Title: Forest Height

Product Leader: A. Moreira

Affiliation: DLR (German Aerospace Center), Microwaves and Radar Institute; Oberpfaffenhofen

Product Team (confirmed members only):

- S.R. Cloude (AELc / UK)
- P. Siqueira (JPL / USA)
- K.P. Papathanassiou (DLR / Germany)
- R. Zimmermann (MPI / Germany)
- H. Pretzsch (TUM / Germany)
- D. Valeriano (INPE / Brasil)
- D. Hoekman (Wageningen / NL)

Agreement status: Ready to sign !

Preferred agreement type (individual / institutional): Individual

Forest Height

Project objective(s):

Evaluation of the potential of Pol-InSAR techniques to provide forest height estimates on a global scale.

Open Scientific Questions to be answered with ALOS/PalSAR:

- Does L-band "see" the ground in tropical forests ?
- How much temporal decorrelation (46 days cycle) effects parameter estimation ?
- What is the performance of Pol-InSAR inversion techniques over different (tropical) forests environments/conditions (global view).
- Is ALOS/PalSAR capable for global scale forest height / biomass mapping ?
- Is a L-band sensor capable for global scale forest height / biomass mapping ?

Project milestone(s):

1. Inversion methodology development - based on airborne data - optimised with respect to to the actual ALOS/PalSAR acquisition-scenario / operation.
2. ALOS/PalSAR data inversion and validation of the obtained forest height estimates over a limited number of selected test-sites.
3. Inversion methodology development adapted to the dual-pol single-/dual-baseline ALOS/PalSAR global coverage acquisition scenario

Forest Height

Prototype Areas: Limited Number of Selected Test Sites worldwide.
A (prioritised) list of test sites has been proposed to JAXA.

- High Priority: 16/20 Test Sites: (11 Tropical / 2 Boreal / 2 Temperate / 1 Others)
- Second Priority: 30 Test Sites

Important: As the ALOS data will be open for the whole scientific community the ground measurements have to be also free - at least the tree (forest) height(s) measurements. This has been confirmed by the ground-measurement teams.

Corresponding observation plan polygon(s):
C2, C3, B3, D3, D4, D5, G1, G2, F3, F4, F5

No. PALSAR paths/coverage: Two path per site (InSAR Mode)

PALSAR request (Year 1-3): ~2 (InSAR quad pol in CAL/VAL Phase)/4 (InSAR dual-pol) passes over each test site. 1 frame per test site

Input data (EORC products): SLC (InSAR Pairs Coregistered) Slant Range Images in (preferably) 4 single polarisation channels (HH-HV-VH-VV). Polarimetric Calibration is not required.

Ancillary data requests: 3-dimensional baseline information

x-, y-, z-coordinates (Coordinate System TbD) of the antenna locations along the orbit.

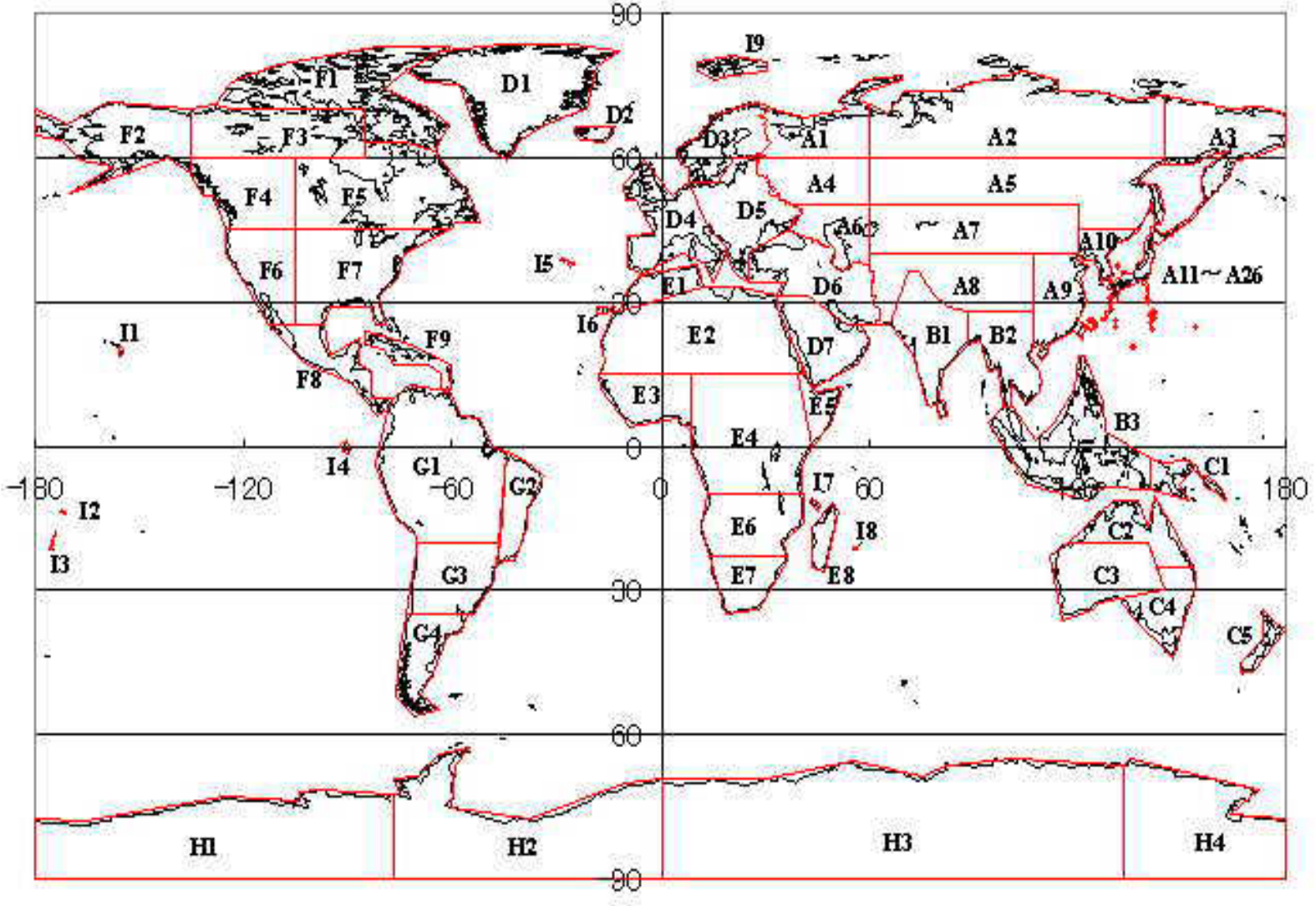
Forest Height

K&C Product Deliverables (before end of Year 3):

- Forest Height Maps.
  The spatial resolution (x-y-z) as well as the product accuracy will depend on the achieved ALOS InSAR (temporal) performance.

Prospects for Years 4-6 (assuming agreement extension)

- Extension to regional scale forest maps.



Location of Prototype Areas