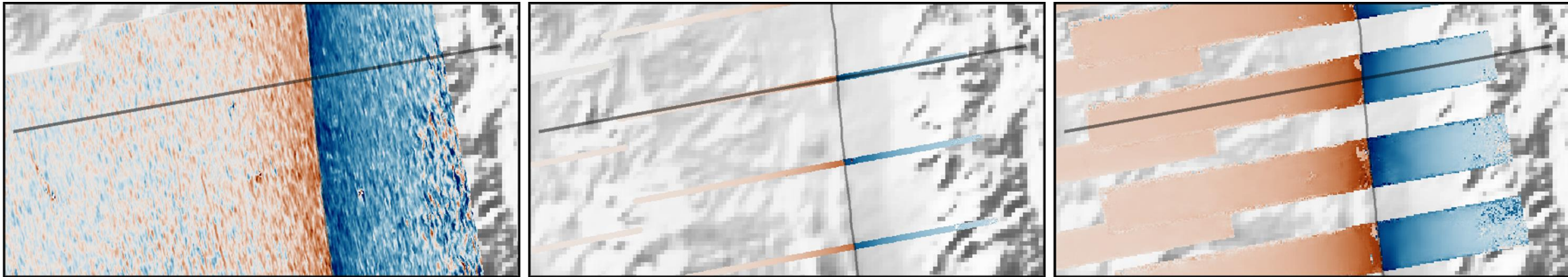
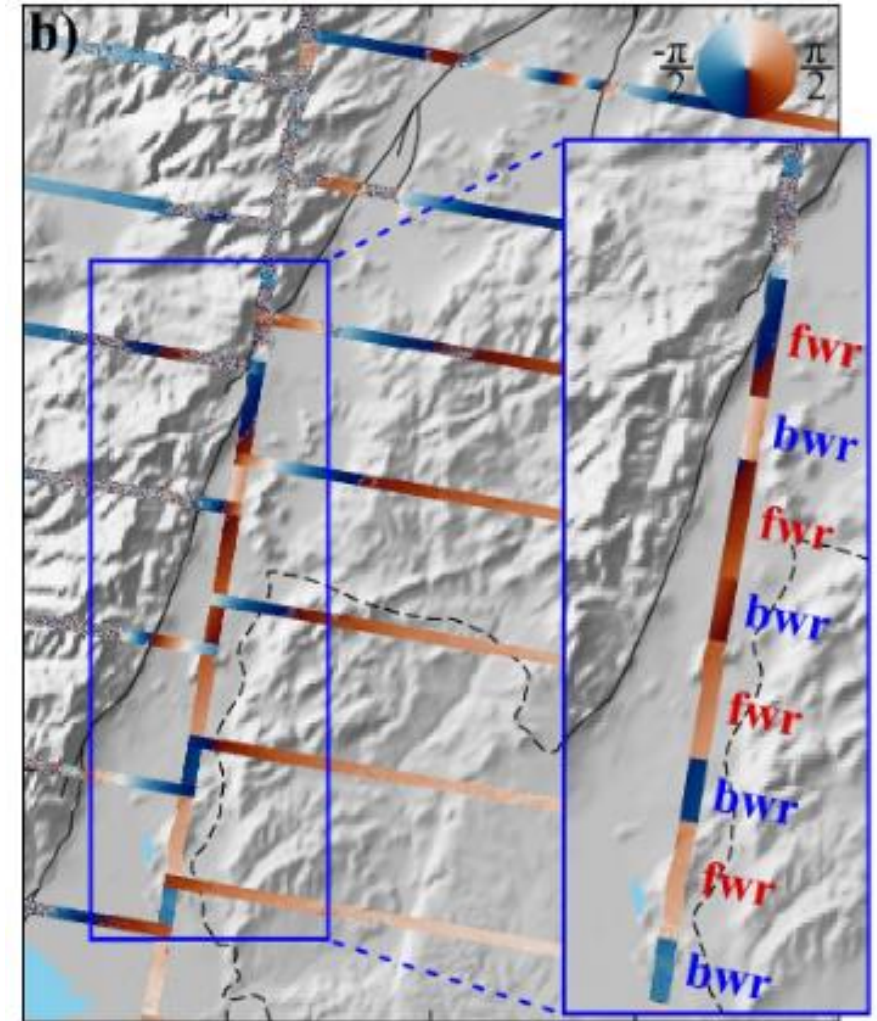
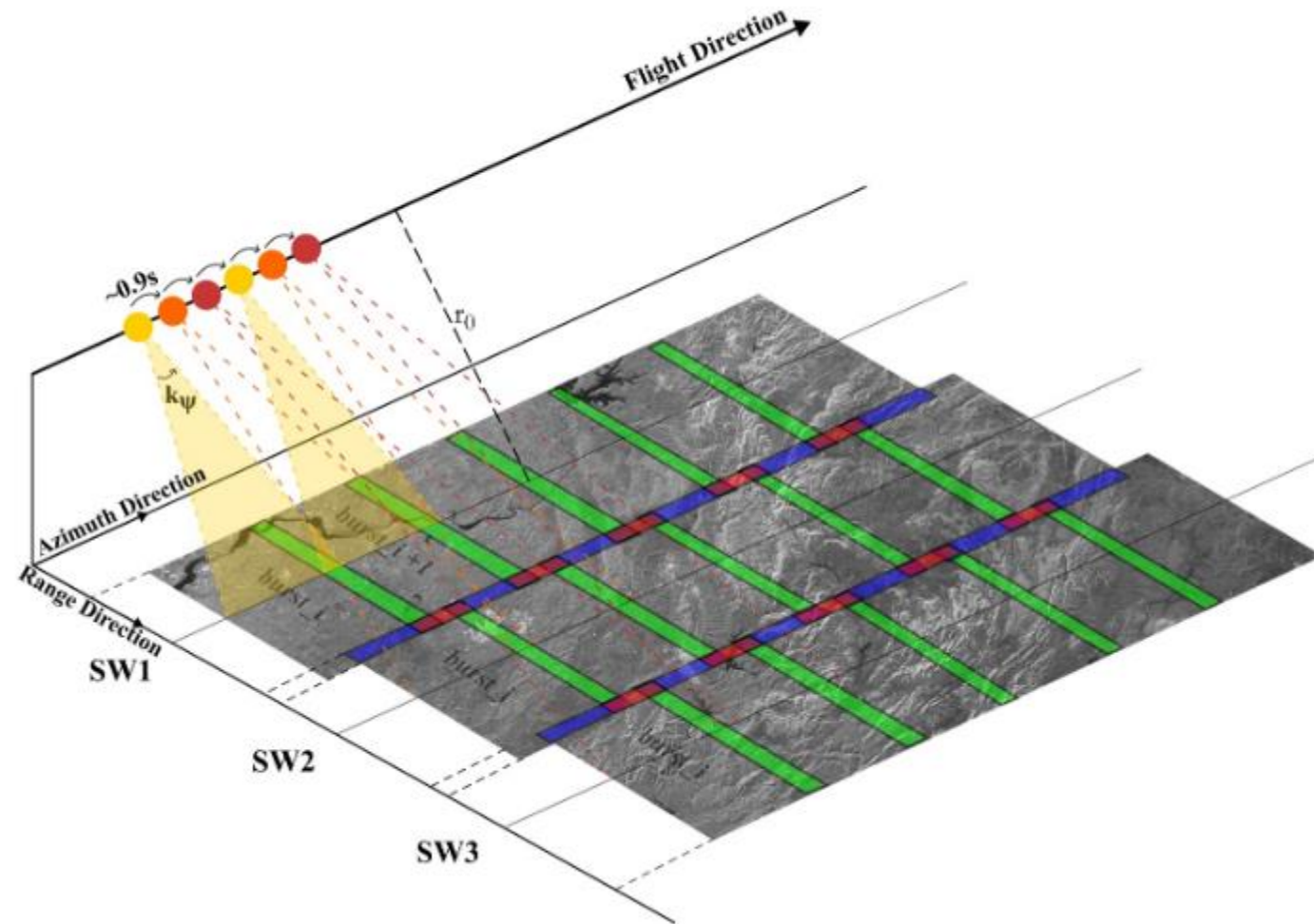


Improved 3-D Co-seismic Deformation From Increased Burst Overlap Interferometry Coverage

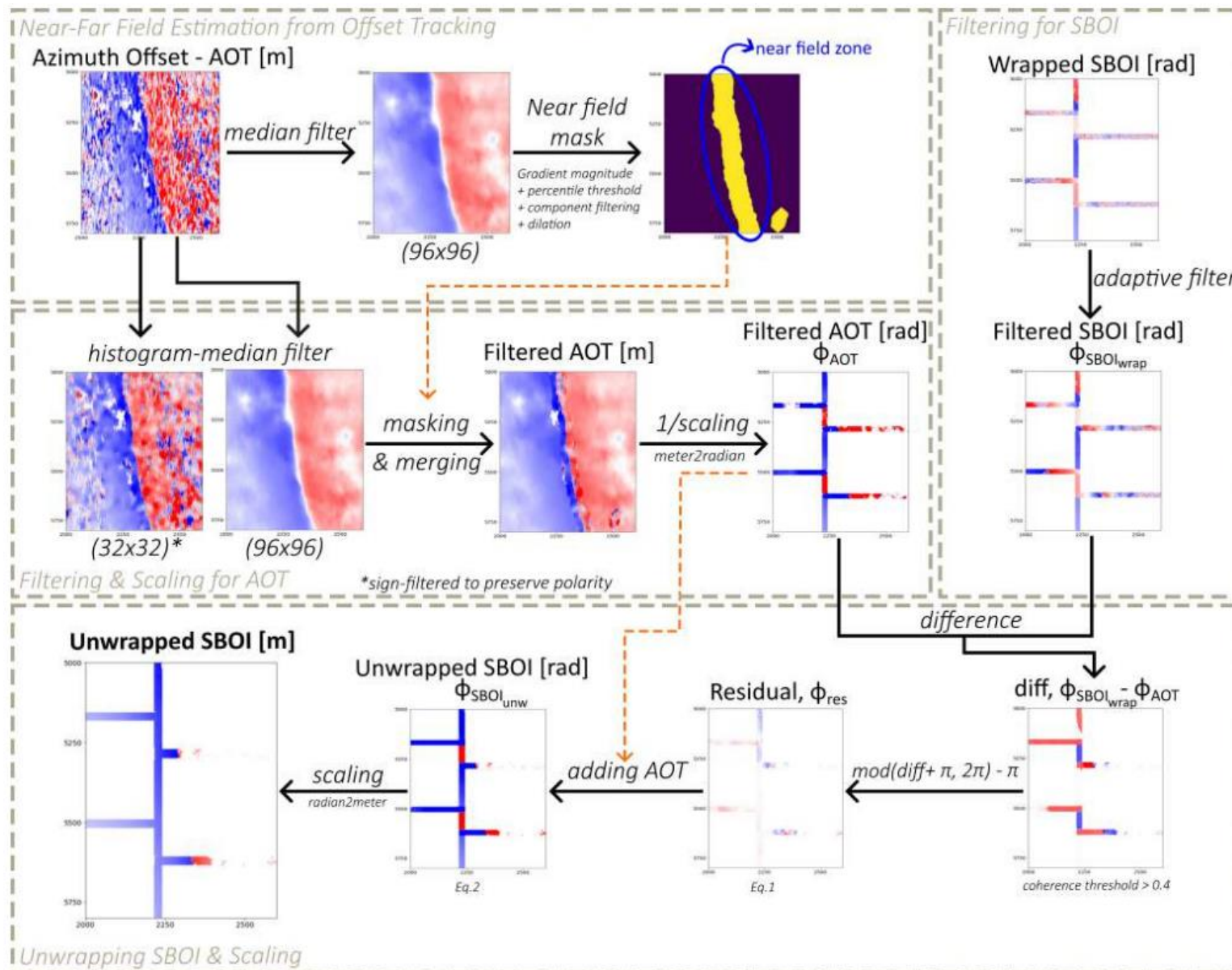


Andy Hooper, Muhammet Nergizci, Yngvar Larsen, Milan Lazecký, Tim Wright

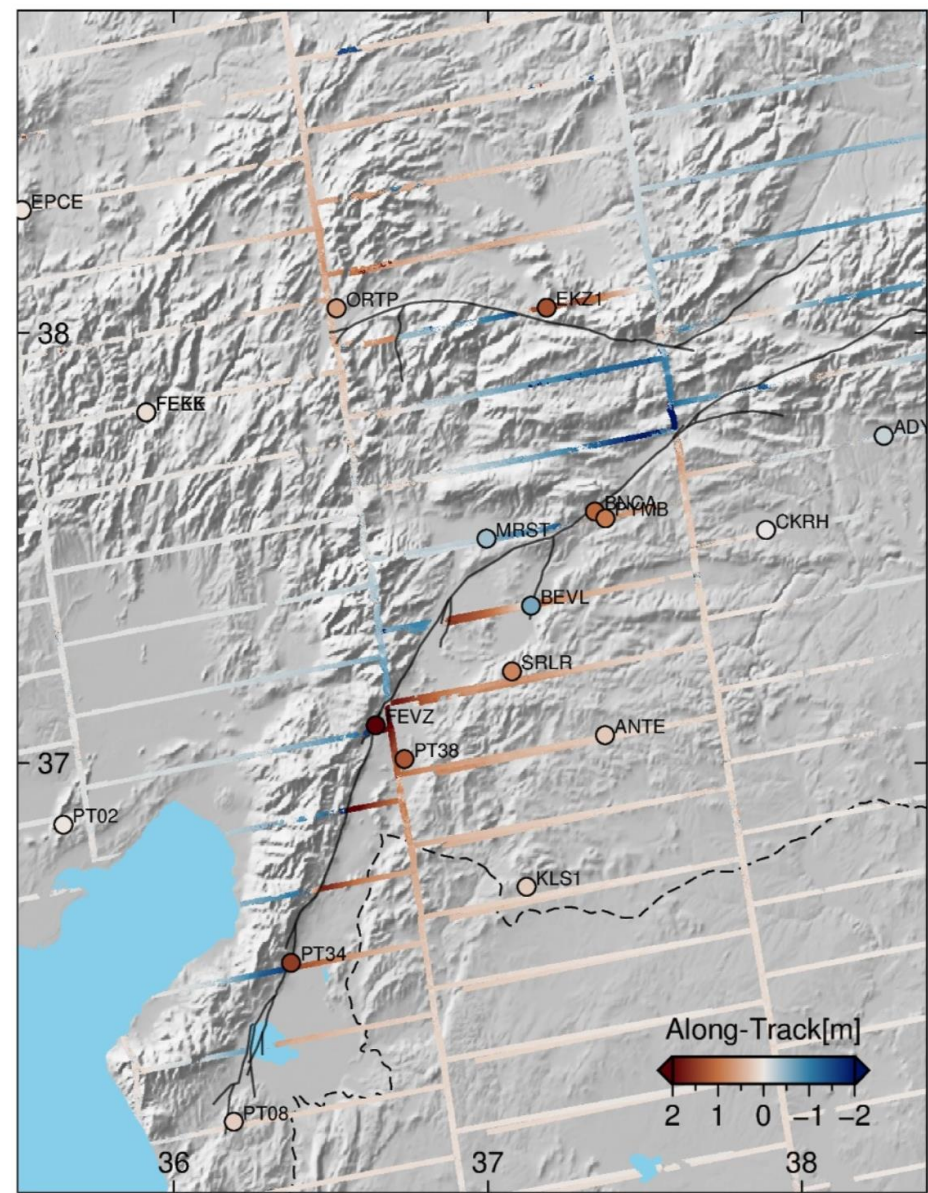
What is the Swath and Burst Overlap Interferometry (SBOI)?



Unwrapping is tricky across faults – guided by azimuth offsets

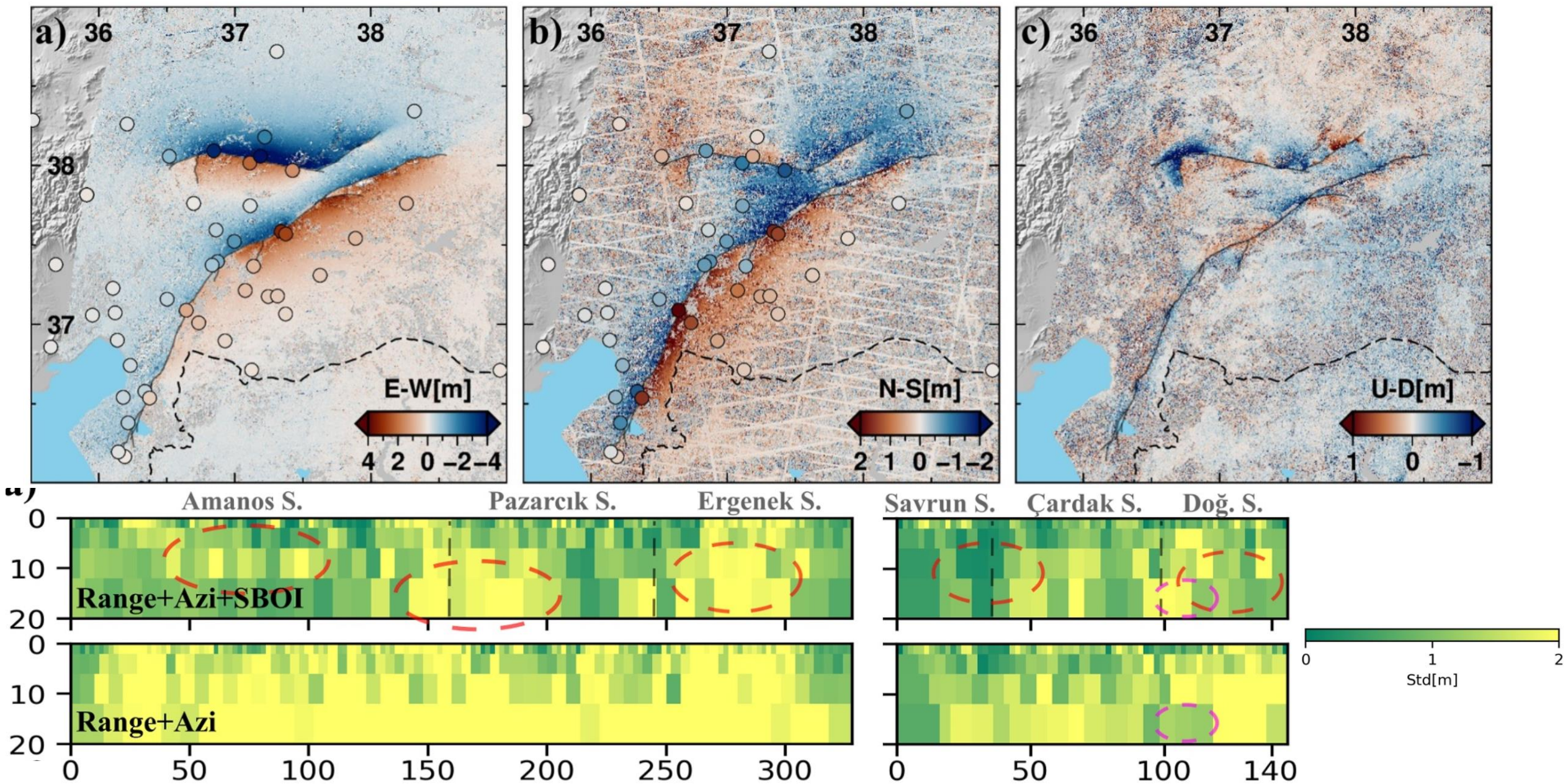


2023 Kahramanmaraş Earthquakes in Türkiye

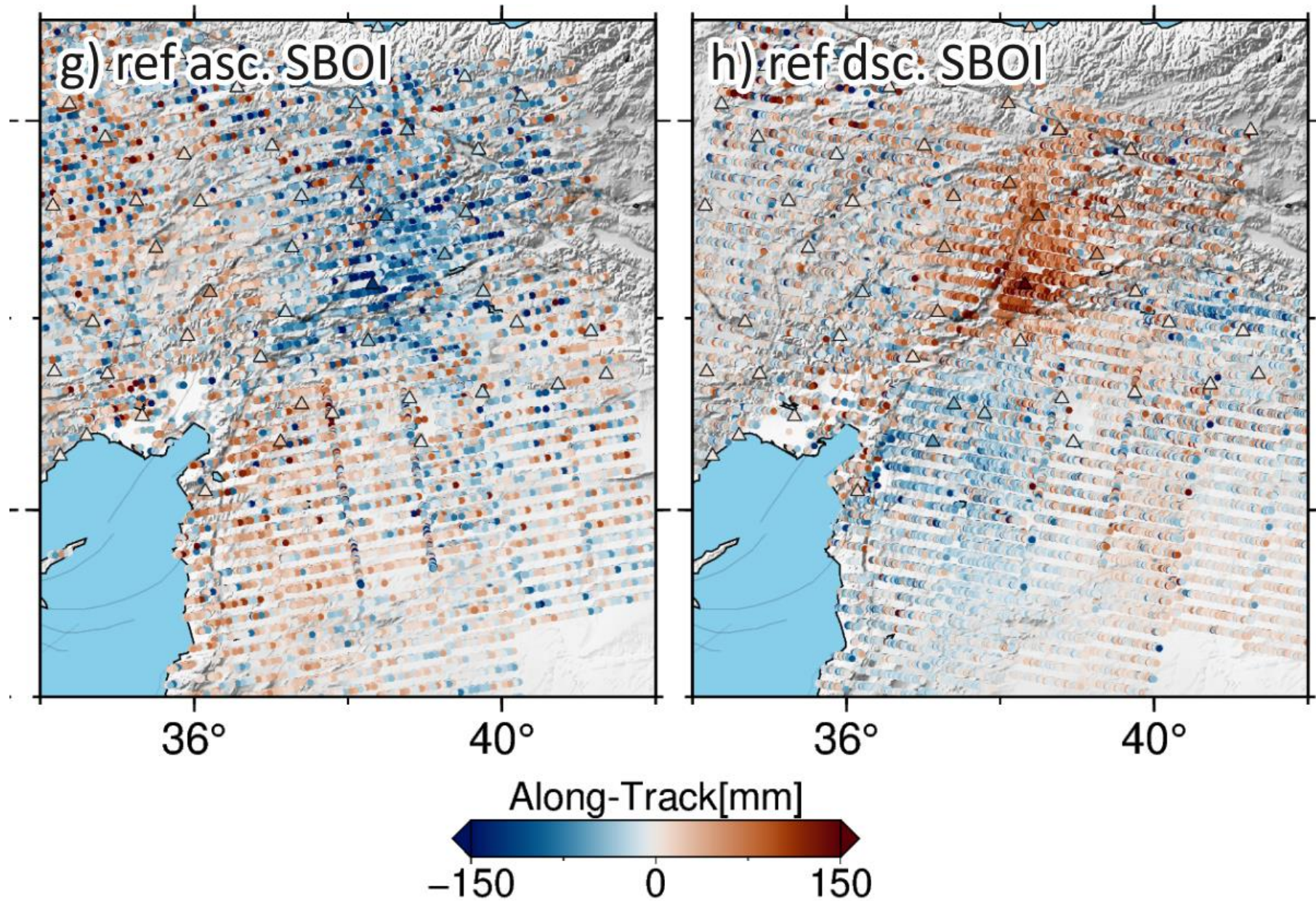


Nergizci et al, JGR, 2025

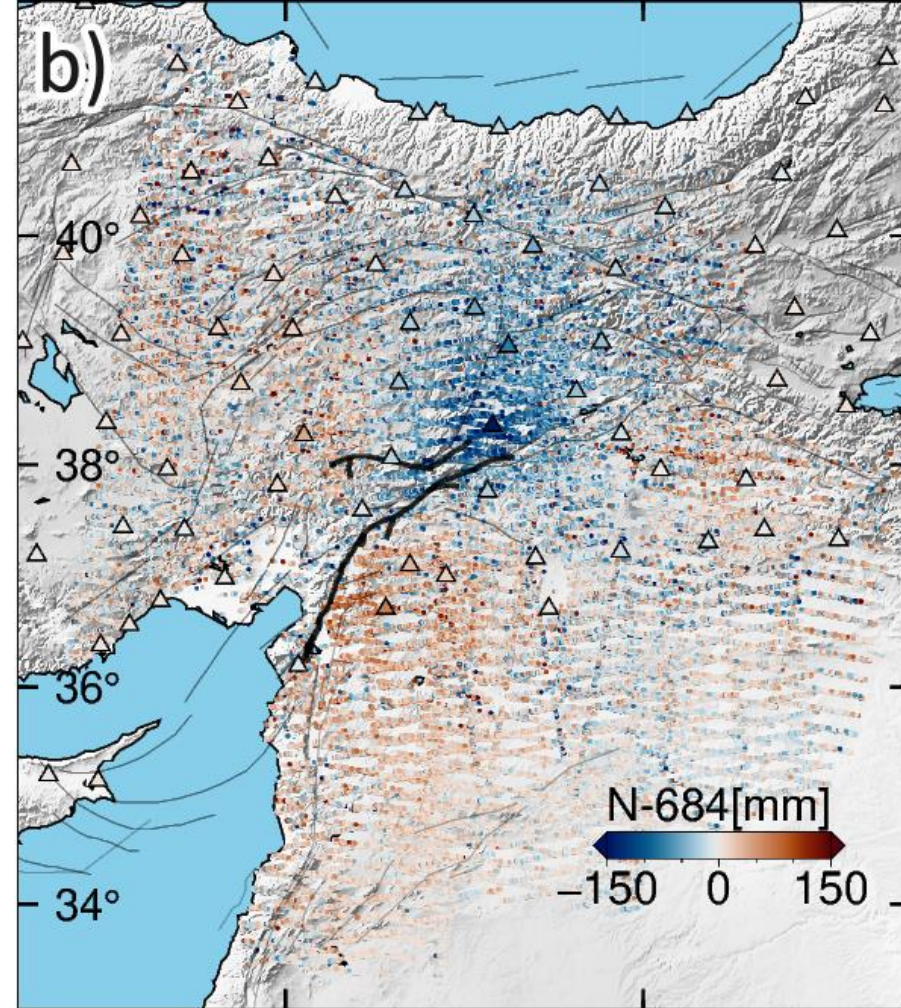
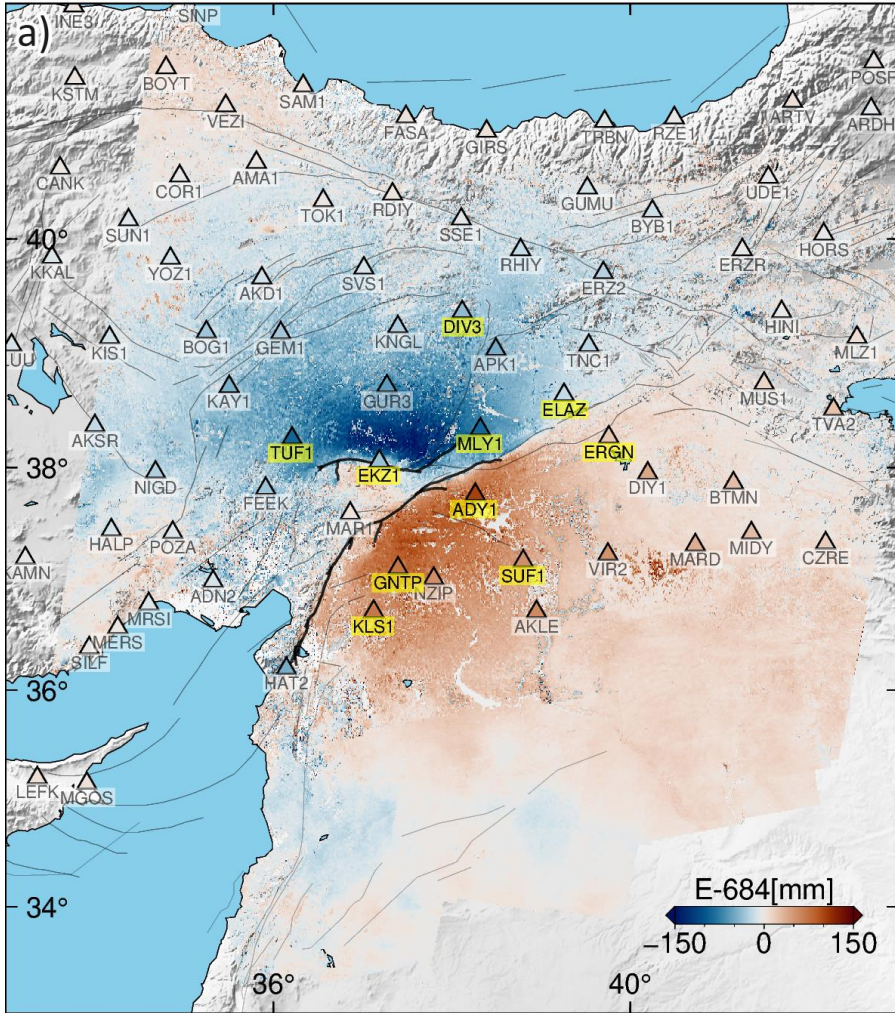
Adding SBOI to 3D displacement estimates from InSAR and range/azimuth decreases uncertainty



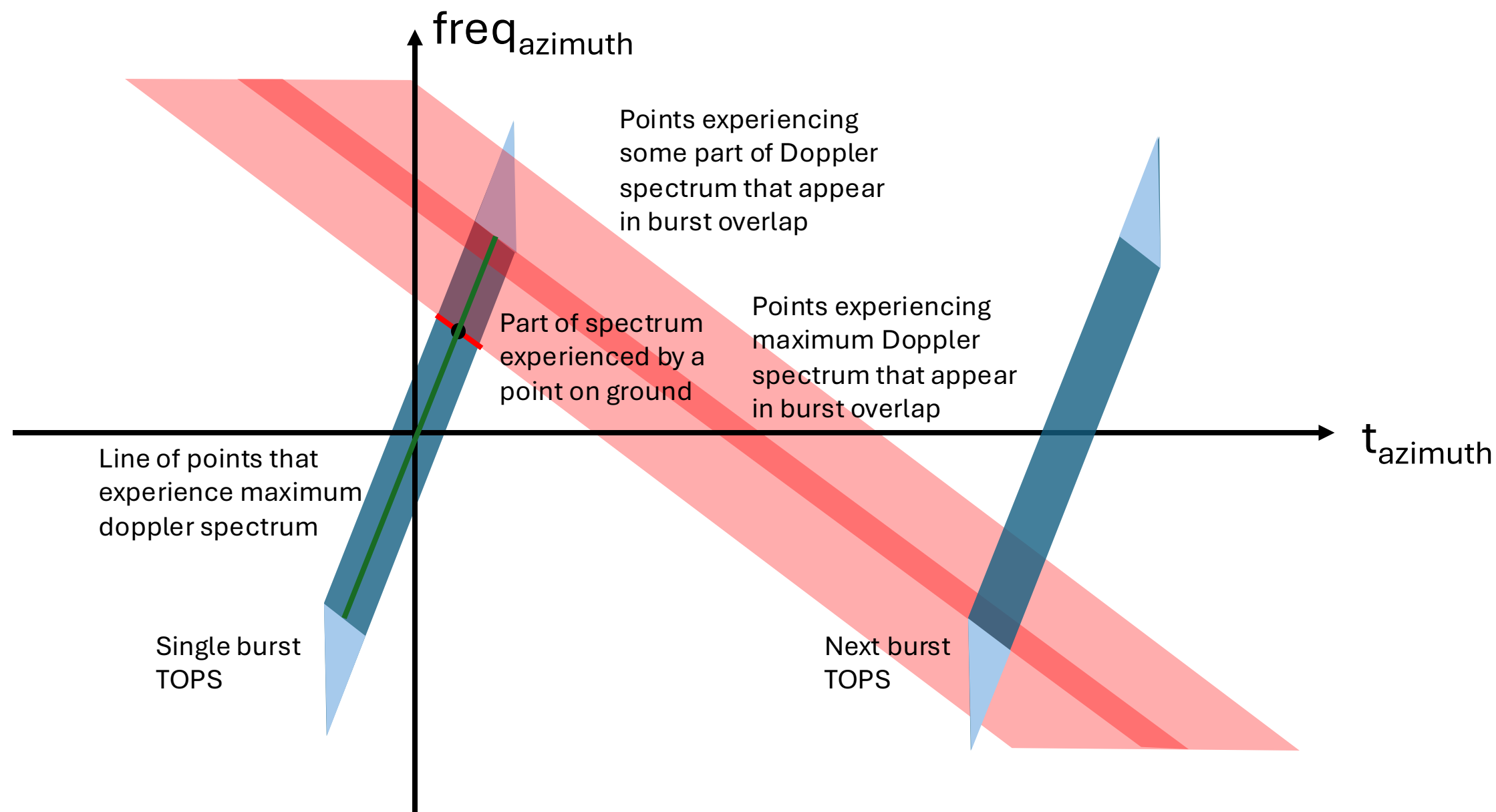
Time series SBOI for postseismic and interseismic



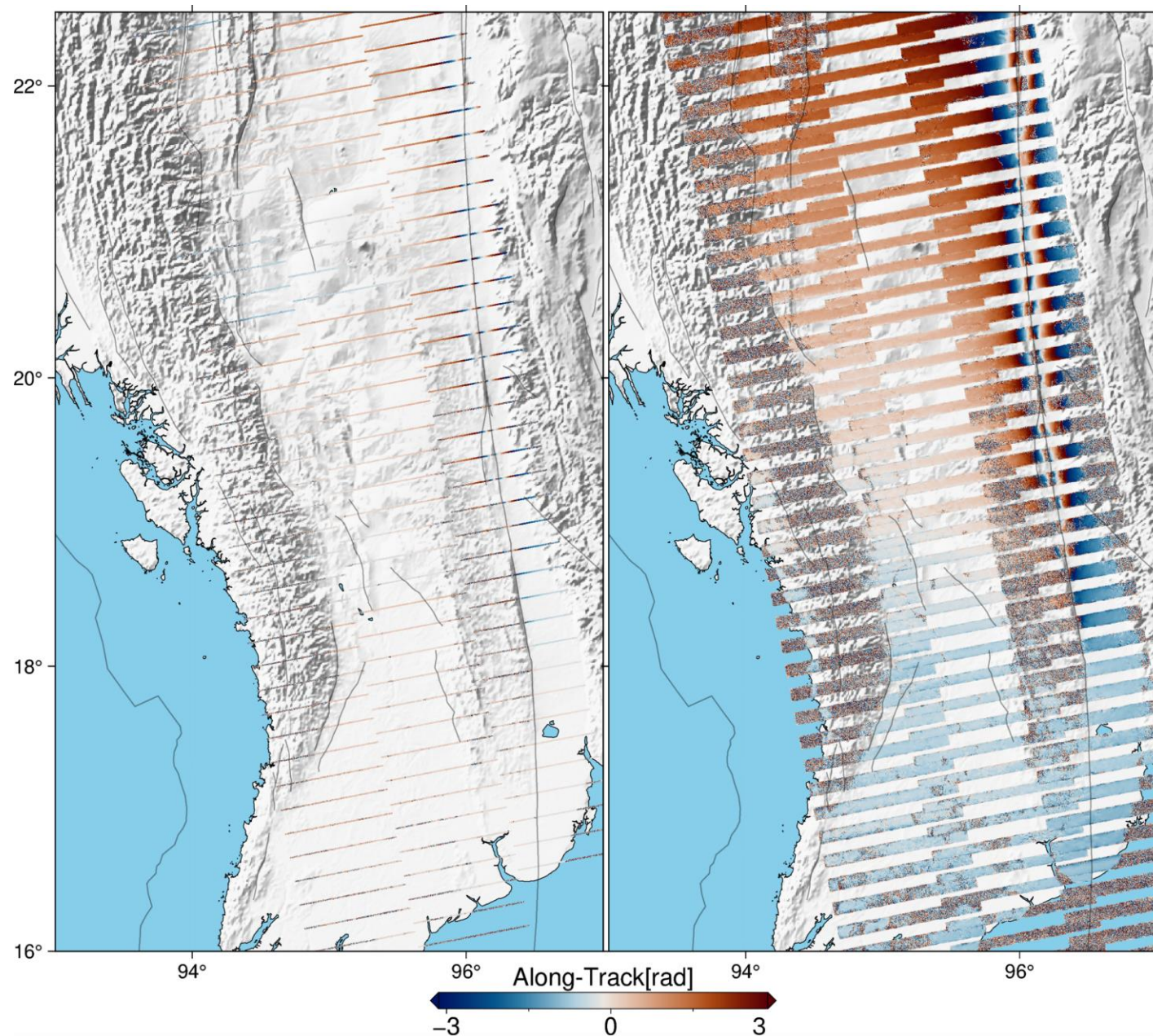
Impact of SBOI for 3D postseismic (and interseismic) displacement estimation is even greater (offsets too noisy)



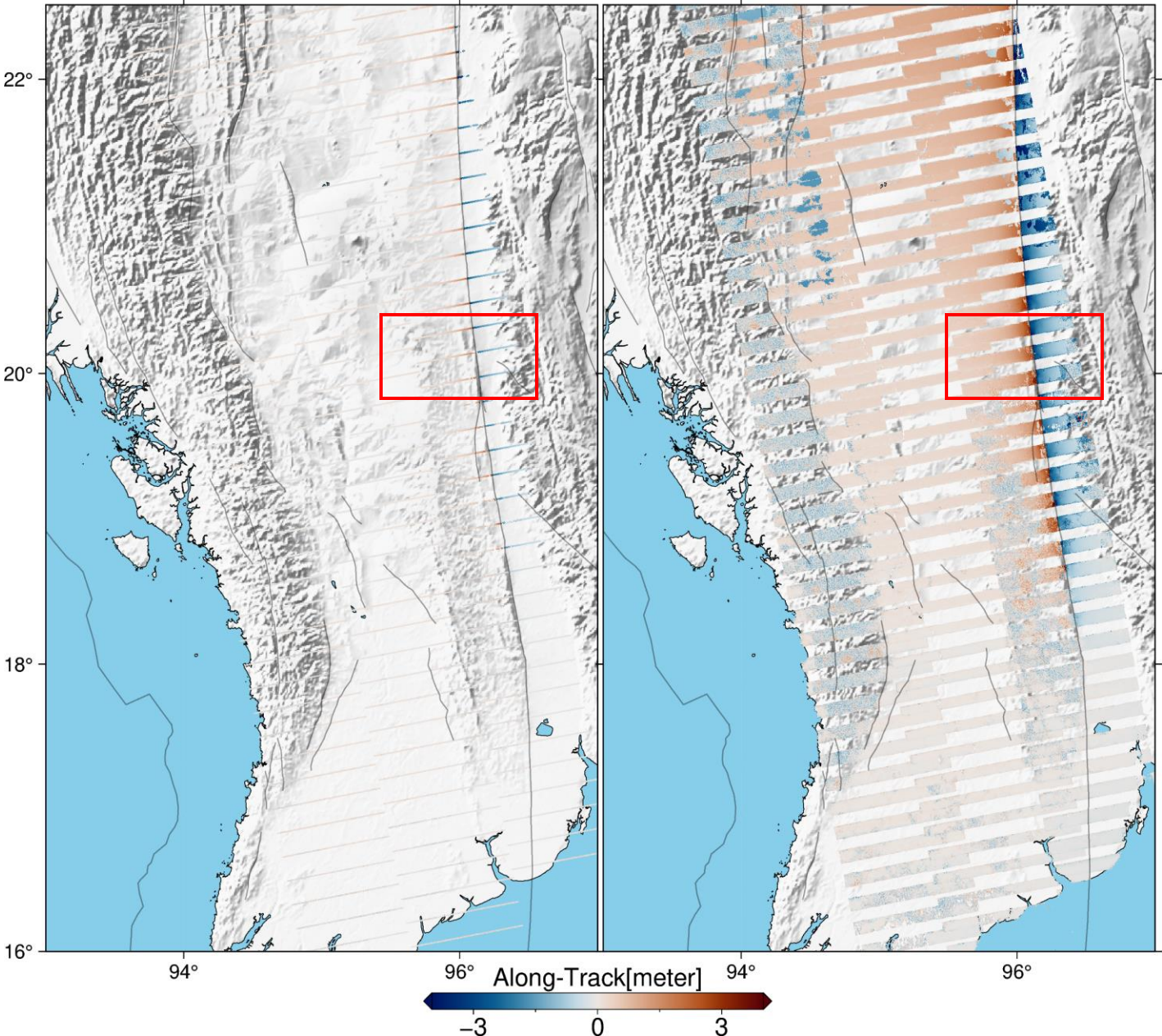
How can we increase area covered by SBOI?



Area increases from 10-11% to 60-65% for Extended SBOI (ESBOI)

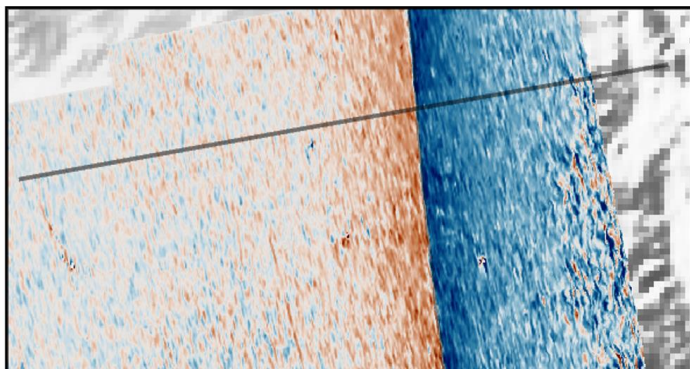


Unwrapped using the same strategy, guided by azimuth offests

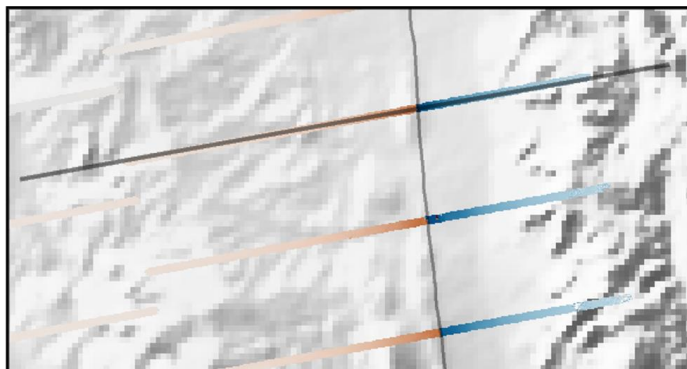


Comparison Azimuth offsets, SBOI and ESBOI

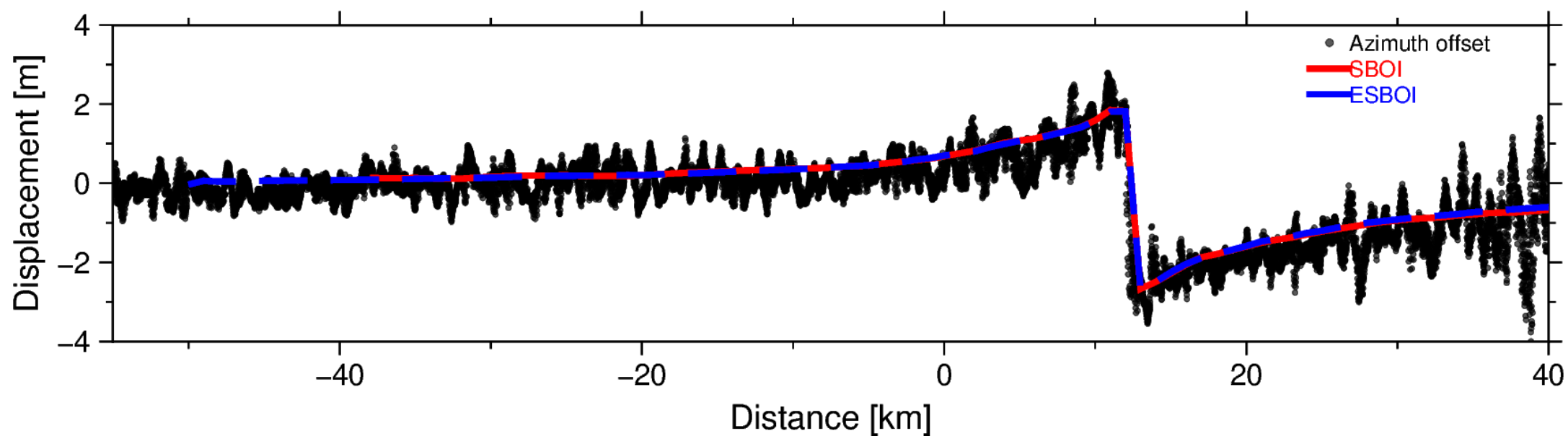
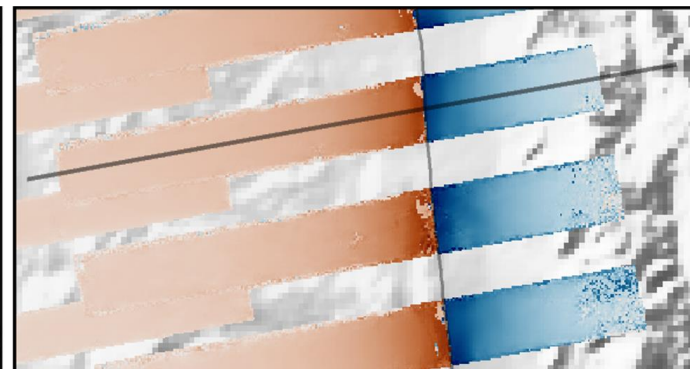
Azimuth offset



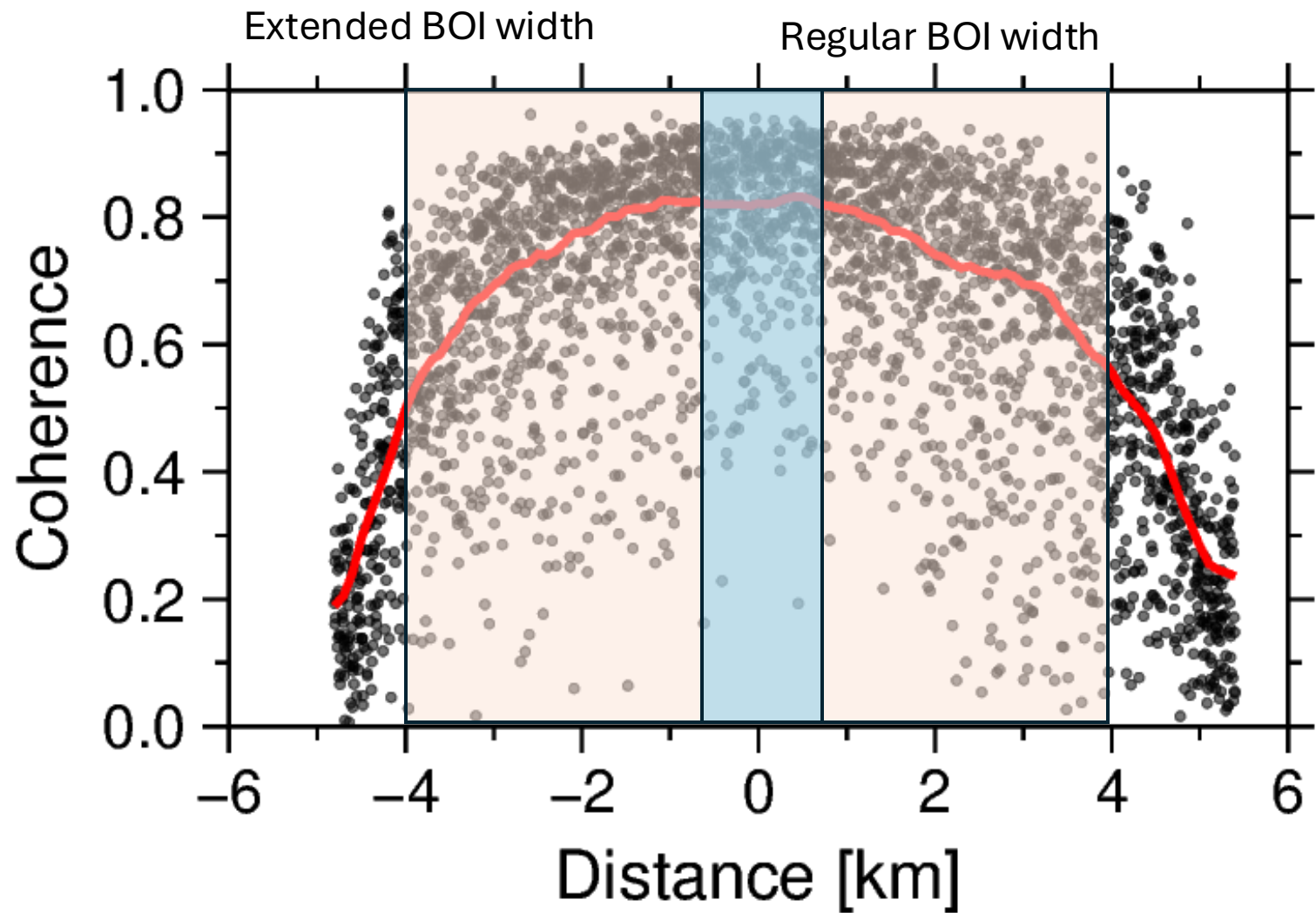
SBOI



ESBOI



Coherence remains reasonable over a distance of ~8km in azimuth direction



Summary

- Extended burst overlap InSAR (ESBOI) allows us to increase burst overlaps by 5-6 times in azimuth and 1.5 times in range.
- Using ascending and descending tracks coverage is almost 100% of coherent area allowing almost full 3D decomposition