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**

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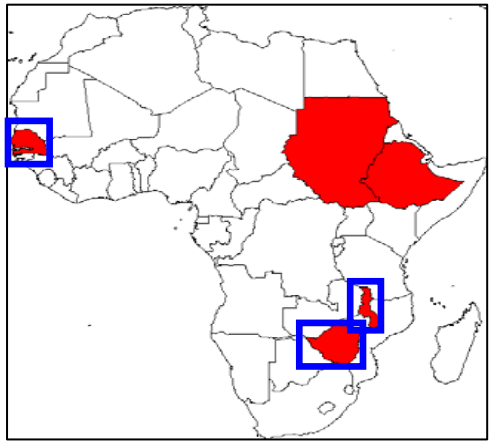
Original Sites



GMFS sites

K&C sites

Extended to:

- South Africa
- Liberia
- Mozambique
- Congo
- Vietnam

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Information Detection and Extraction

- Tonal (Intensity and Coherence - including λ and *pol*)
- Temporal Variations (Intensity Changes)
- Geometrical Descriptors
- Textural Information (2nd and 3th order)
- Contextual Information

Workplan

PRISM & 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

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2nd level Classifier

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

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Data Requirements

- PALSAR FBD SLC data, 46 days
- AVNIR data
  - Rational Polynomial Coefficients
  - Top of Atmosphere Coefficients
- PRISM data

Deliverables

- **Products**
- **Report**