SuLaMoSA

"Subsidence and Landslide Monitoring Service Austria"

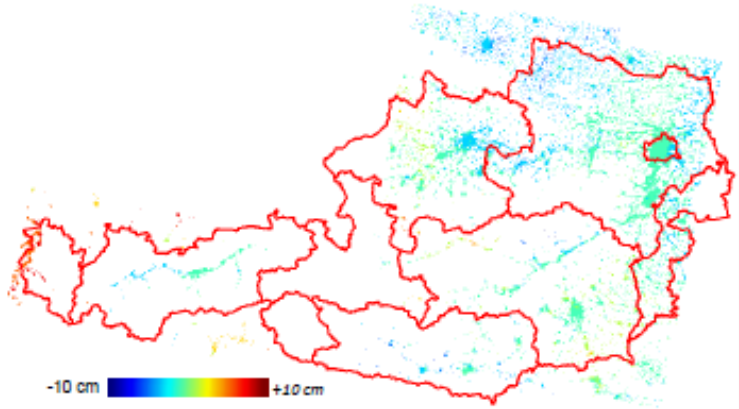
Project goal:

- The project "Subsidence and Landslide Monitoring Service Austria (SuLaMoSA)" founded from the Austrian Research Promotion Agency (FFG) will introduce, for the first time in Austria, a national monitoring service regarding subsidence and landslide mapping based on D-InSAR-technologies. The service will be developed by Joanneum Research and the Geological Survey of Austria and will be implemented into and operated by the EODC, Vienna.
- Definition of user needs and requirements with strong engagement of potential users.
- It will deliver unprecedented homogeneity of deformation products with an update rate of few weeks down to couple of days. Based on systematic utilization of Sentinel-1 data the service will guarantee consistent products for a very long period of time.

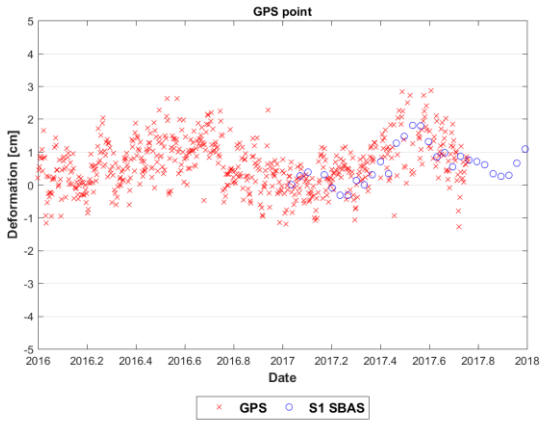
Observation of Surface Deformation

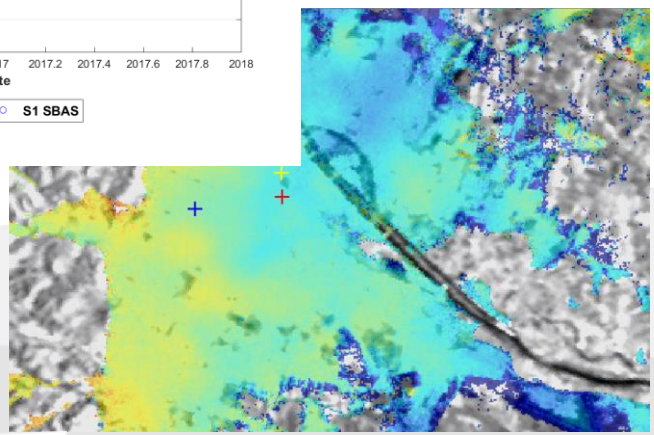
D-InSAR Workflow and Tasks:

- *Co-registration*
- *De- and Reramping*
- *Debursting and Burst Merge*
- *Temporal Phase Filter*
- *Optimal Triangulation*
- *EMCF Phase Unwrapping*
- *Baseline Optimization*
- *SBAS Analysis*



Cumulative Displacement





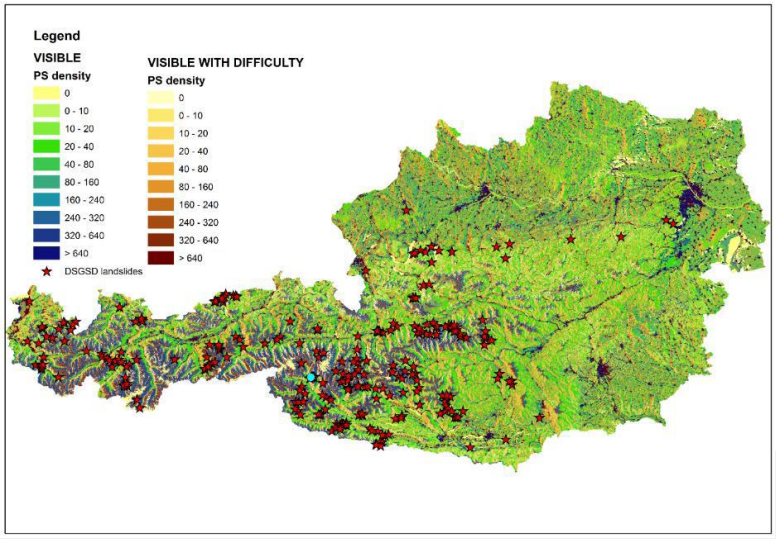
PS / DS Identification Methods

A priori:

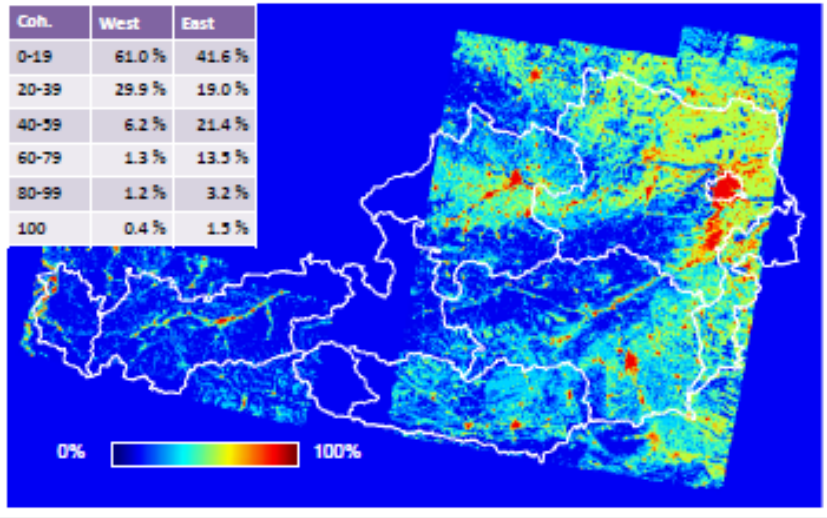
- *Range Index as Function of Slope, Aspect, Orientation and Incidence Angle*
- *Enhanced CORINE Land Cover Map*

A posteriori:

- *Coherence Mask per Epoch*
- *Spatial Statistical Analysis*



A priori PSI Point Density



Percentage of Coherent Interferograms

Test Case under Laboratory Conditions

- *Select representative test sites where a series of deformation phenomena are known (in close cooperation to potential user);*
- *Generate D-InSAR products with two distinct software designs*
- *Inter-comparison of the two generated D-InSAR products for potential inconsistencies and*
- *Validate the service with reference data, ground truth data (standard monitoring devices), field survey and expert feedback.*