Desert Theme Results

Synergetic Use of Earth Observation Data
for Land Cover and Land Cover Change Mapping
& Environmental Monitoring

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Phase 1

Except the final report, all tasks have been completed.
Objective and Products

To continue the development of a methodology for land cover mapping and environmental monitoring purposes based on the data synergy of:

- Multi-temporal interferometric ALOS PALSAR
- Multi-temporal ALOS AVNIR
- ALOS PRISM data
- Multi-temporal ENVISAT ASAR AP/IM
- Multi-temporal Cosmo-SkyMed StripMap

for the generation of following products:

- Land cover map (main classes), in particular crop and forest
- Land cover change map (main changes)
- Digital Elevation Model
Original Sites

Extended to:
- South Africa
- Liberia
- Mozambique
- Congo
- Vietnam
Information Detection and Extraction

- Tonal (Intensity and Coherence - including $\lambda$ and $pol$)
- Temporal Variations (Intensity Changes)
- Geometrical Descriptors
- Textural Information (2nd and 3rd order)
- Contextual Information
Workplan

PRI SM & PALSAR InSAR → Digital Elevation Model

PALSAR FBD InSAR → Primal Sketch InSAR classifier

Multi-temporal ASAR AP → Temporal features

AVNIR → - Primal Sketch Optical classifier
            - Geometrical descriptors

Cosmo-SkyMed-1-2-3 → - Geometrical descriptors
                      - Textural information

2nd level Classifier

A priori knowledge-based classifier that requires neither user-defined parameters nor reference samples
Data Requirements

- PALSAR FBD SLC data, 46 days
- AVNIR data
  - Rational Polynomial Coefficients
  - Top of Atmosphere Coefficients
- PRI SM data
Deliverables

- Products
- Report