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Introduction

Project objective:
To further develop and evaluate methods for large-scale mapping and monitoring of clear-cuts and possibly also stem volume or biomass for the entire Sweden using ALOS PALSAR data

Background:
L-band SAR data has potential for detection of forest cover changes and biomass, in particular HV-polarization

Project region:
Sweden
Project plan

- The objective will be achieved by refining the developed methodology and algorithms in Phase 1 and by performing a scientific evaluation of clear-cut detection and possibly biomass estimation of Sweden.

- The project will involve analysis covering different forest types (i.e. from boreal to hemi-boreal forests).

- The differences in weather conditions, topography and forest properties make it especially important to develop a robust methodology for future operational use.

- The methods and algorithms that will be developed also aim to demonstrate the large-scale forestry monitoring goals of the JAXA’s ALOS Kyoto & Carbon Initiative.

- The proposed project will last until 23rd of January 2011 and funding will be sought for from the Swedish National Space Board.

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Definition of deliverables

- The deliverable will be a clear-cut map (and possibly also a biomass map) covering the entire Sweden with an estimate of the product accuracy.
Time schedule (final delivery no later than Dec. 2011?)

- Refinements of the developed methodology in Phase 1 (2009)
- Refinements of the developed processing chain in Phase 1 (2009)
- Adaptation of processing chain from regional to national scale mapping (2010)
- Up-scaling and testing of methodology for change detection (and biomass estimation) (2010)
- Production of clear-cut (and biomass) map(s) (2010-2011)
- Final delivery of the product(s) with a written report to JAXA (Dec. 2011?)
PALSAR data requirements

- FBS 34 HH (2 cycles per year)
- FBD 34 HH/HV (2 cycles per year, first 2 cycles)
- All RSPs covering Sweden (51 tracks) → increase temporal frequency of measurements
- Spatial resolution: 50 x 50 m² is fine. Processing level: SLR data strips
- ScanSAR data for biomass estimation (1-3 years)?

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