

Automated InSAR mass processing using CSL InSAR Suite (CIS) software for Multidimensional Small Baseline Subset (MSBAS) analysis:

example using Sentinel-1 and Cosmo-SkyMed SAR data for the
detection and monitoring of landslides in South Kivu, DR Congo.

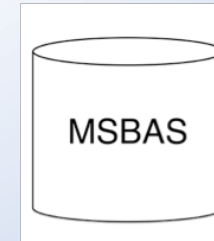
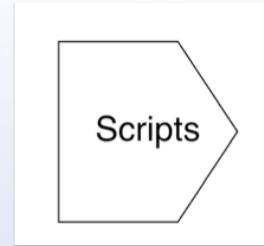
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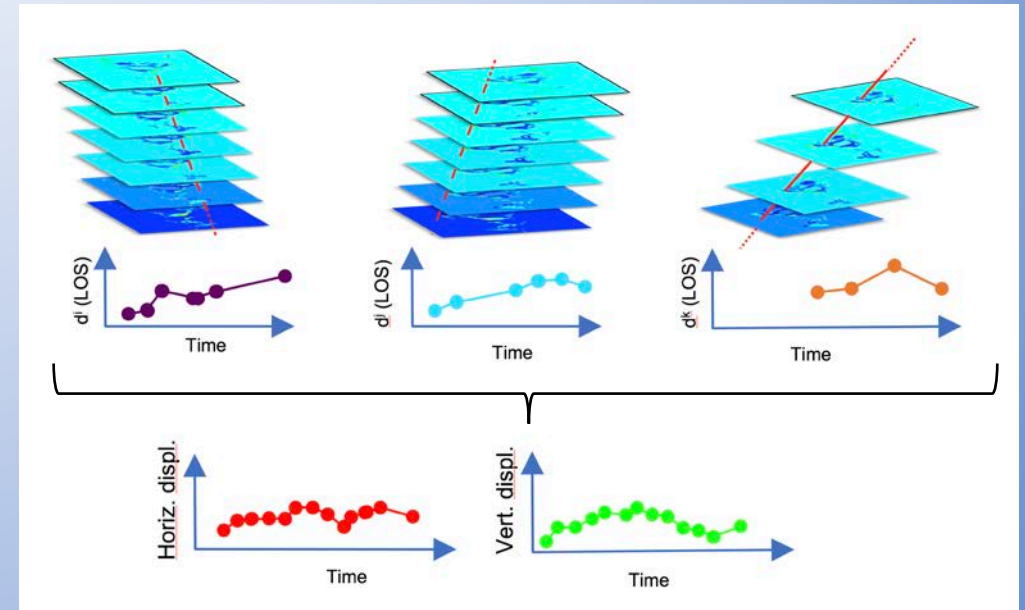
MUZUBI, SMMIP....



Mac and Linux compliant



- Single command (or cron job) :
 - Download images and orbits
 - Crop and coregister images on a Super Master
 - Select compatible pairs
 - Compute all interferometric pairs
 - Prepare files required for ingestion by MSBAS
 - Launch MSBAS and plot results
- Optimized for mass processing large amount of data (share intermediate results between compatible processes etc.)
- Incremental (compute only steps relevant for new images or updated orbits)
- Self evaluation of quality and modify processing accordingly
- Additional tools for :
 - assisting the quality, check the result integrity,
 - quick looking the data at several steps
 - plotting maps or time series of deformation (single pixel, or double difference)
 - gif animation of amplitude images
 - launch multiple run of MSBAS to assess the best regularization order etc...



- Uninterrupted temporal coverage (> lifetime of single sensor)
- Improved signal to noise ratio (average various source of noise)
- Cope with gaps in time series
- Restricted to common footprint, requires that the pixels remain coherent over the whole data set

343 CSK and S1 images
(March 2015 to October 2017)

⇒ 1063 interferometric pairs

⇒ 343 points dense time series
of ground deformation

⇒ Rapid Eastward and downward
displacement rates
are consistent with DGPS
and StaMPS studies [Nobile et al. 2018].

The amplitude and velocity of the
deformation imposes to select pairs
with short temporal baselines (<70 days).

