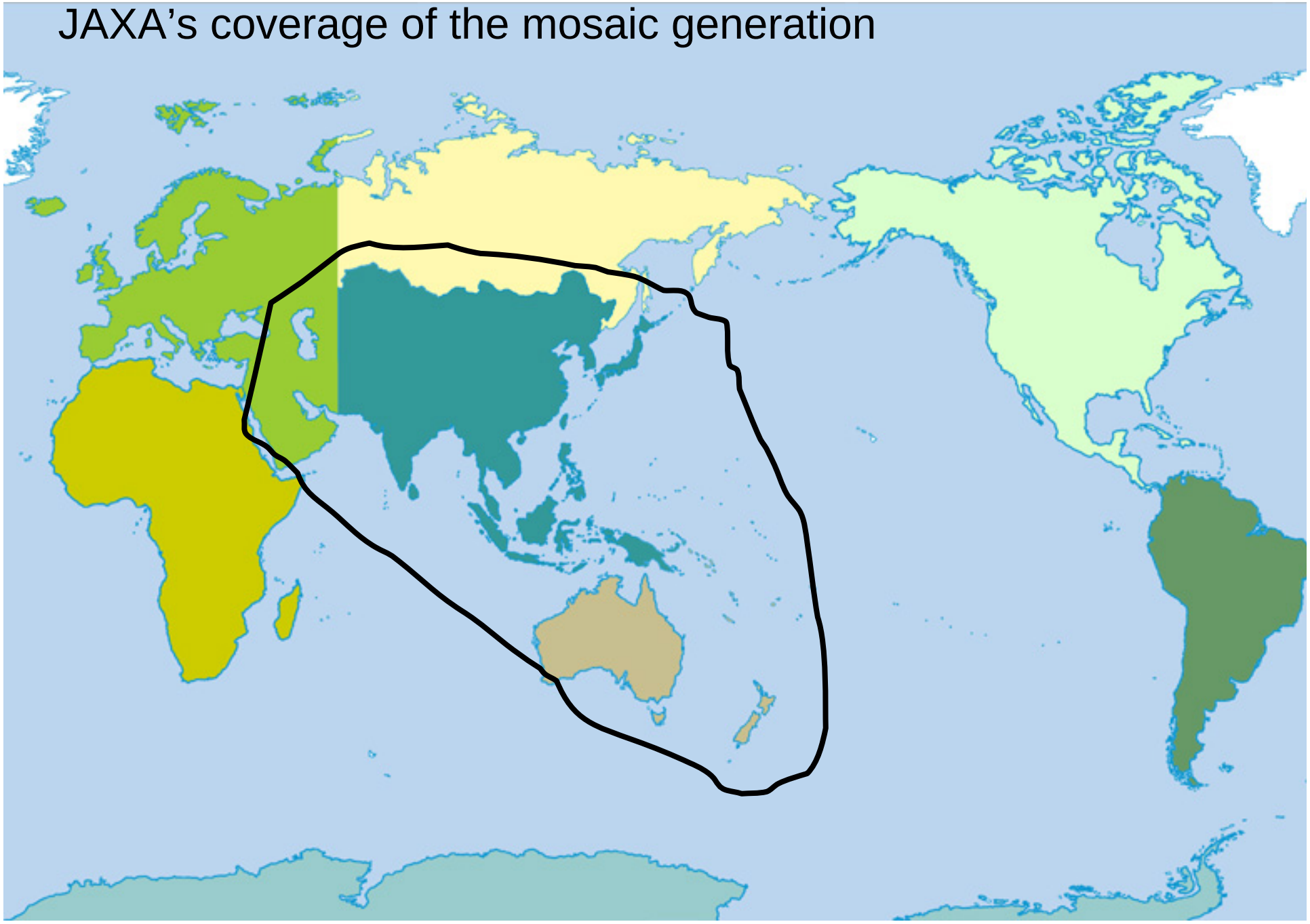
To generate 50m orthorectified mosaic dataset for south east Asia, Australia, China, Japan, India, etc. twice a year frequency.

To make these dataset available to open users.

Contents of Talk

1. Change of expression: Sigma-naught to Gamma-naught
2. South East Mosaics :generation and provision to public
3. Geometric accuracy
4. Automatic processing
5. Harapan rain forest - change detections
6. Coherence-amplitude data-HV mosaic

JAXA’s coverage of the mosaic generation



Change of expression

- The mosaic data is expressed in gamma-naught from Sept/E 2008, while the mosaic data was in NRCS before.

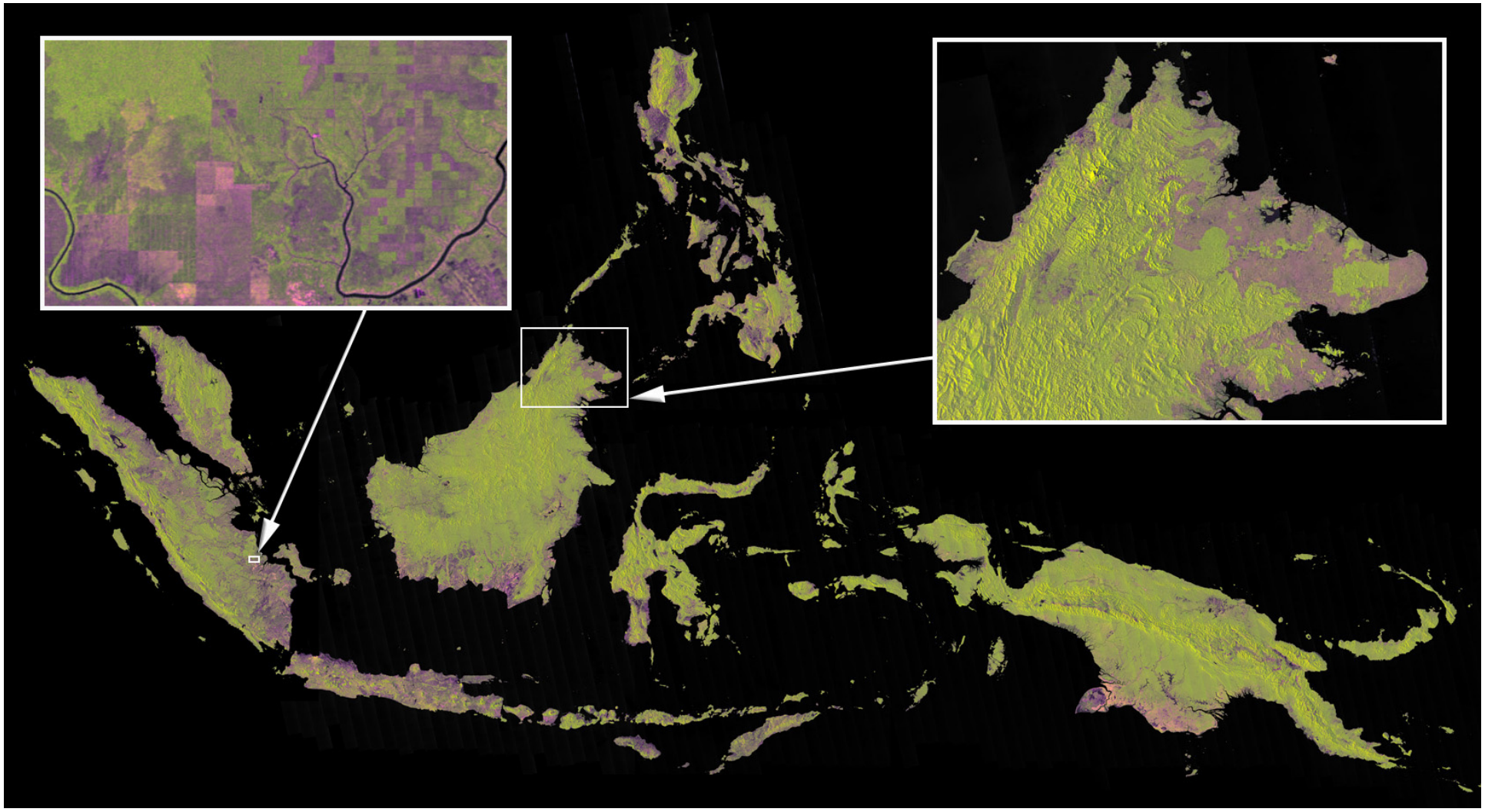
- Advantage: incidence angle independency
- Disadvantage: calculation of the incidence angle is difficult

- Future service
- Updating the previous product (1st SE mosaic) in gamma-naught and with the following info.

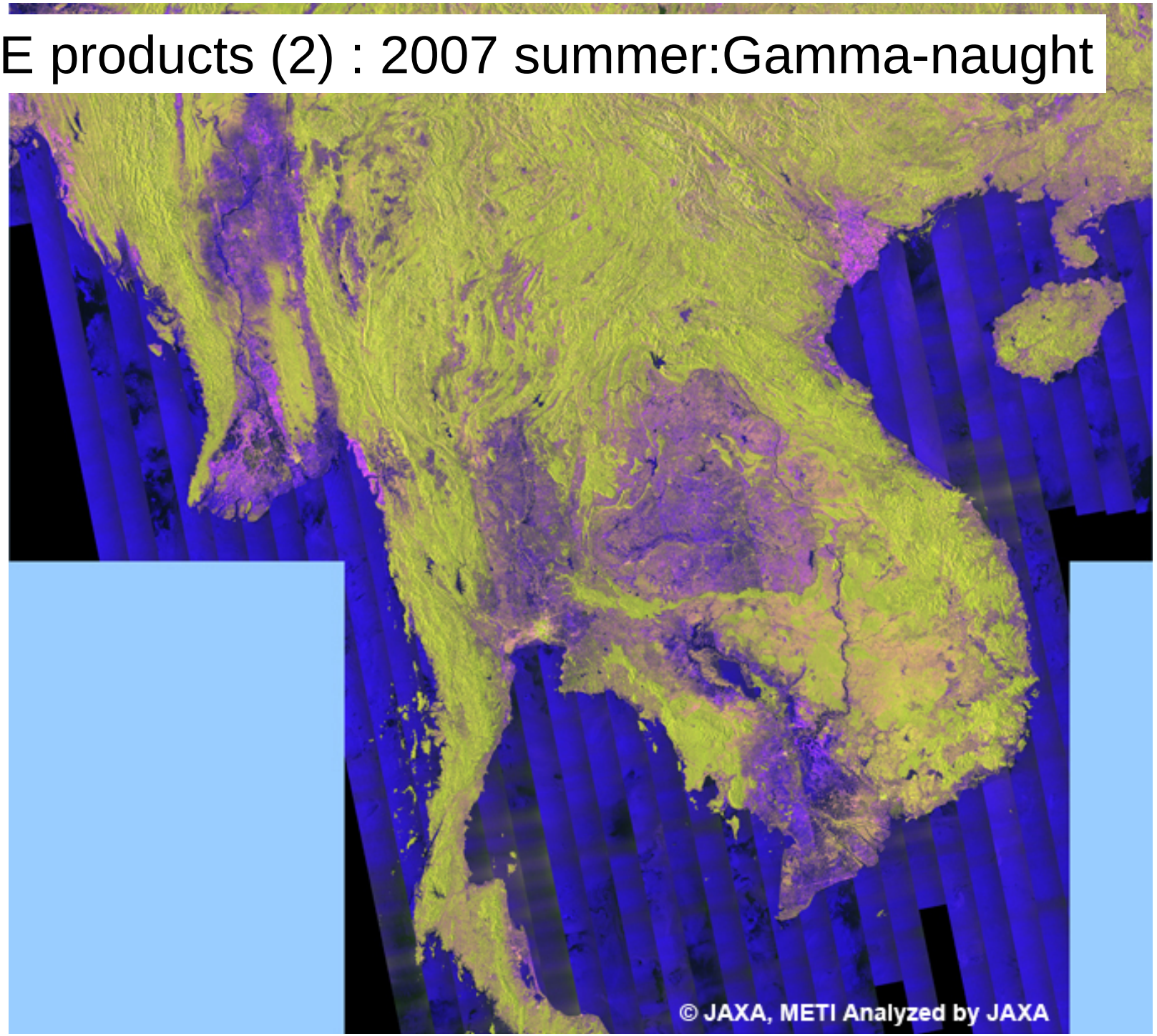
- Add:
- Mask data
- Local incidence angle map
- Date map

SE products (1): 2007 summer: Sigma-naught

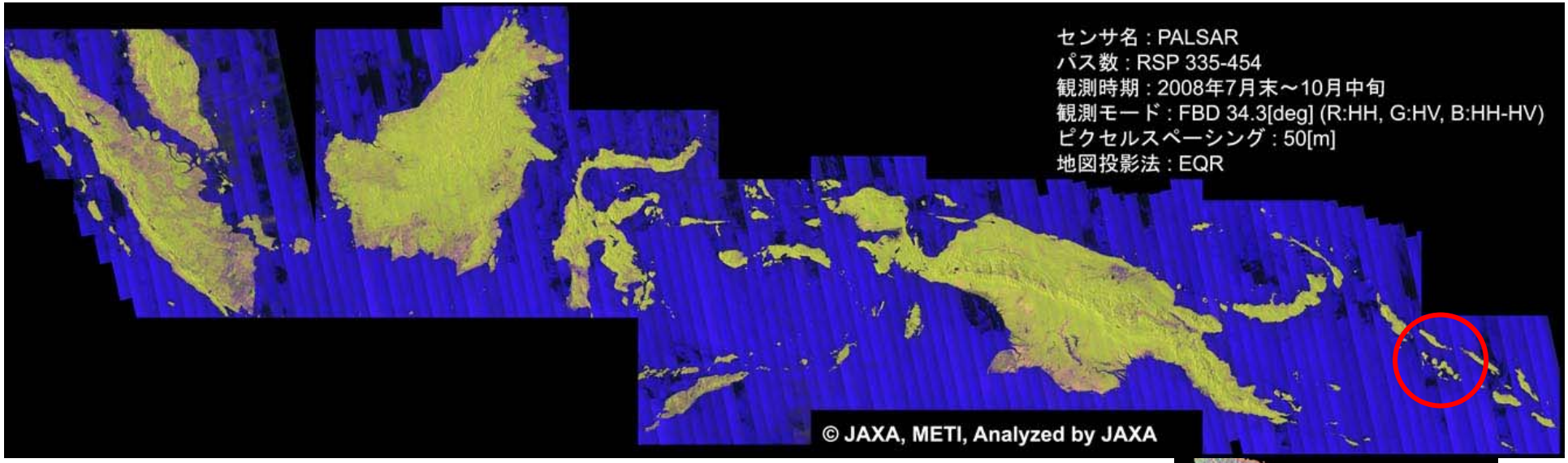
HH, HV, HH/HV

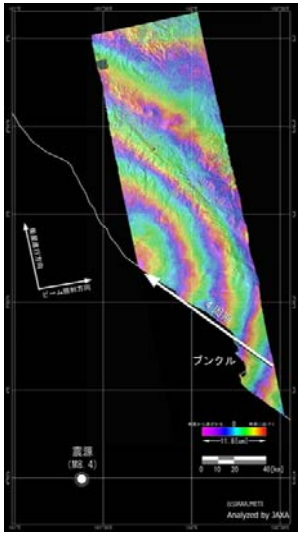


SE products (2) : 2007 summer:Gamma-naught

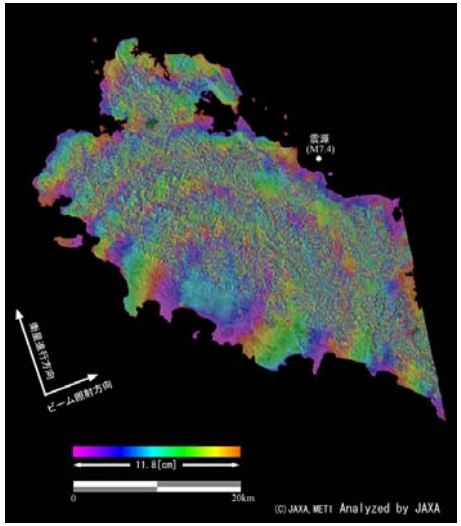


SE products (3): 2008 summer:Gamma-naught



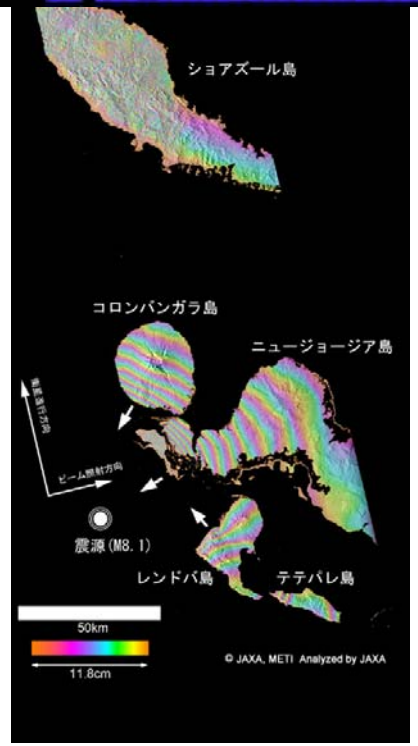


Bunkle

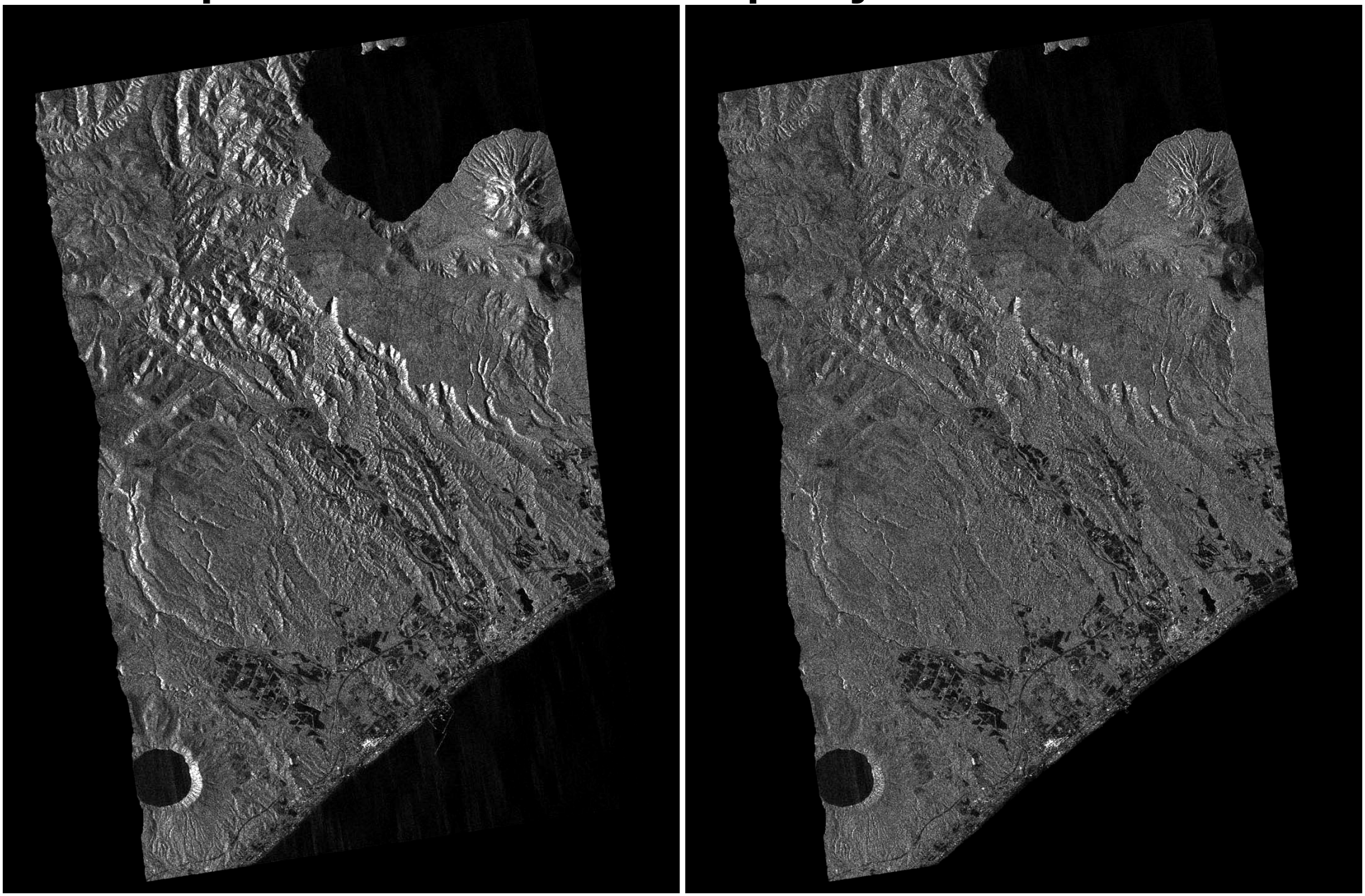


SIMEULUE Is.

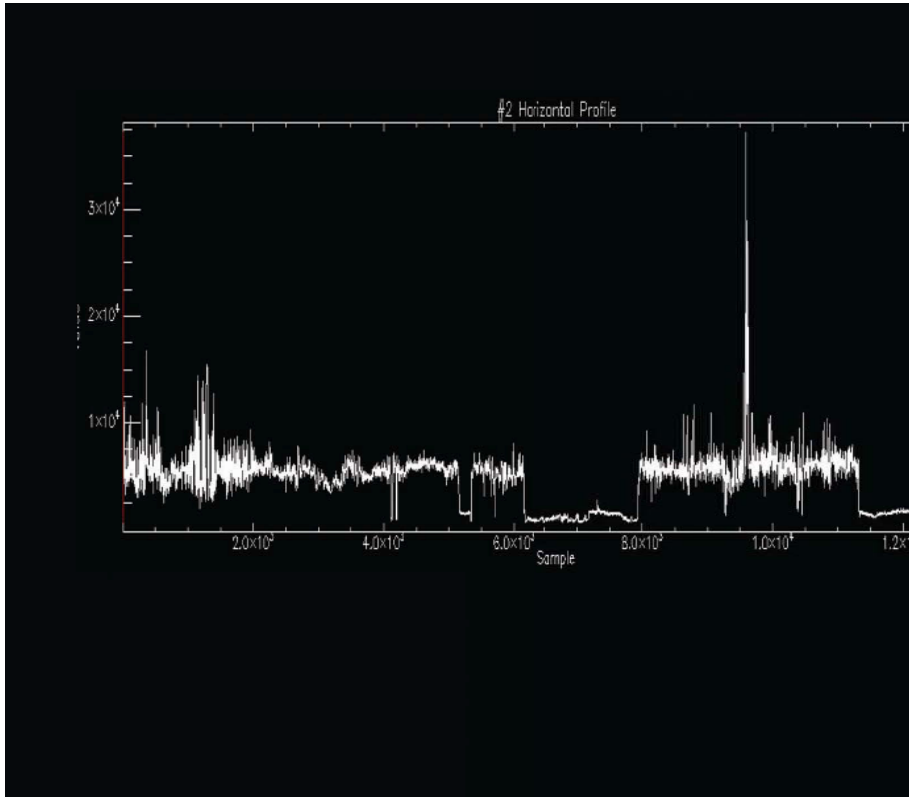
Solomon

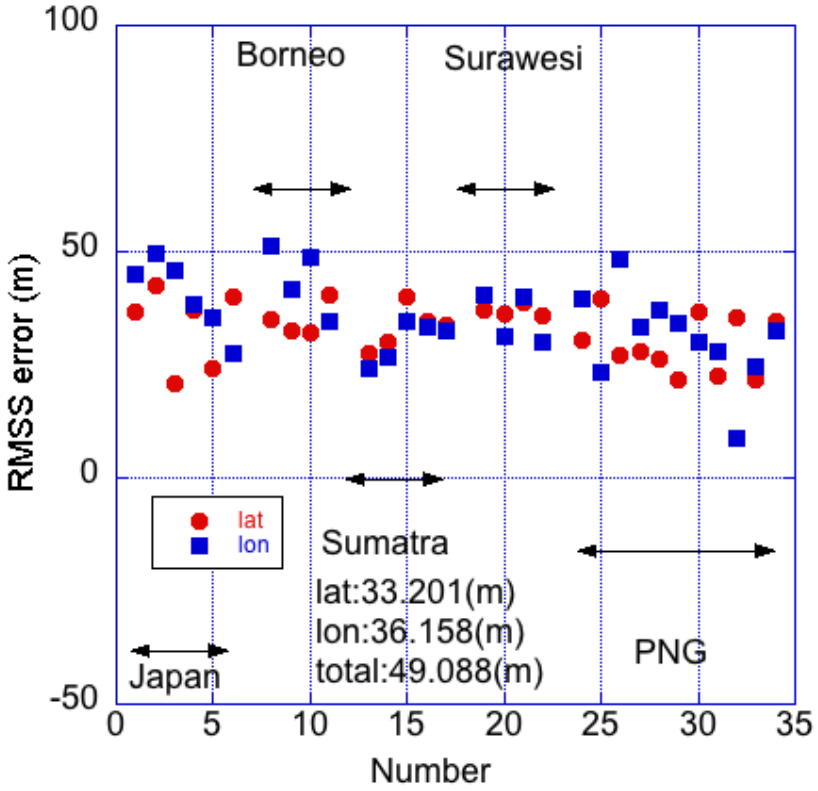


Comparison of ortho projections



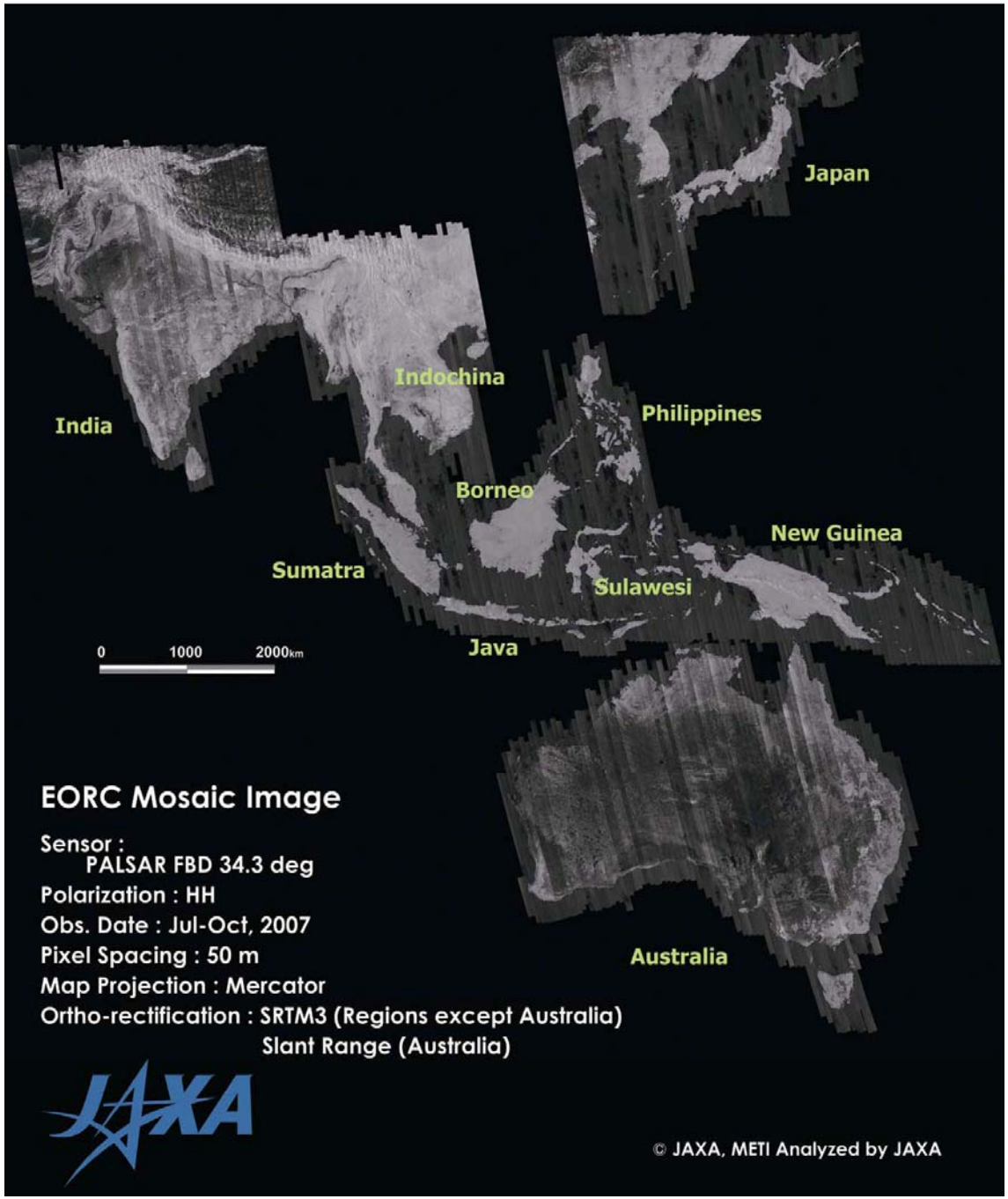
Evaluation : Geometry and radiometry in Mosaic



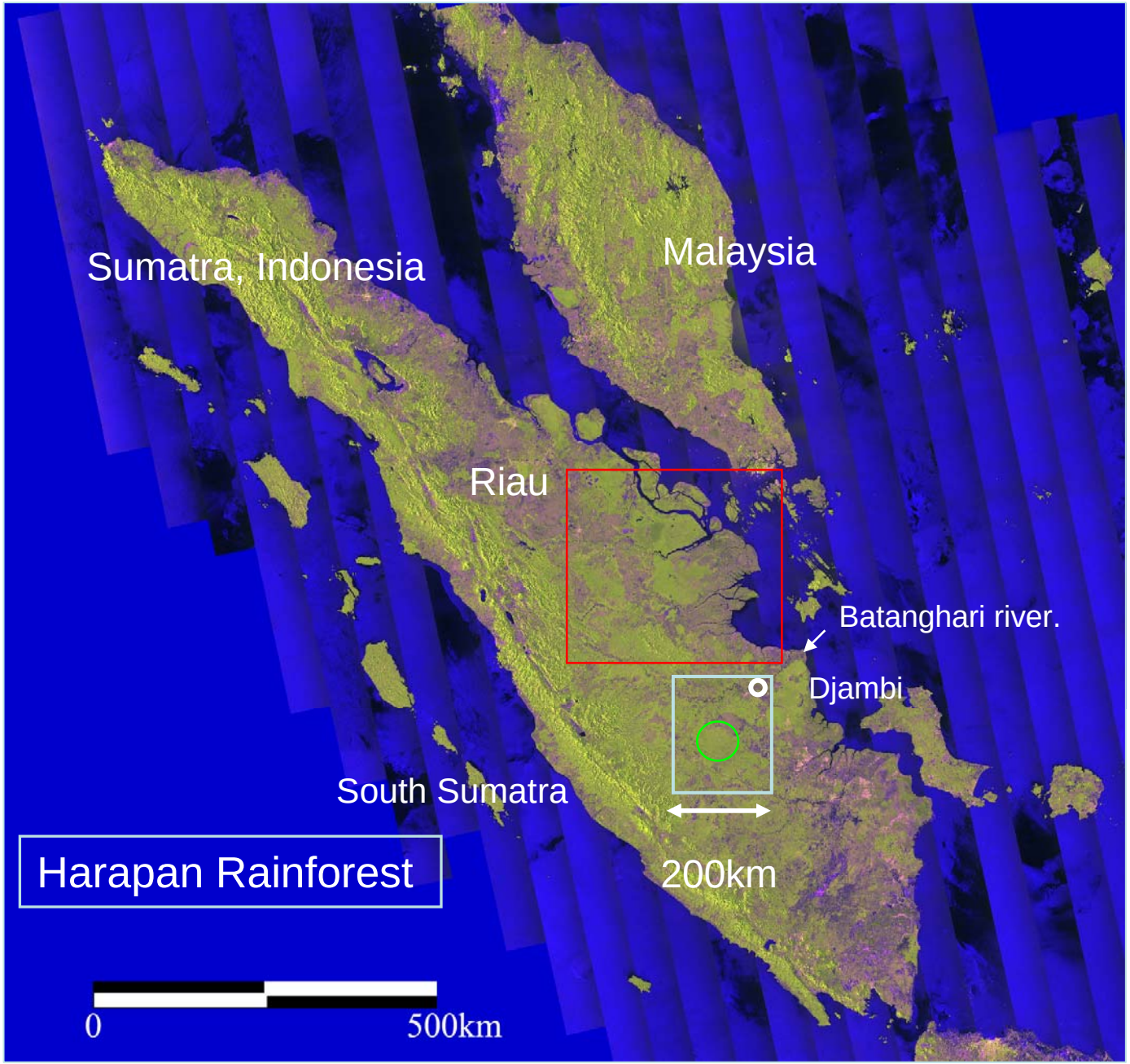


PALSAR Mosaic for Japan, South-East Asia, India, Australia

Japan Aerospace Exploration Agency, Earth Observation Research Center



PALSAR Sumatra mosaic July, 2007 and change over 15 years



One season mosaic colored with three values, HH, HV, HH/HV.

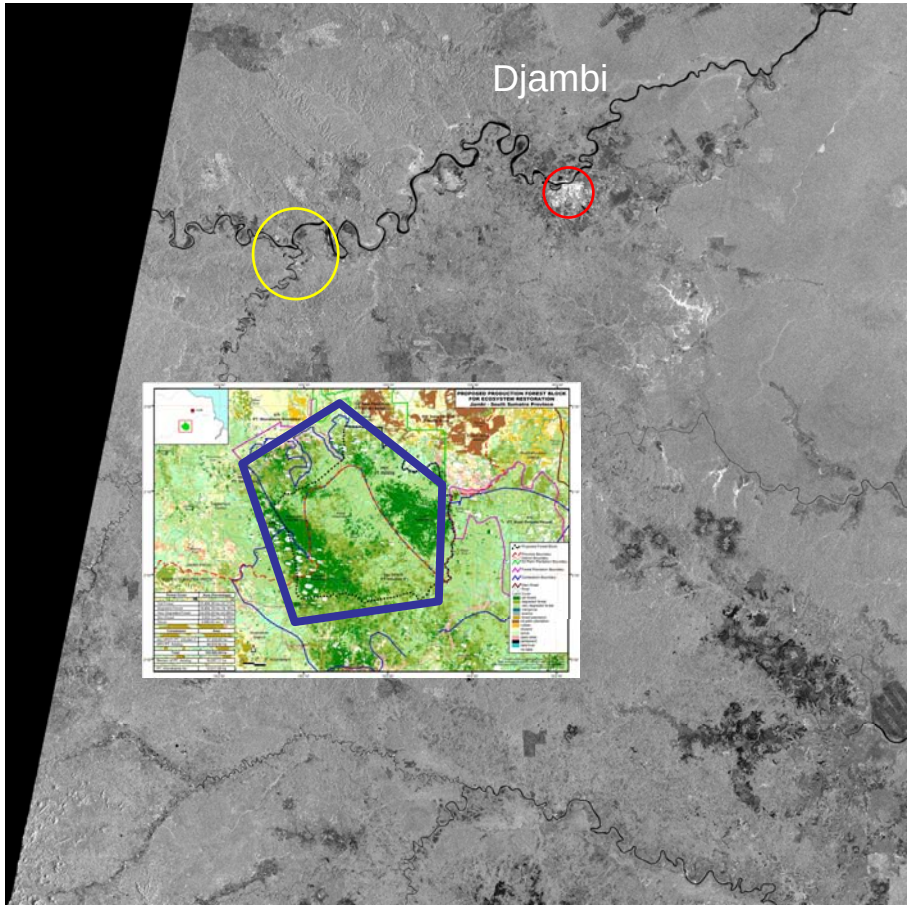
Coverage: Malaysia and Sumatra

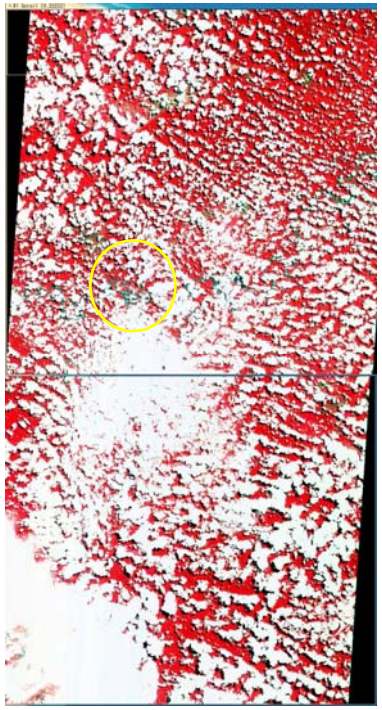
Green: forest
Purple:clear cut

PALSAR : FBD(Fine beam dual, 10m resolution)

JERS-1/SAR（Oct., 1993）

Harapan Rainforest Indonesia





OPS 1993

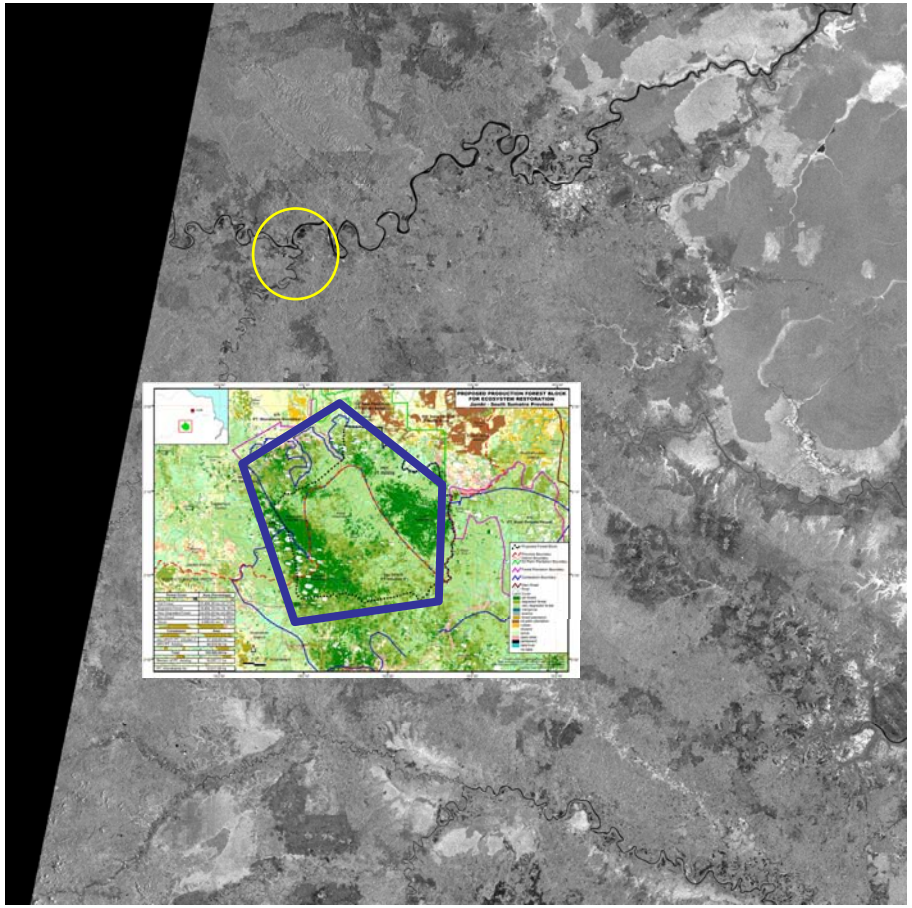
Vital to conserve; the Harapan Rainforest, Sumatra Photo: Marco Lambertin
広大な広がりを見せるスマトラのハラパン熱帯雨林

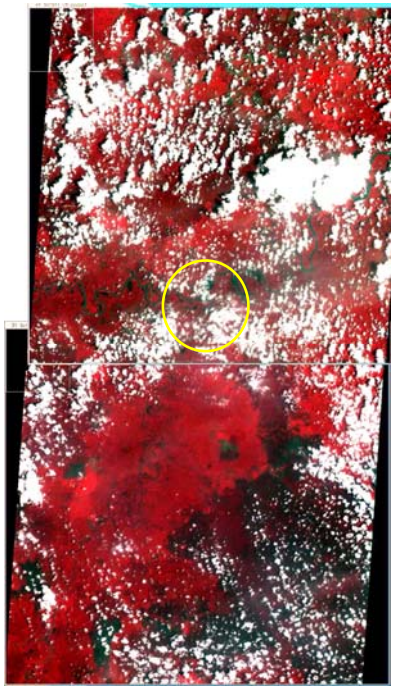
0 100km

HH

JERS-1SAR（Aug., 1998）

Harapan Rainforest Indonesia





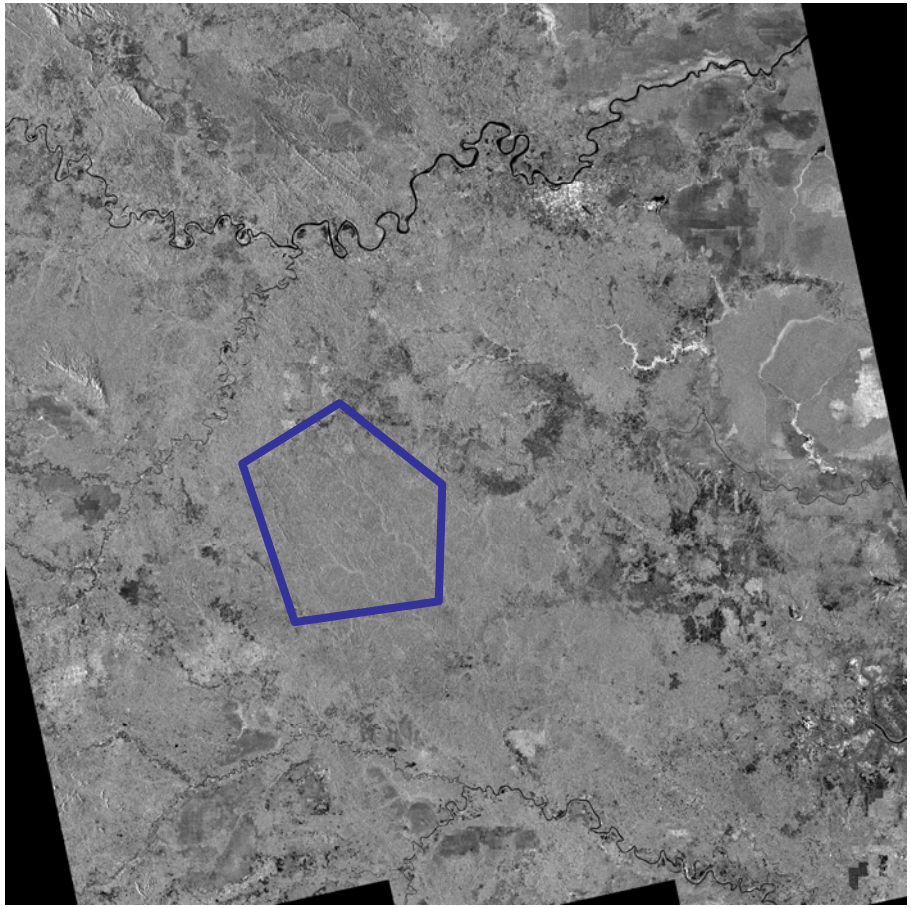
OPS 1997

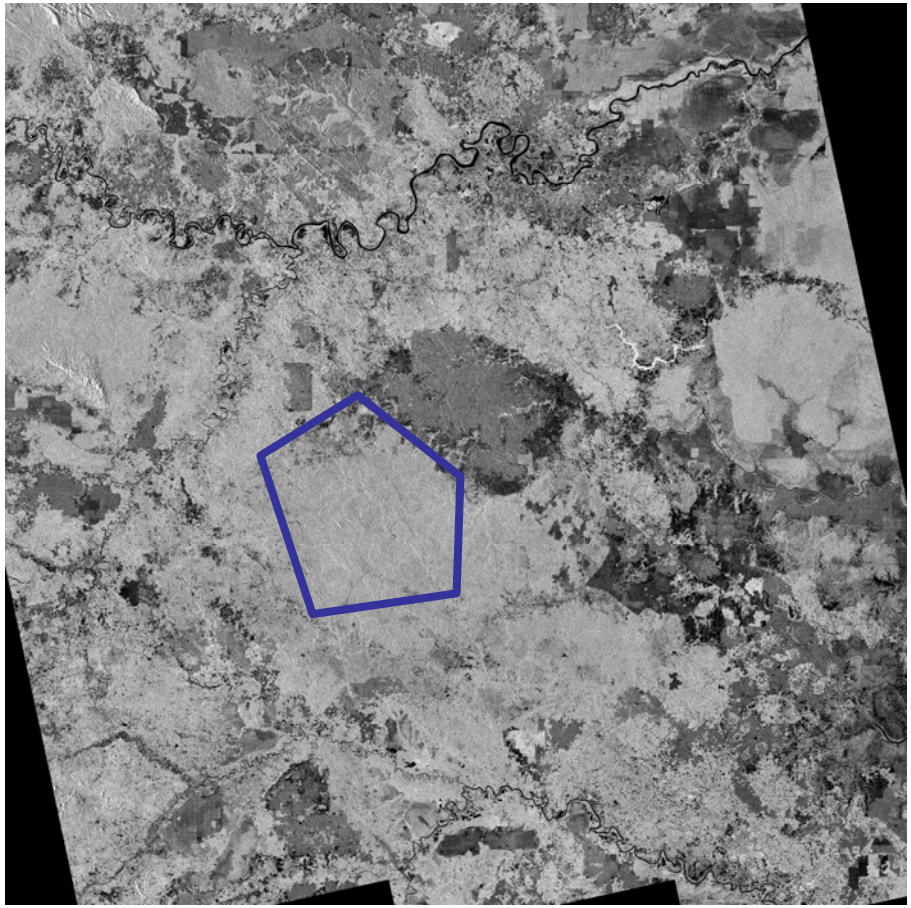
0 100km

HH

PALSAR（June/July, 2007）

Harapan Rainforest Indonesia



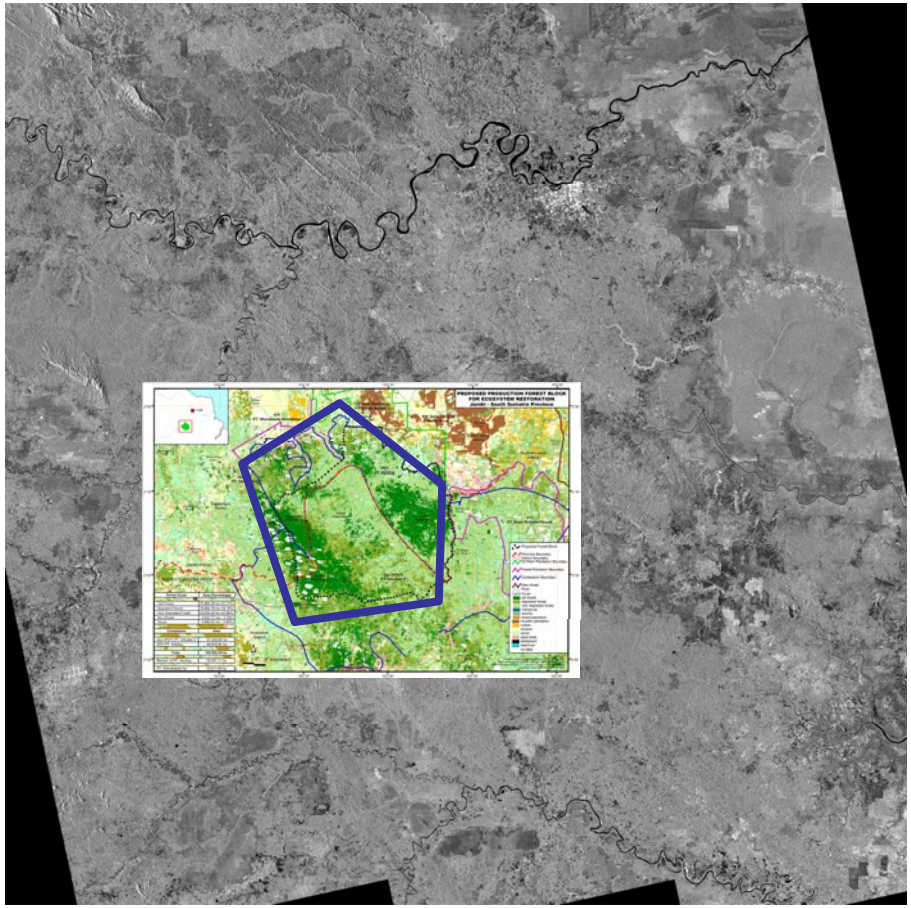


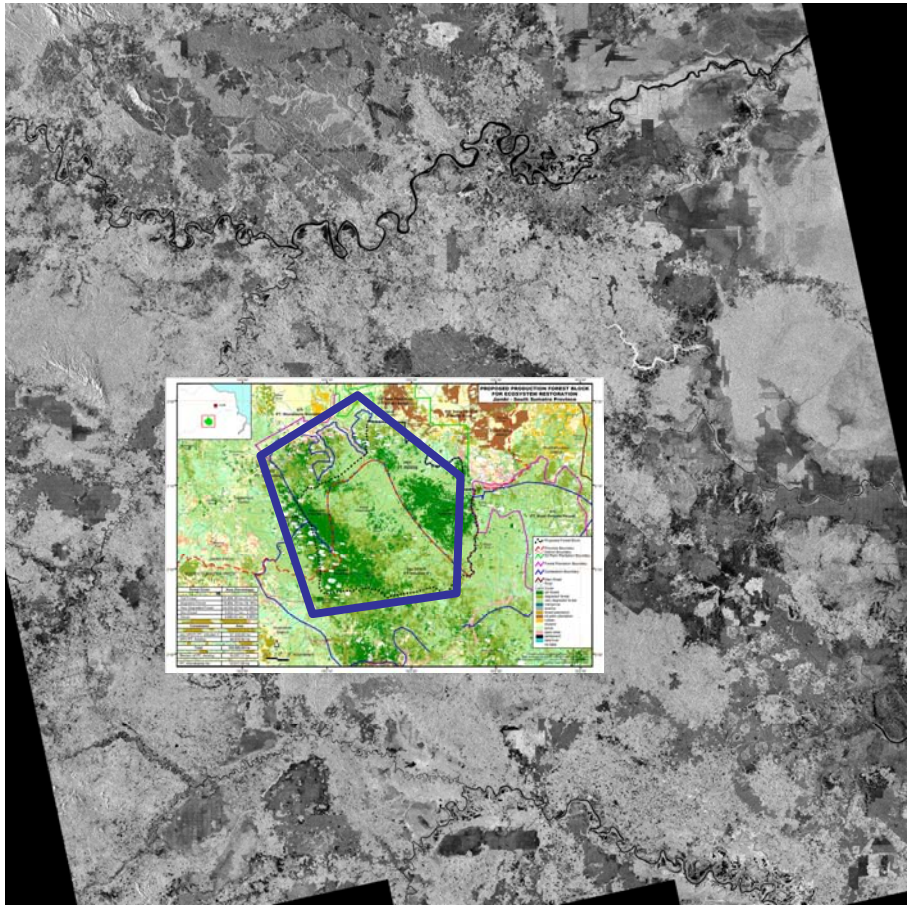
HH

HV

PALSAR（Jun/July, 2008）

Harapan Rainforest Indonesia





0 100km

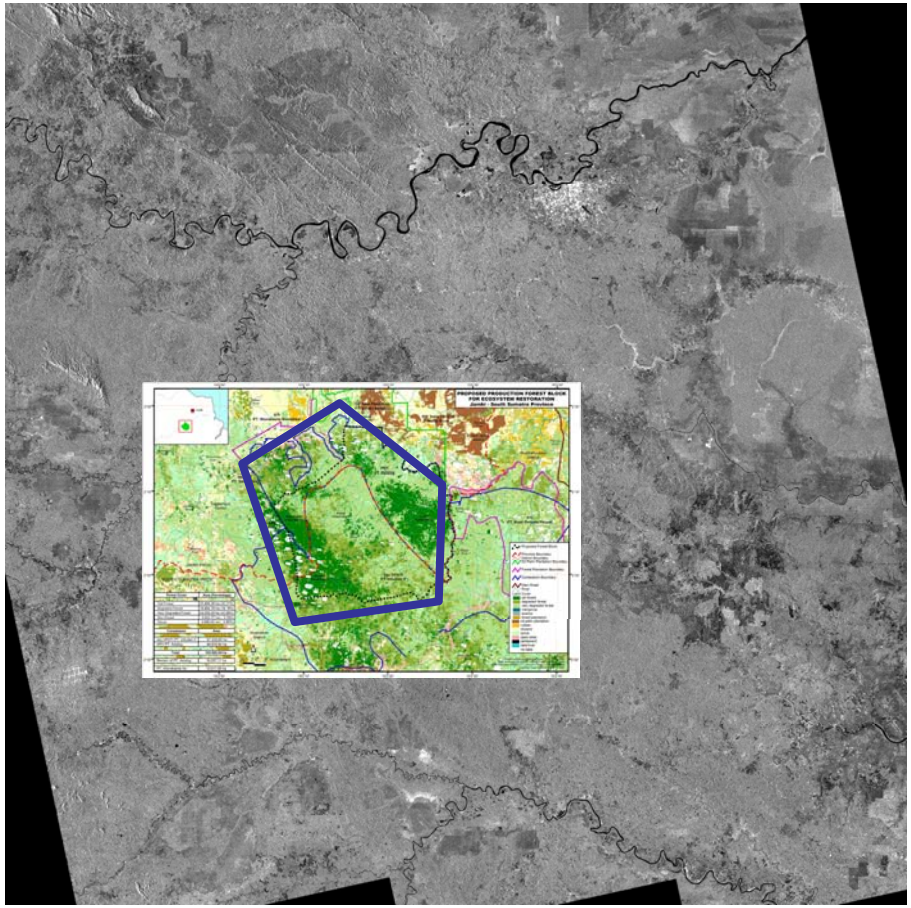
0 100km

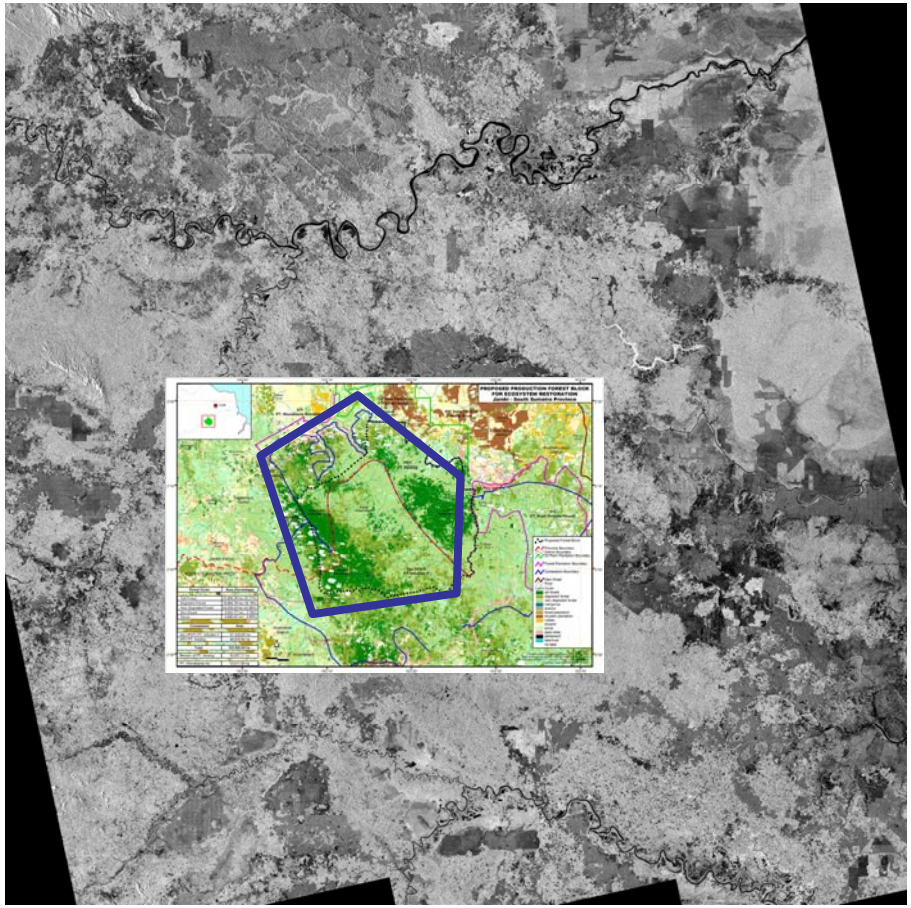
HH

HV

PALSAR（Aug./Sept., 2008）

Harapan Rainforest Indonesia





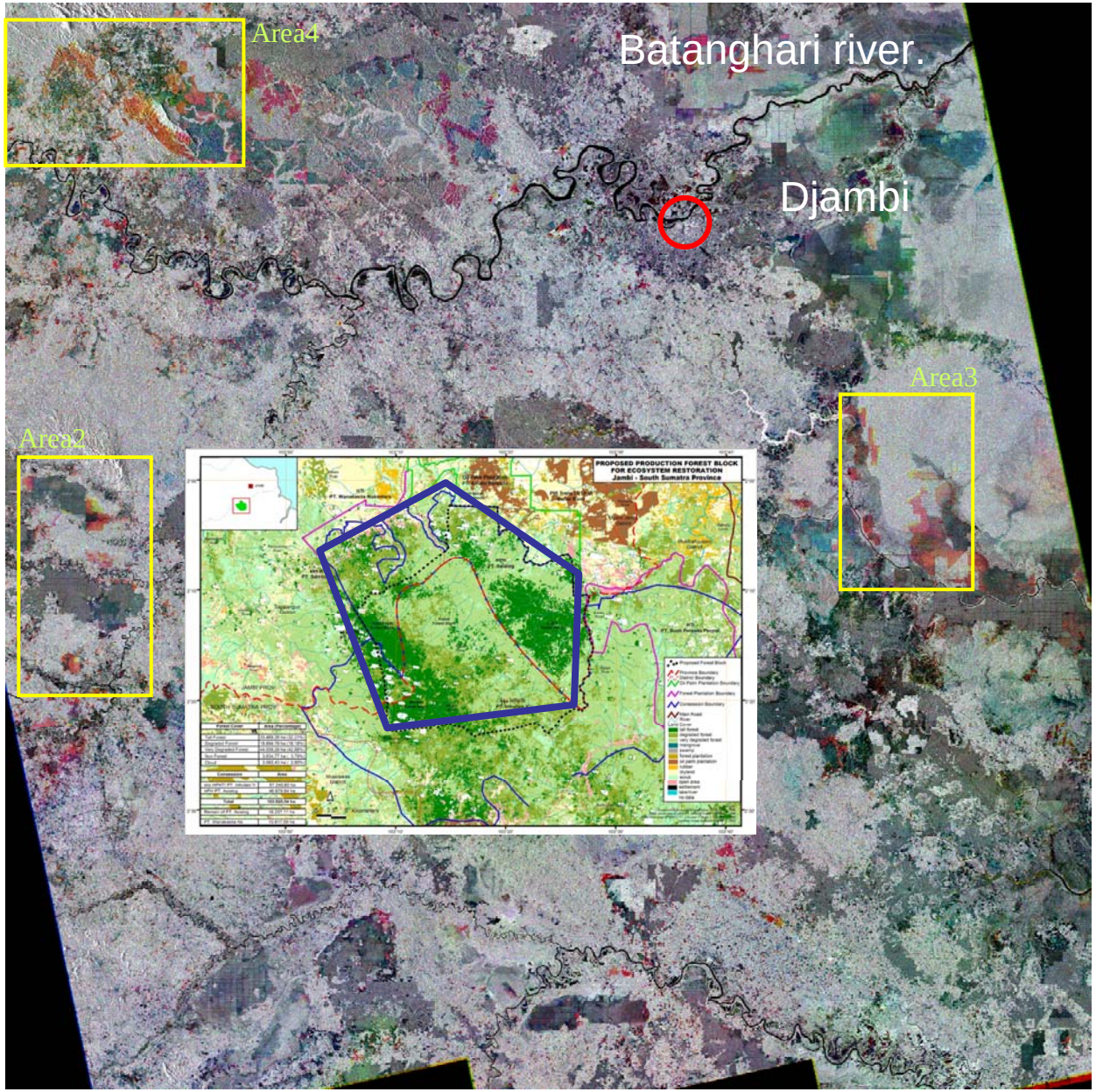
0 100km

0 100km

HH

HV

Forest Change Detection between June 2007~Sept 2008

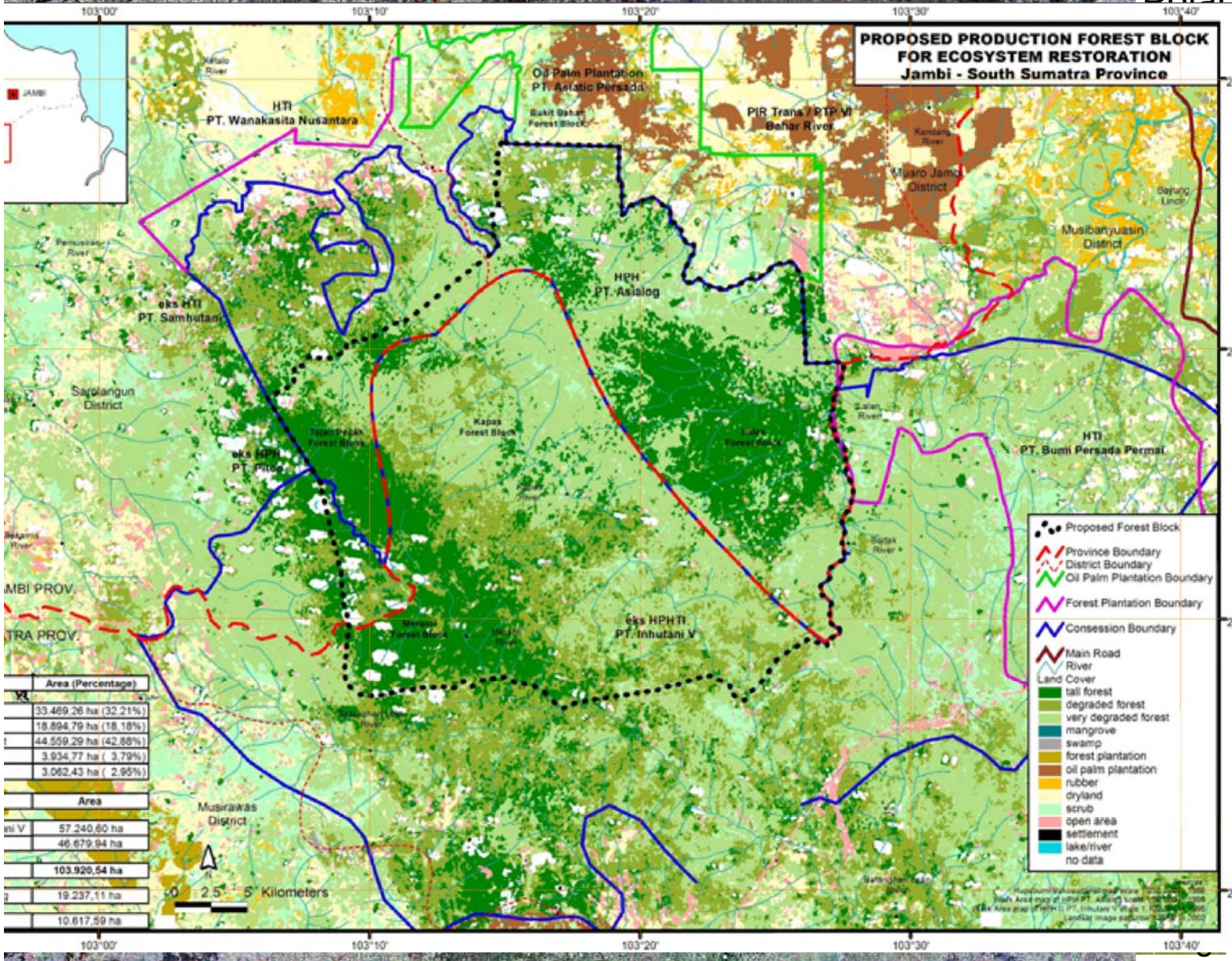


Sensor: PALSAR
Polarization:HV

Color assignment
R:June/July, 2007
G:June/July, 2008
B: Aug./Sept., 2008

Red: deforestation between 2007 and 2008
Yellow : recent deforestation in 46 days (between June,2008 and Sept.,2008)
Blue/Green: Regrowth or recover this year.
Dark gray: deforestation as of June 2007
Bright gray:Forest as of Sept., 2008

Harapan rainforest one year change



30km

Sensor: PALSAR
Polarization:HV

assignment
e/July, 2007
e/July, 2008
./Sept., 2008

eforestation
en 2007 and

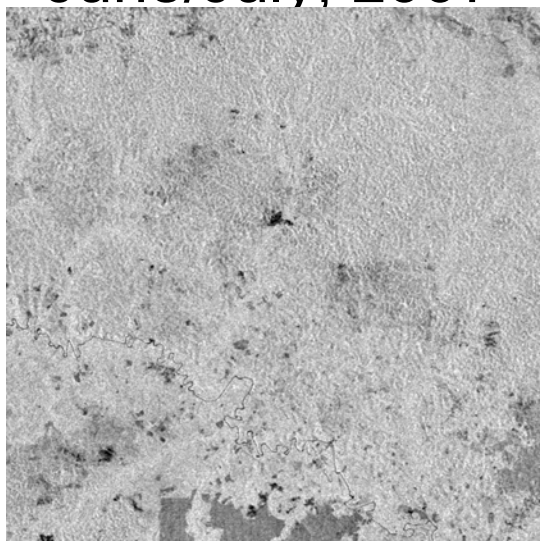
: recent
station in 46
between
008 and
2008)
Regrowth in
uly 2008
Regrowth or
r Aug./Sept

ray:
station as of
007
gray:Forest as
of Sept., 2008

PALSAR HV image Area1 (1/4)

Harapan Rainforest Indonesia

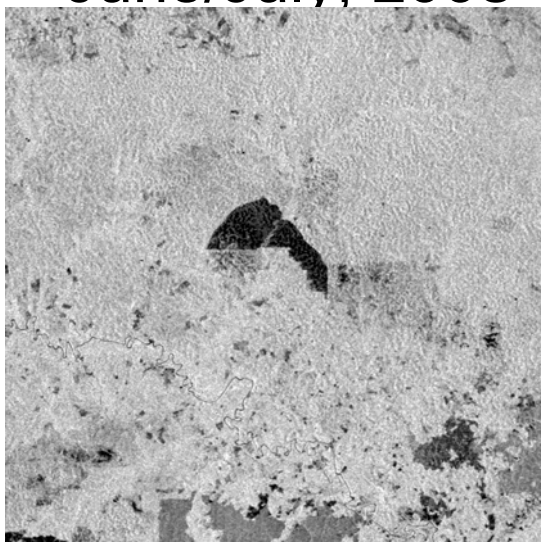
June/July, 2007



25km

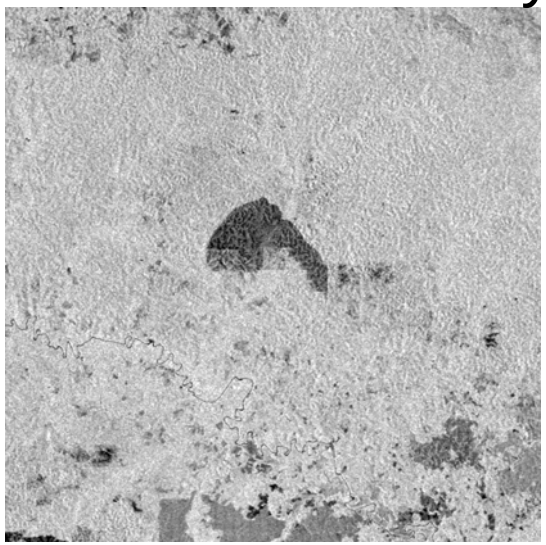
One year after

June/July, 2008



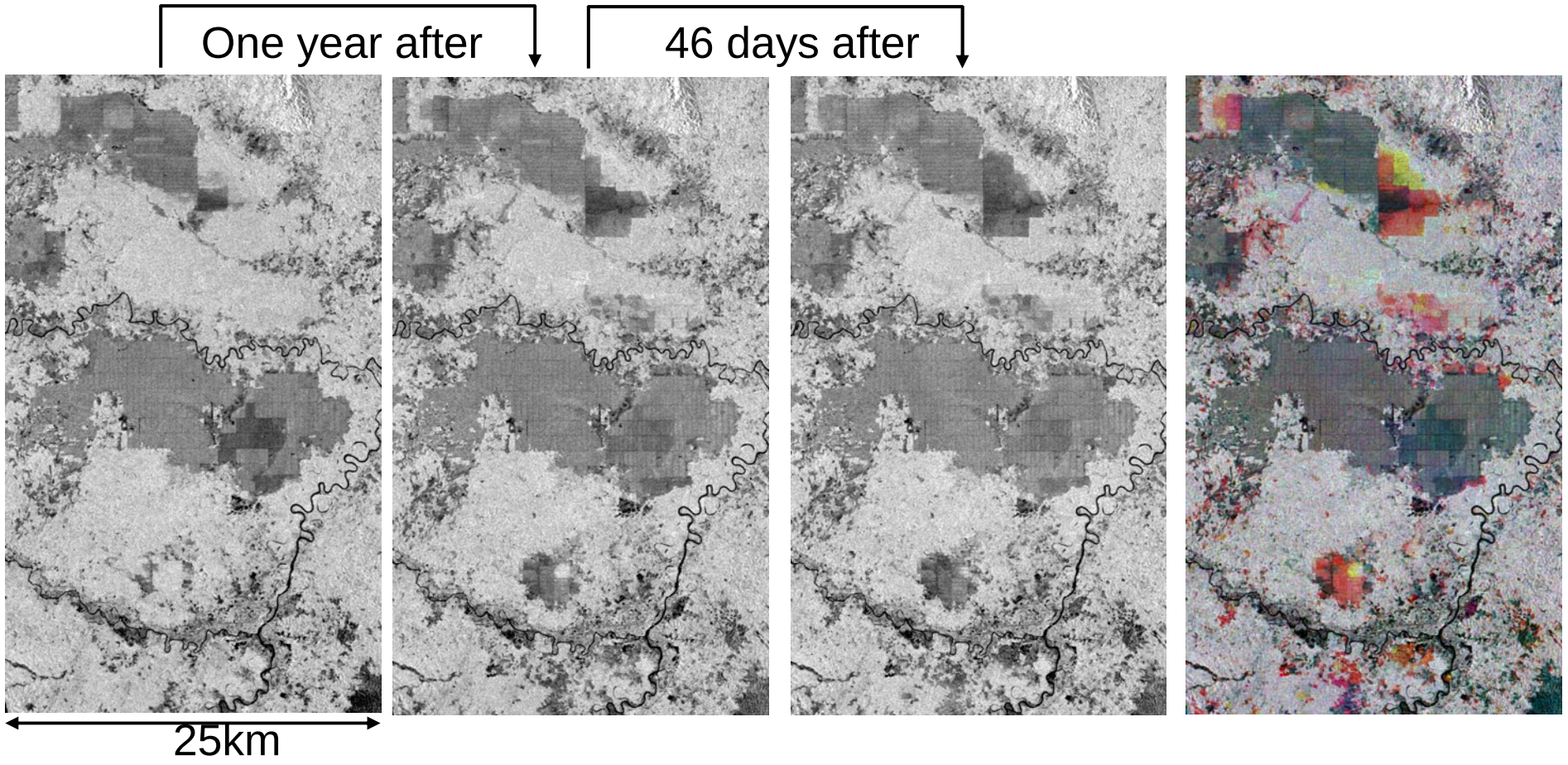
46 days after

RGB image



Aug./Sept., 2008

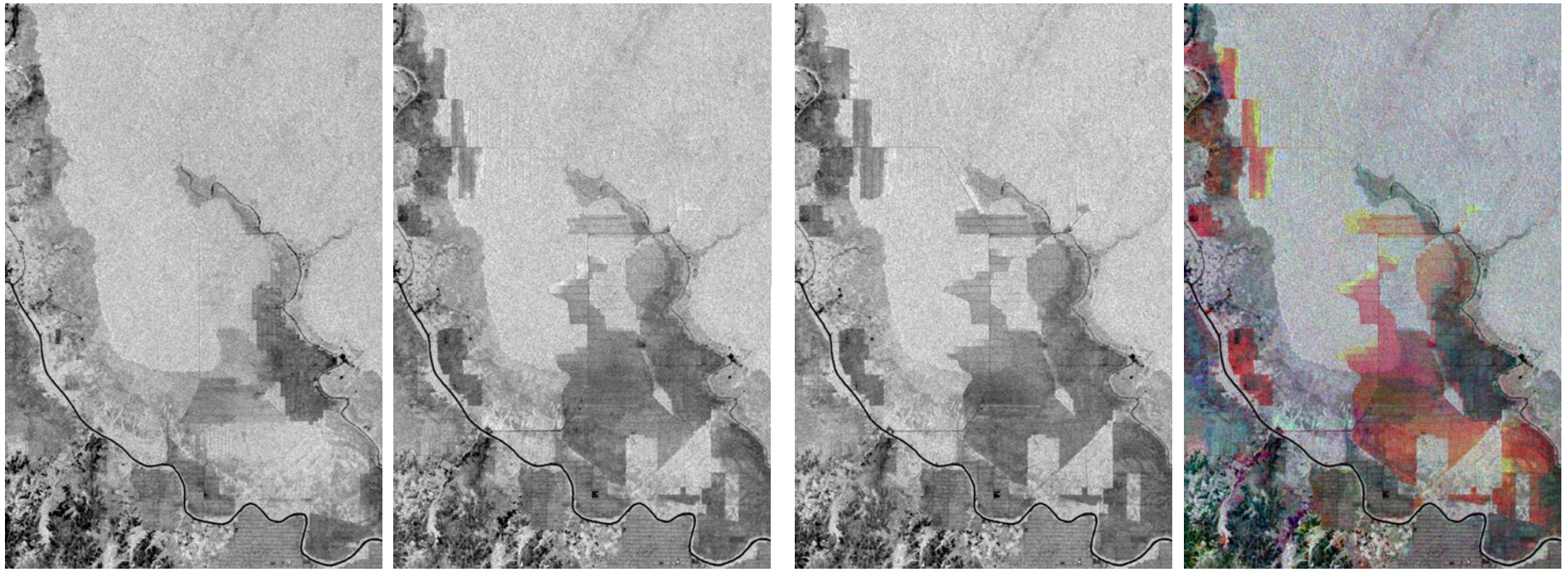
PALSAR HV image Area2 (2/4) Harapan Rainforest Indonesia



PALSAR HV image Area3 (3/4) Harapan Rainforest Indonesia

One year after

46 days after



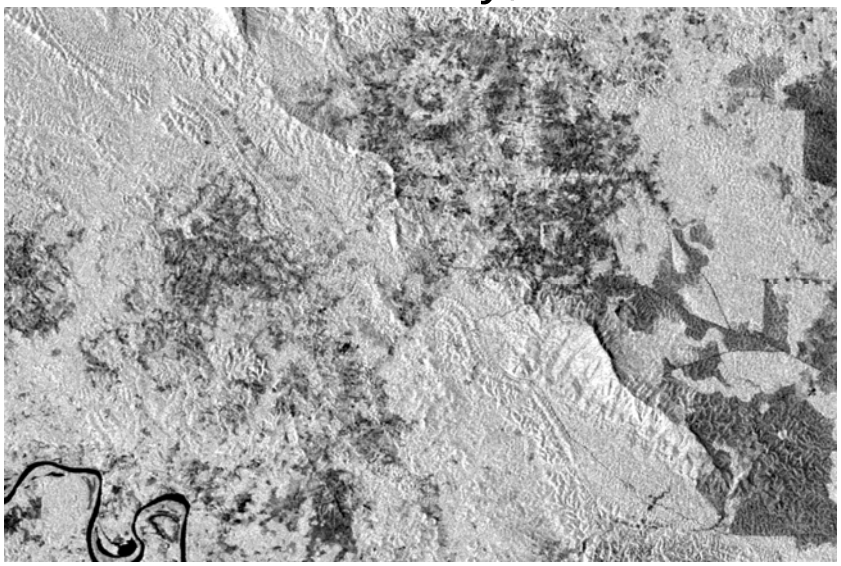
25km

June/July, 2007 June/July, 2008 Aug./Sept., 2008 RGB image

PALSAR HV image Area4 (4/4)

Harapan Rainforest Indonesia

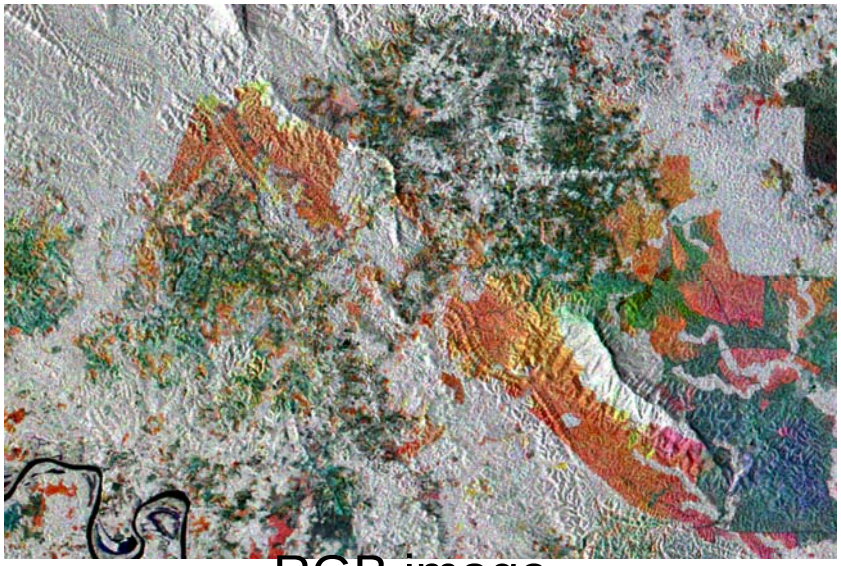
June/July, 2007



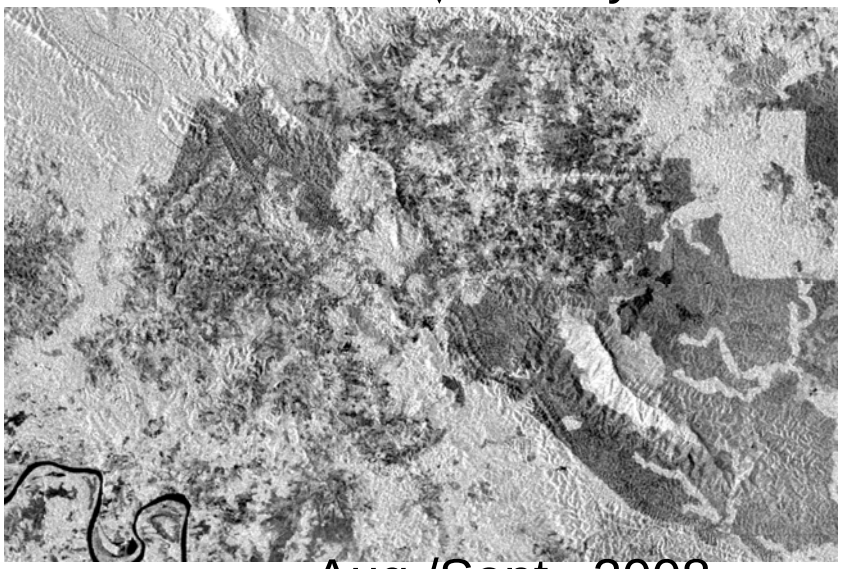
One year after

20km

46 days after



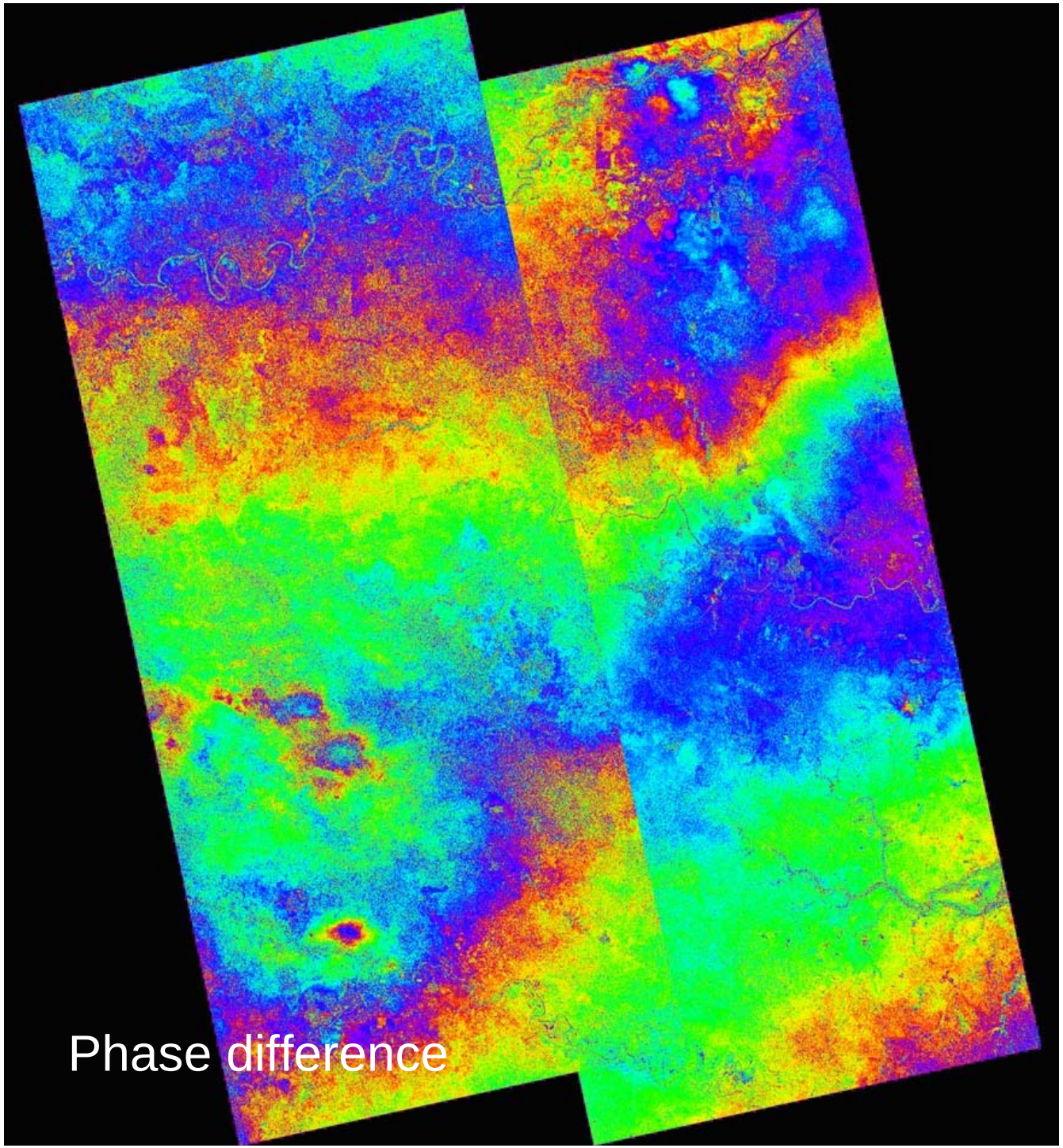
RGB image



Aug./Sept., 2008

Development of the automatic change detection processor

Combining the ortho rectification and InSAR processing

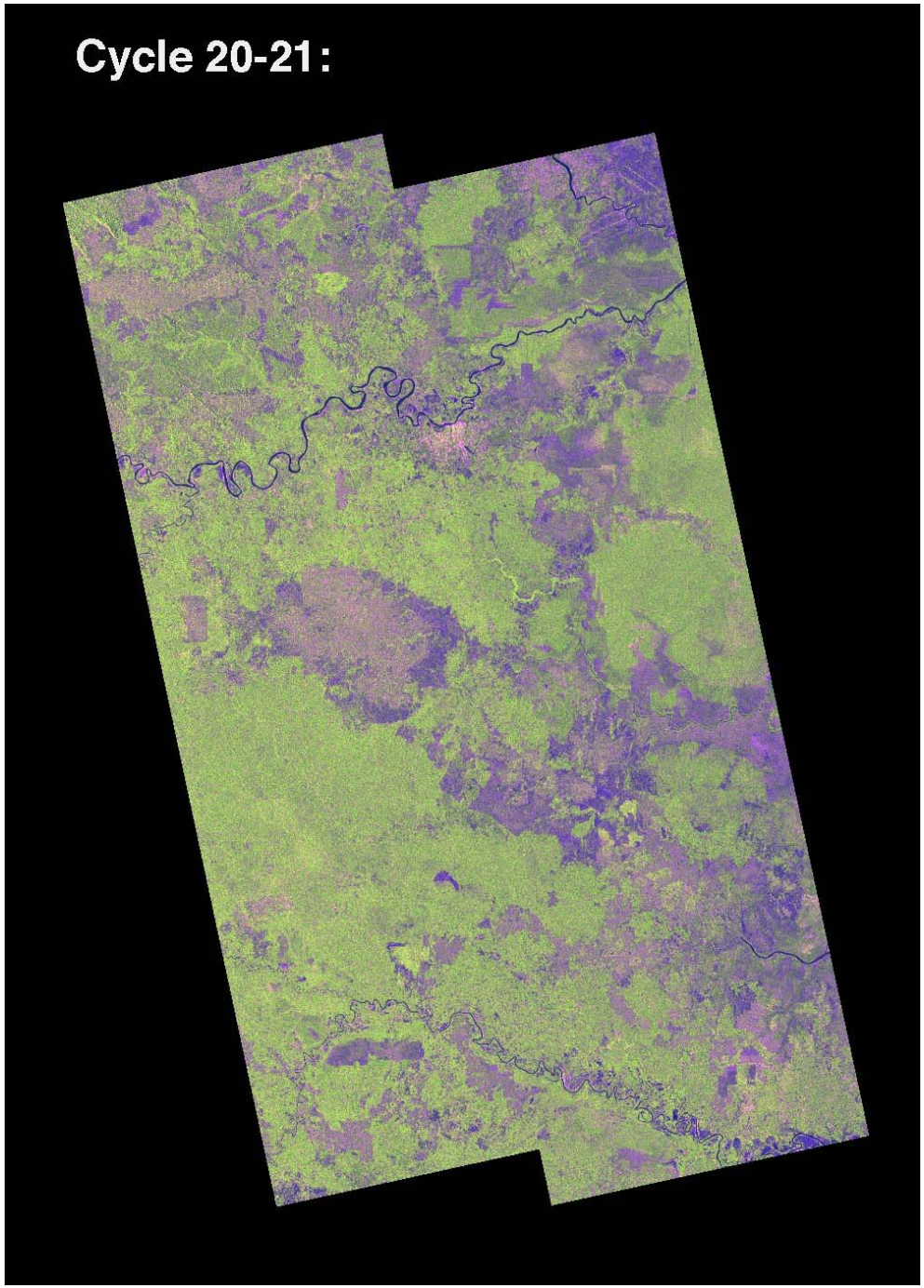


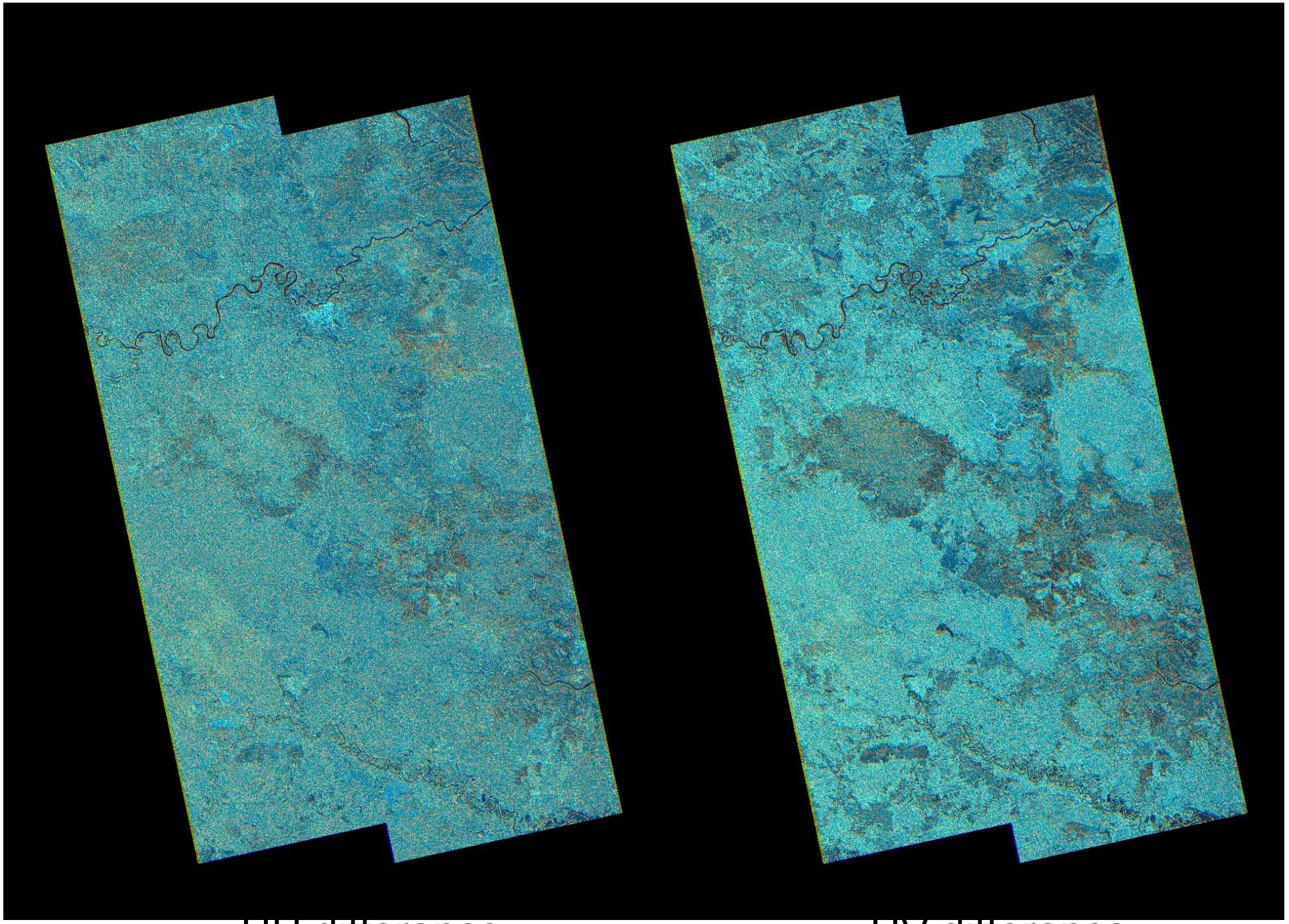
Automatic
Imaging
Ortho
InSAR
Co registration

Is

under the test.

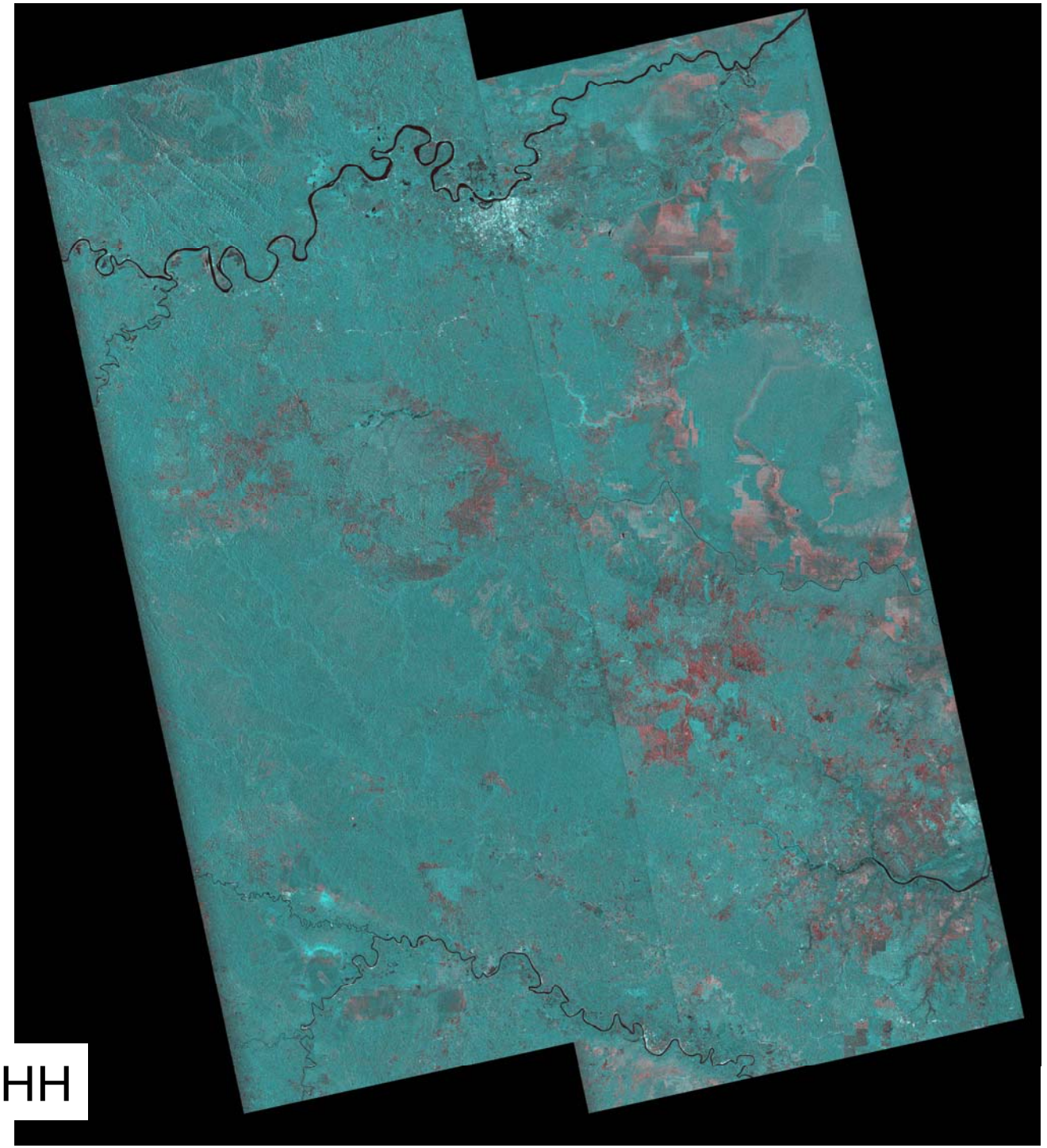
After the evaluation and experimental operation. We will generate the quick change detection information.


Cycle 20-21:



HH difference

HV difference



Co-HH-HH

Conclusions

Generation of the orthomosaic can be automatically produced by using the SRTM3.

Performance enhanced AGAP2 can increase the mosaic data productions.

The generation of the mosaics are under the schedule

To change the production frequency :
Once for global area, twice or once for hotspot-deforestation area in south east Asia.

Generate both orthomosaic in slope correlated and non-corrected ones.

In future:
Automatic change detection and provision of the data to the public

Geometric accuracy