

→ FRINGE 2011 WORKSHOP

Advances in the Science and Applications of SAR Interferometry and Sentinel-1 Preparatory Workshop

Pol-InSAR & Tomography Session

Chairs: S. Tebaldini & C. Lopez-Martinez

Seed Questions

1. What recommendations does this thematic community have for Sentinel-1 observation scenarios over InSAR areas of interest, in terms of revisit frequency and pass (ascending / descending)?

2. Non uniform motions:
 - Tomography allows separation of targets within the same range-azimuth cell based on their elevation and/or LOS velocity. Yet, ambiguities may arise concerning target location and velocity, not to mention more sophisticated motion patterns.
 - a. How do we characterize the ambiguity between target position and motions? Can we provide inputs for the optimal design of spatial/temporal baseline sets?
 - b. What is the relevance of polarization diversity (solve ambiguity and/or reduce the number of passes)? Considering the future Sentinel-1 SAR system, are fully-polarimetric data necessary? Which is the best dual-pol configuration (HH/VV, HH/HV, HV/VV, RR/RL...)?

3. Retrieval of ground topography beneath the vegetation layer:

- In recent years the problem of retrieving ground topography beneath the vegetation layer has been addressed by different research groups. To this aim, what is the relevance of polarization diversity or use of coherent scattering models?

4. Vertical structures of distributed media:

- Tomography provides access to the vertical structure of distributed media, therefore providing a new tool for large scale forestry studies. Yet, radiometric accuracy is of the uttermost importance to the aim of providing useful inputs to scientists outside the field of SAR processing.
 - a. Super-resolution techniques are appealing as they allow to minimize the number of baselines. Yet, to what extent radiometric accuracy is preserved?
 - b. Would it be necessary to consider the development of coherent scattering models to retrieve quantitative information?
 - c. How do we cope with temporal decorrelation (e.g: proper selection of interferometric pairs; temporal decorrelation model; other....)? Would it be necessary to introduce temporal decorrelation models for urban scenarios?