Summary: Vegetation, Forest and Wetlands (1)

THEMATIC RANGE OF STUDIES

Emphasizing PALSAR:

- Extraction of forest and woodland structure and biomass using polarimetry and interferometry (7)
- Deforestation mapping and monitoring (1)
- Use of texture for forest classification (1)
- Wetlands mapping and inundation monitoring (3)

Emphasizing AVNIR-2 and PRISM:

- Mangroves (3)
- Forest mapping (fire; conservation) (2)

Summary: Vegetation, Forest and Wetlands (2)

DATA QUALITY OBSERVATIONS

-very high quality of PALSAR products, all modes
- -low noise floor
- -good geolocation accuracy
- -good path-to-path and scan-to-scan calibration for ScanSAR; some darkening in scan overlap areas and far range
- -dual-pol and polarimetric data

-"gap" problem between scenes along track; source of problem has been identified and is now being corrected

-few PolInSAR tracks available; best to order them during "open" cycle to avoid conflicts with default observation mode

-steep angle for polarimeteric mode, combined with single available look direction, creates problems for forest mapping in areas with steep topography (in one study, 30% of area not mappable)

Summary: Vegetation, Forest and Wetlands (3)

HIGHLIGHTS: OPERATIONAL

-Deforestation mapping: global systematic coverage of fine-beam dual pol PALSAR is THE dataset for global deforestation monitoring
  - -HV adds to accuracy relative to HH alone
  - -ability to collect within a single year is critical for inventorying
  - -will play an important role at the December UNFCCC Bali meeting in demonstrating that the monitoring capability needed to support REDD (Reducing Emissions from Deforestation in Developing Countries) exists right now

-Inundation monitoring: datasets and algorithms in place to carry out global monitoring according to systematic acquisition plan

HIGHLIGHTS: NEAR-OPERATIONAL

-Mangroves: studies in several different regions achieving high accuracies using AVNIR-2 and PRISM data; for global-scale inventory, need to coordinate methodologies; high AVNIR-2 resolution important

Summary: Vegetation, Forest and Wetlands (4)

HIGHLIGHTS: RESEARCH

-Forest biomass and structure
  -studies show potential to extract structural information for particular forest types using polarimetric data
  -hampered by limited amounts of POLInSAR data and temporal decorrelation where conditions change between passes
  -use of entropy-alpha method with single-pass achieves high accuracy
  -biomass saturation limits reached for several types of forest and woodland; height information and multi-sensor approach needed
  -Many studies have very extensive ground datasets
  -Several are using PolSARpro
-Several are using PolSARpro

Summary: Vegetation, Forest and Wetlands (5)

REQUESTS, RECOMMENDATIONS

-PRISM

-high quality and utility of PRISM DEMs for forest and coastal studies: can the DEMs be made available as a standard product?

-Interferometic data formats:

-confusion about interferometric processing: is 1.0 (vs. 1.1) required for optimizing coherency? But 1.0 raw, no calibration; need to order both? need clarification and possibly online tools or guidelines

-Prefer less steep angle for interferometric mode (e.g. 30º)

Summary: Vegetation, Forest and Wetlands (6)

REQUESTS, RECOMMENDATIONS

-For ALOS-2, interferometry for vegetation:

- -Short repeat-pass times: single pass: optimum, 7-14 days: good-acceptable, 20-30 days: opportunistic; 40days: problematic
- -Larger system bandwidth: go to 85 MHz as it increases the number of looks available for estimation accuracy and allows a more flexible baseline scenario (large baselines)
- -Good orbit control: Orbital tube better than 5% of the critical baseline
- -Baselines: Non-zero, in an ALOS like orbit ~1Km. Variable over mission time (large and small baseline scenario)