Tropical Working Group
Product proposals

WG #2a - Tropical products
Richard Lucas (WG leader)
Philippe Paillou (Arid WG leader)
Reiner Zimmermann
Paul Reichert
Dirk Hoekman
Ruandha Sugardiman
Manabu Watanabe

Near Tropical Terra Firme
Canopy Height

Lead scientists

Alberto Moreira (DLR)
Reiner Zimmermann (MPI)

Product Type
• Selected area canopy height map of tropical forests with underlying topography (.25 ha).
•Derived carbon stock map

End users
•Addresses need for carbon assessment and modelling in tropical areas.

Sensor
• ALOS PALSAR interferometry

Geographical Coverage
• East Andean slopes south of the Amazon.

Input data requirements
• Fully polarimetric PALSAR data with 46 days difference

Methodology
• To be demonstrated

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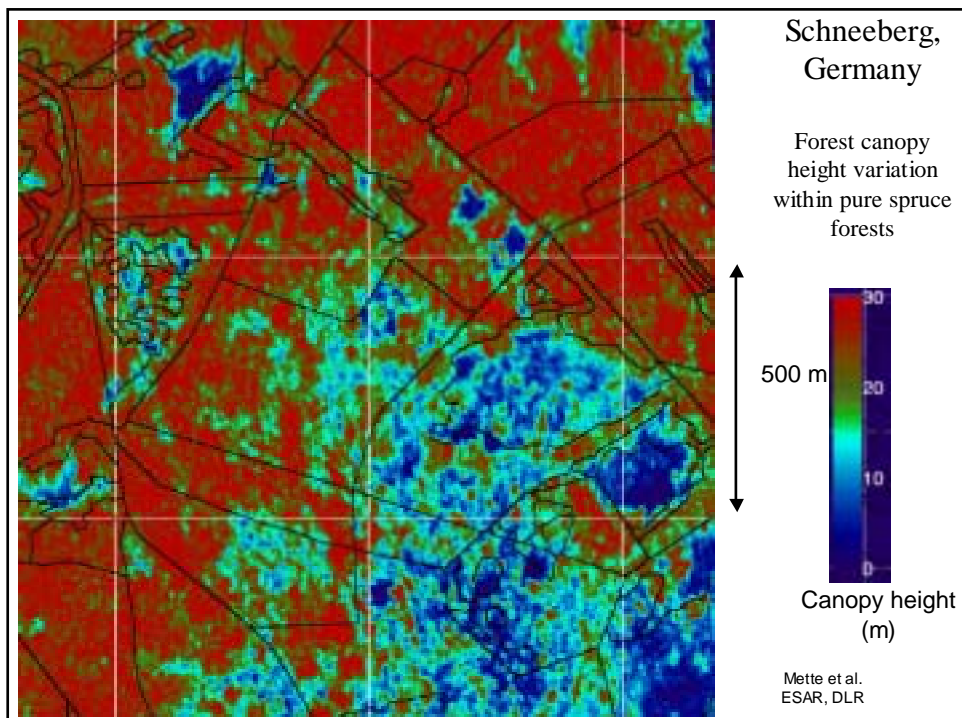• ALOS PALSAR interferometry

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Schneeberg, Germany

Forest canopy height variation within pure spruce forests

500 m

Canopy height (m)

Mette et al.
ESAR, DLR

Global Mangroves:
Distribution, Conditions and
Disturbances

Lead scientists
Richard Lucas/Tony Milne (Australia)
Dirk Hoekman/Ruanda Sugardiman/Paul-Gerhard
Reichert/Alex Held (SE Asia).
Africa/South America (Christophe Proisy/Sasan
Saatchi).

Product Type
• Maps of mangrove distributions and changes in
extent (based on ALOS PALSAR and JERS-1
SAR and C-band SAR with optical).
•Potentially biomass, height, structure and
zonation.
•Map of replacement land covers/uses.

End Users
•FAO
•Ramsar

Sensor
• ALOS PALSAR
• JERS-1 SAR
• Optical data
• POLINSAR from ALOS
  PALSAR
• C-band

Geographical Coverage
• Global

Input data requirements
• ALOS PALSAR Dual Pol
  HH and HV.
• Fully polarimetric PALSAR
  data with 46 days
  difference.
• Historical datasets

Methodology
• Change Detection

Flood Hazard Predictions and
Maps

Lead scientists
Uncertain

Product Type
• Extent of inundation (open water and under
trees).

•Changes in inundation

End Users
•FAO
•Land managers and national governments

Sensor
• ScanSAR

Geographical Coverage
• Regional coverage at
  specific sites in Americas,
  Asia, Africa.

Input data requirements
• Repeat every 46 days.

Methodology
• Standard flood mapping
  techniques

Tropical Land Use Change and ARD

Lead scientists
Dirk Hoekman (Indonesia)
Richard Lucas (Brazil)

Product Type
•Maps of ARD (including fire damage)
•Land use histories

End Users
Ministry of Forestry and local NGOs
Provisional Government.

Sensor
• PALSAR Dual Pol
• GLI

Geographical Coverage
• Kalimantan and other regions in S.E. Asia.
• Brazil

Input data requirements
• Data annually or more frequently.
• Integration with optical/C-band SAR

Methodology
• Change Detection

Tropical Peat Forests

Lead scientists
Dirk Hoekman (Indonesia)

Product Type
• Maps of extent of peat forest quality and degradation.

NGOS, Provincial governments
Ramsar

Sensor
• ScanSAR (for characterisation)
• PALSAR Dual Pol
• JERS-1 SAR

Geographical Coverage
• Regional coverage at specific sites in SE Asia.

Input data requirements
• At least annual coverage.

Methodology
• To be developed

Freshwater Wetland Dynamics

Lead scientists
Tony Milne/Richard Lucas (Australia).

Product Type
• Extent of inundation (open water and under trees).
•Changes in inundation

End Users
•National Parks
•Wetlands International/Ramsar

Sensor
• ScanSAR

Geographical Coverage
• Regional coverage at specific sites in Americas, Asia, Africa.

• Input data requirements
• Repeat every 46 days.

Methodology
• Standard flood mapping techniques

Tropical/Subtropical woodlands: Land Use Change and Forest Structure

Lead scientists
Richard Lucas/Tony Milne (Australia)

Product Type
• Maps of biomass, structure and degradation/land use change

Sensor
• PALSAR Dual Pol
• JERS-1 SAR
• Dual Pol interferometry

Geographical Coverage
• Subtropical and tropical regions of Australia

Input data requirements
• At least annual coverage.

Methodology
• Developed using AIRSAR/JERS-1 SAR etc.

Tropical Regeneration

Lead scientists
Joao Roberto dos Santos (INPE)/Richard Lucas (Brazil).

Product Type
•Maps of local regeneration as a function of prior land use.
•Regional maps of regeneration stage and pathway

Sensor
• PALSAR Dual Pol
• GLI

Geographical Coverage
• Brazil

Input data requirements
• At least annual coverage.

Methodology
• Time-series comparison of JERS-1 SAR, Landsat sensor and ALOS/ENVISAT data.

Tropical Deforestation

Lead scientists
Joao Roberto dos Santos (INPE).

Product Type
•Maps of deforestation

Sensor
• PALSAR Dual Pol

Geographical Coverage
• Brazil

Input data requirements
• At least annual coverage.

Methodology
• Based on PRODES

Illegal Logging

Lead scientists
Dirk Hoekman/Ruanda Sugardiman

Product Type
•Detection system for illegal logging

End Users
NGOS and Local Governments.

Sensor
• PALSAR Dual Po
• ENVISAT ASAR
• Landsat sensors

Geographical Coverage
• Indonesia

Input data requirements
• At least annual coverage.

Methodology
• Change Detection

Glacial Geohazards: Tropical Regions

Lead scientists

Product Type
• 3D maps of moraine dams and associated glaciers.
•Hazard maps

End Users
•National governments
•Disaster prevention and response units
•Water supply

Sensor
• PRISM
• Dual Pol Interferometry

Geographical Coverage
• Himalayas, Andes

Input data requirements
• One observation only (PRISM)
• Multiple observations using SAR.

Methodology
• Single mapping (operational)