ISTerre
Institut des Sciences de la Terre

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CENTRE NATIONAL D'ÉTUDES SPATIALES

DEEPtrigger

Investigating Slow Slip Events Copiapo, Chile

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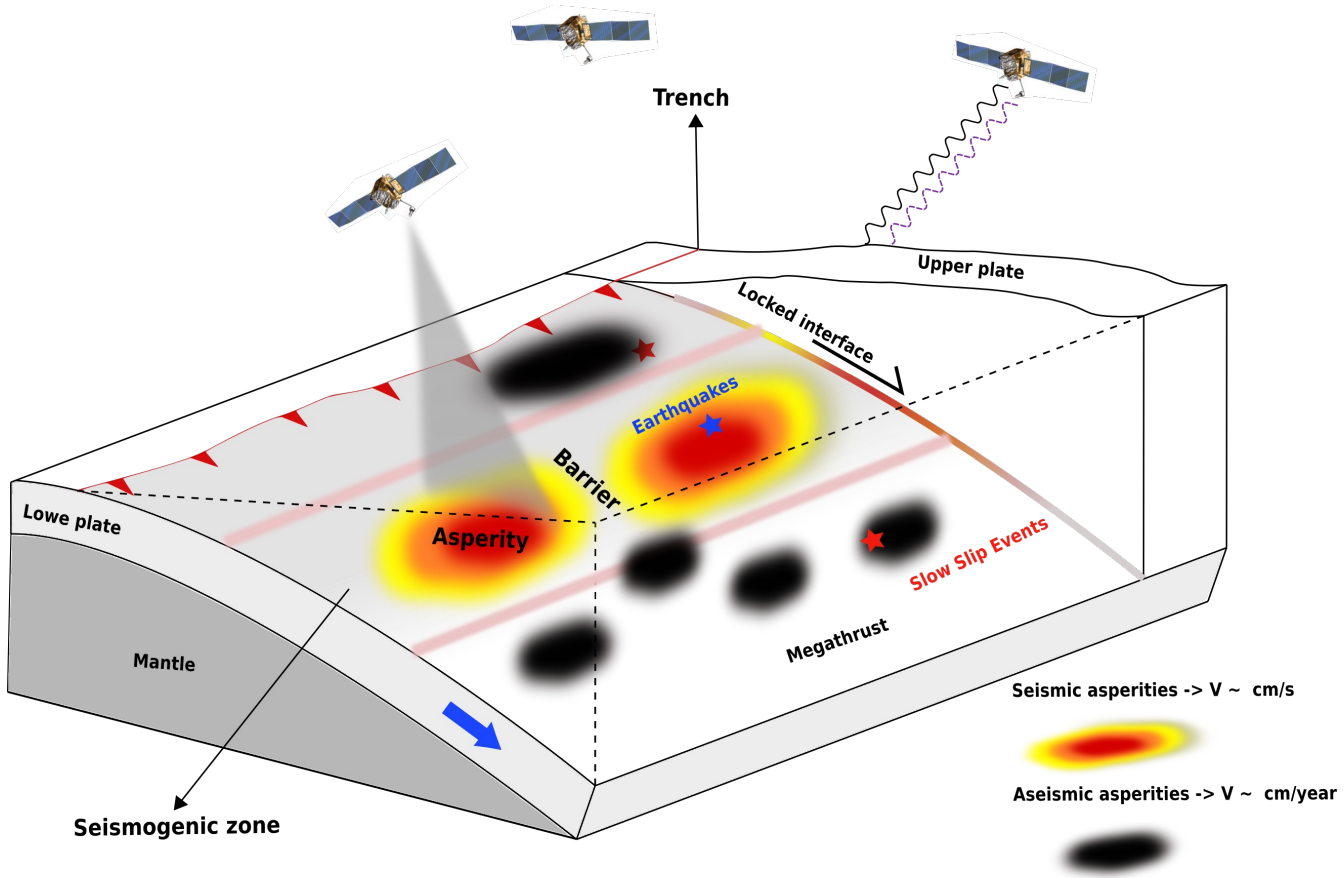
Subduction zones and SSE

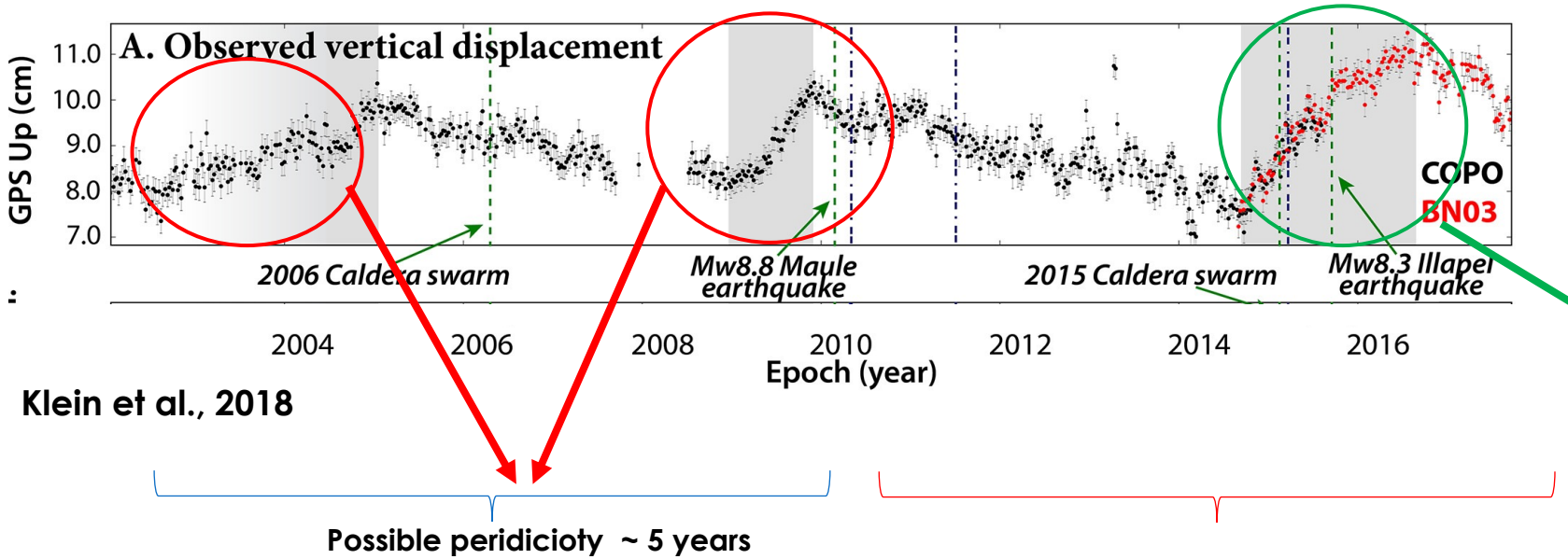


Earthquakes → sudden dislocation on plate interface on the seismogenic zone.

SSE → slow displacement on the megathrust ocuring on shalower or deeper areas.

Monitoring surface displacement-deformation to map and understand fault behavior.

First deep SSE detected in Chile

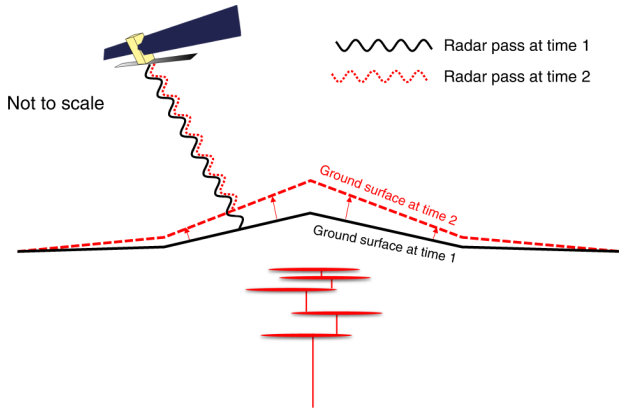


Klein et al., 2018

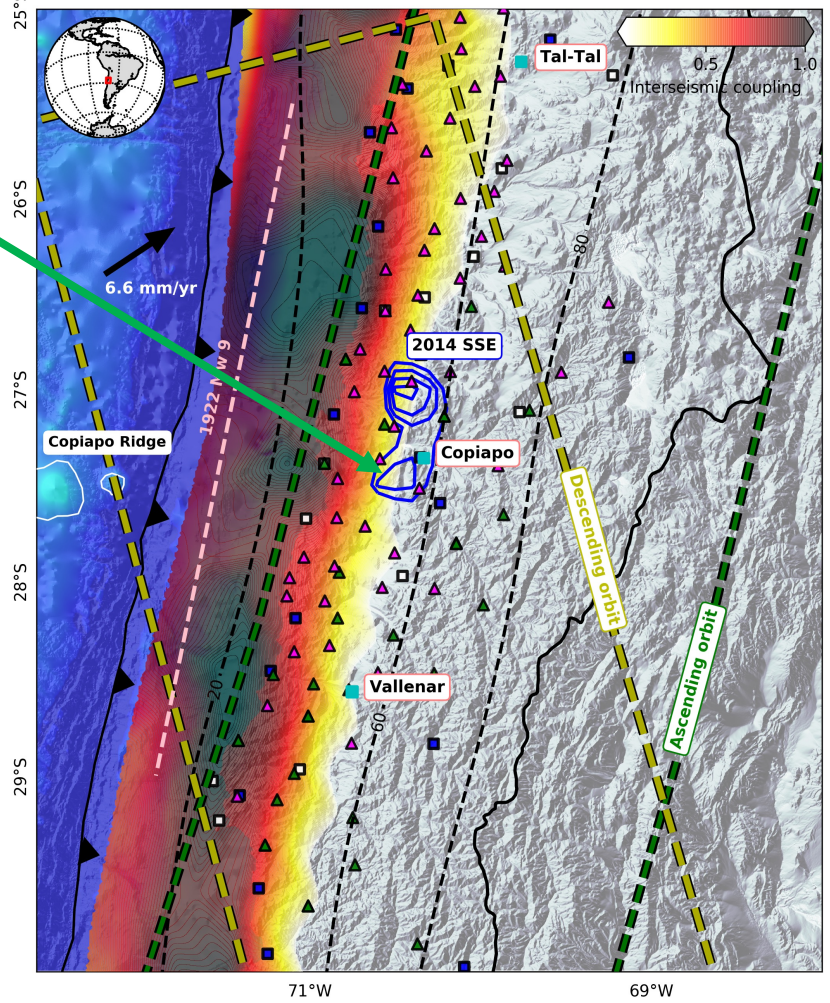
Possible peridicioty ~ 5 years

ENVISAT ARCHIVE (Past SSE)

SENTINEL ARCHIVE
(Potential new SSE)

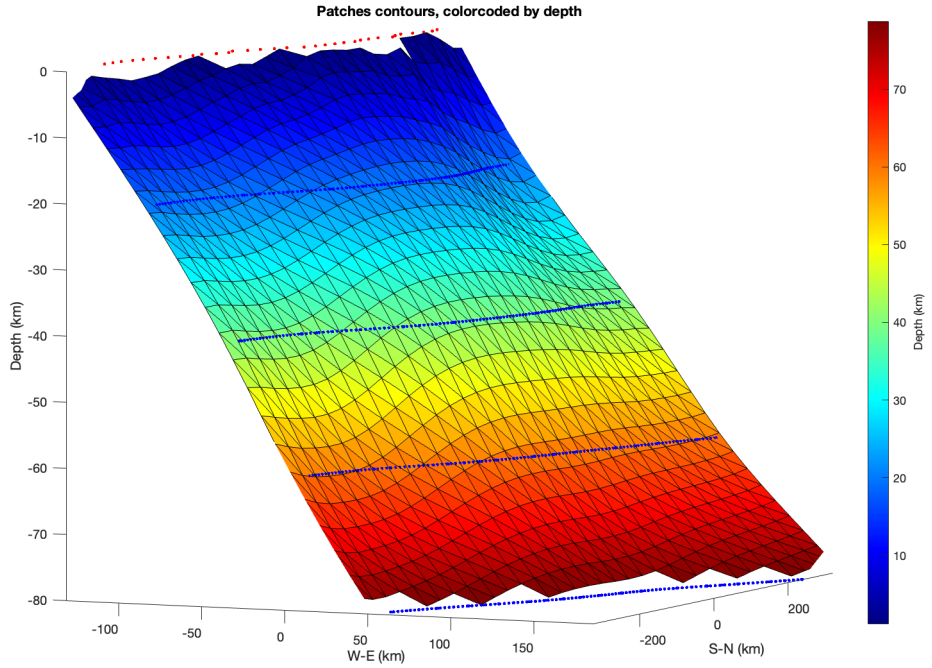


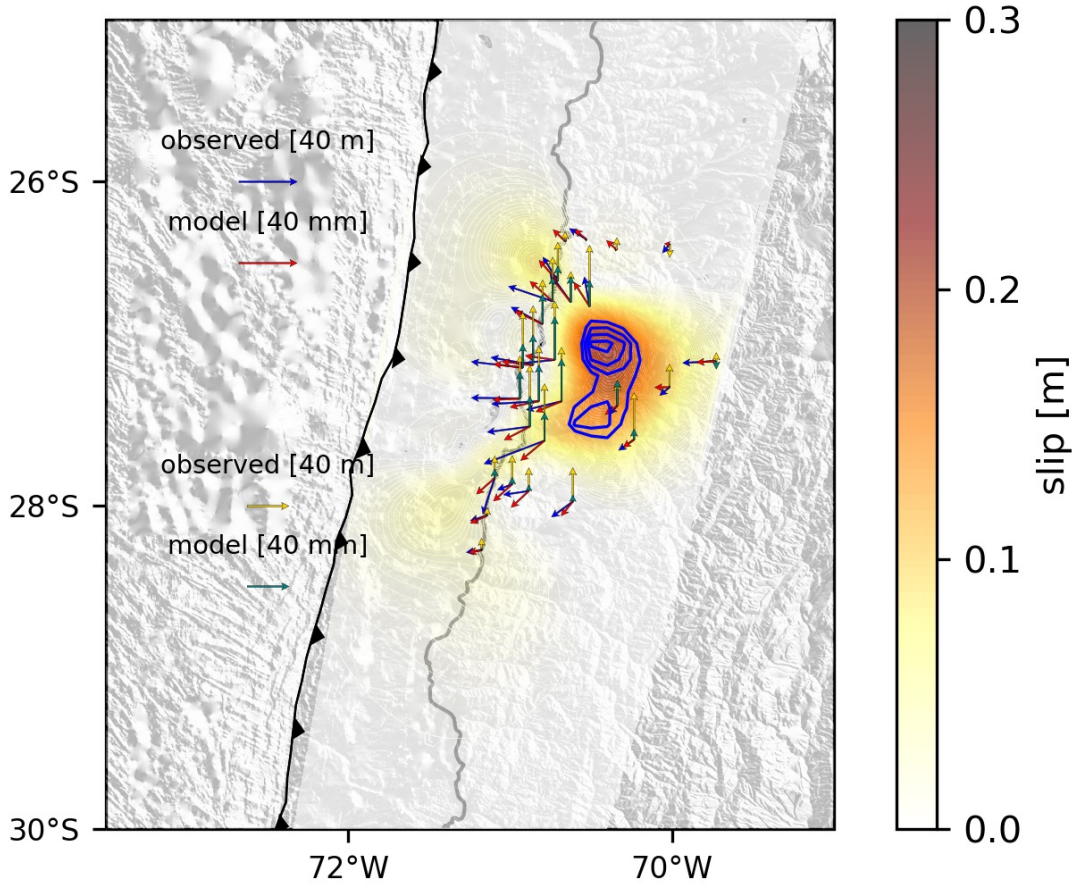
INSAR



GPS Approach

- Inversion GPS data to characterize the spatial patter of SSE 2014

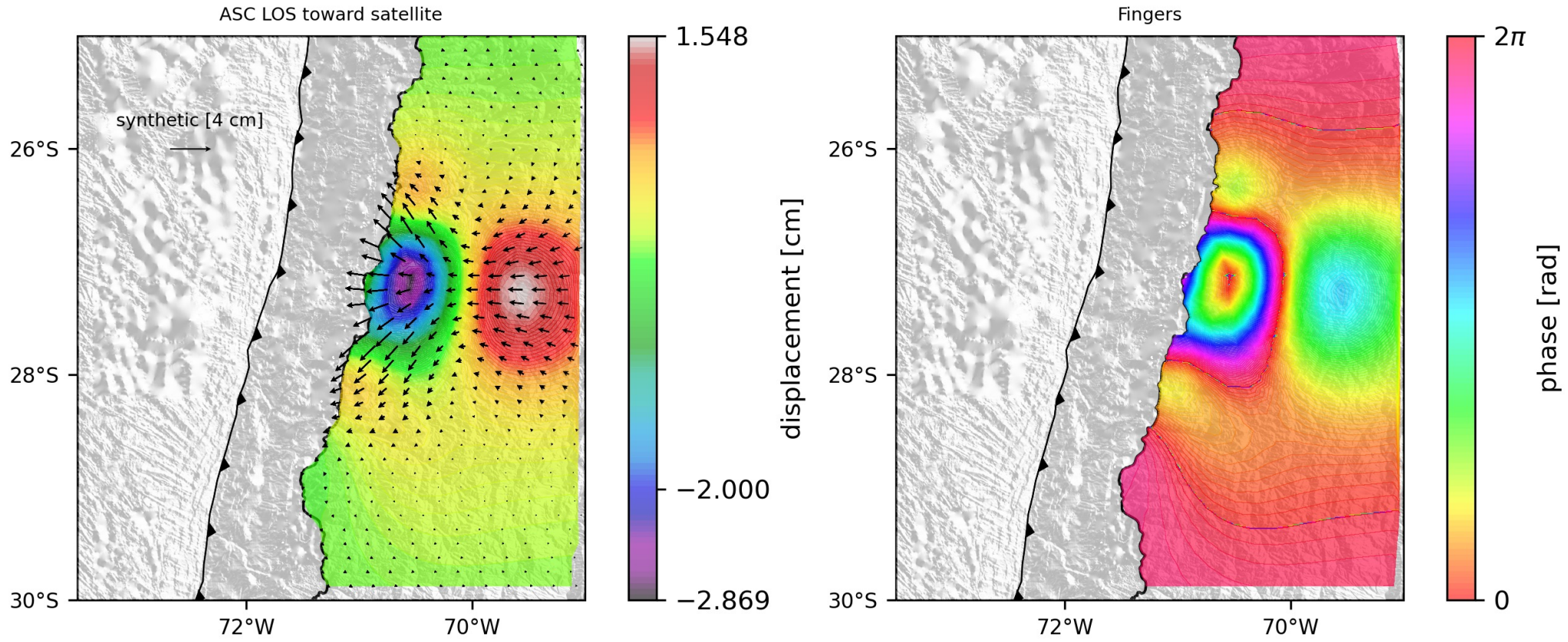




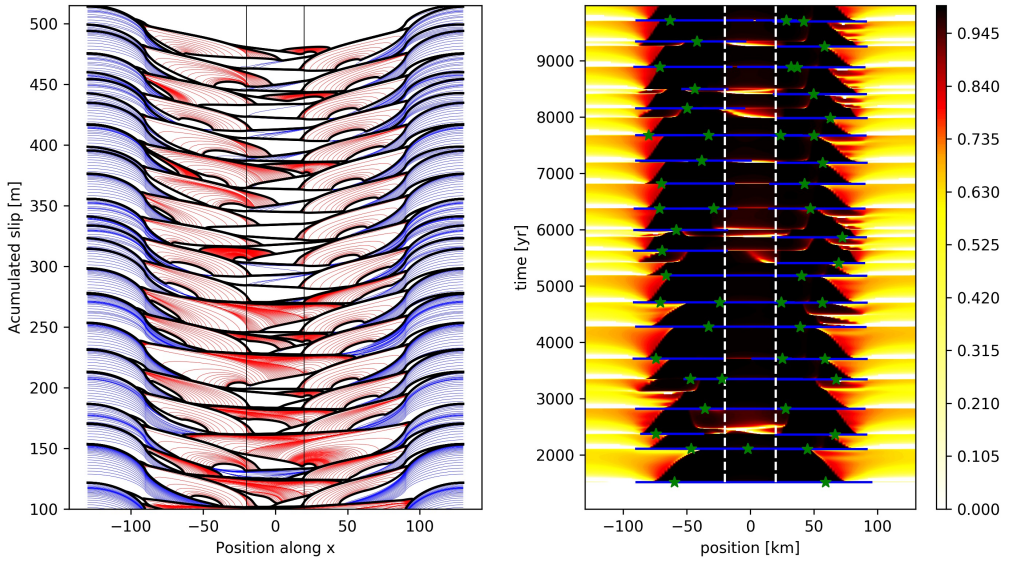
PCAIM software to inversion
Radiguet et al., 2011-Tarantola et al., 2005

INSAR Approach

- Synthetic InSAR data to characterize the spatial pattern of SSE 2014
- FLATSIM project to obtain InSAR time series



Expected Results



Static and kinematic Inversion considering both InSAR and GPS data.

Understand the interplay between SSE and the triggering of large earthquakes

Investigate fricctional properties using 3D numerical modelling of seismic cycle (QDYN software→ Luo and Ampuero, 2017)