



XXVII FIG CONGRESS

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Volunteering
for the future –
Geospatial excellence
for a better living

Offset-Tracking as an Effective Tool for Rapid Movements Monitoring

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ORGANISED BY



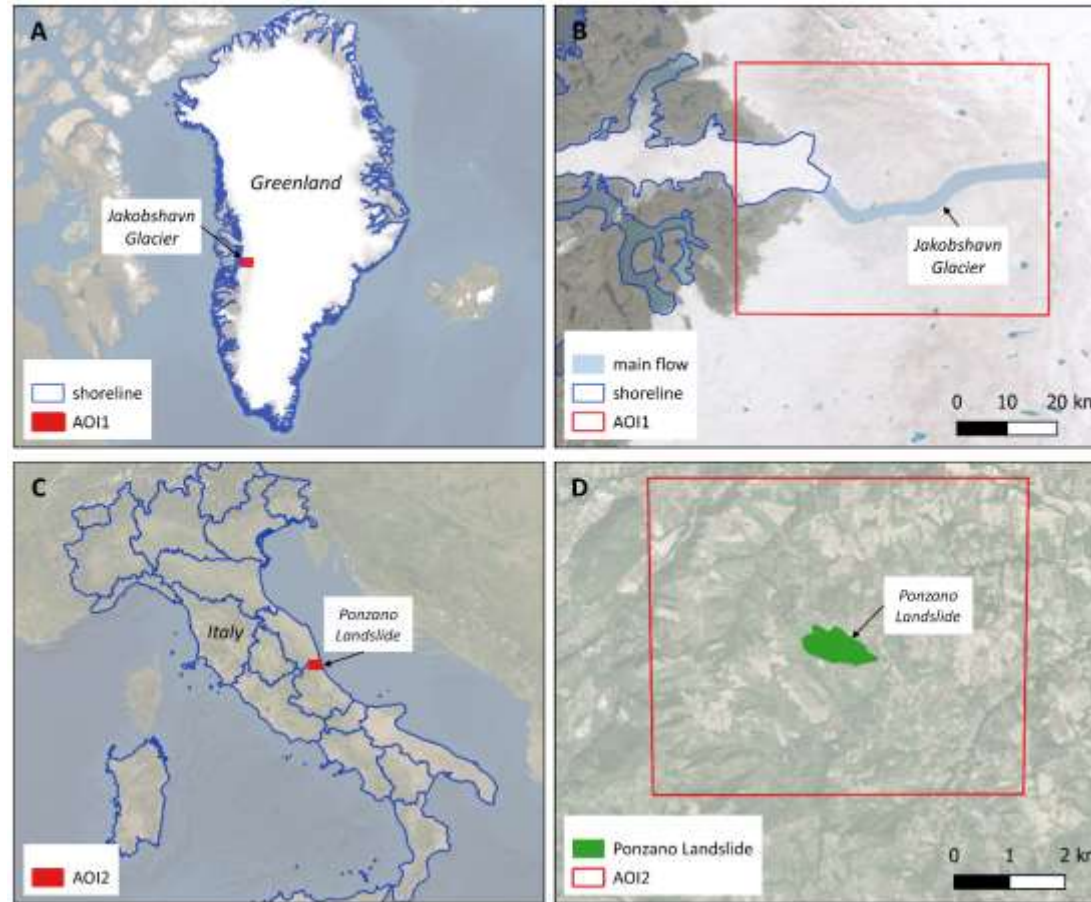
PLATINUM SPONSORS



Method, AOI and Datasets

Offset-Tracking?

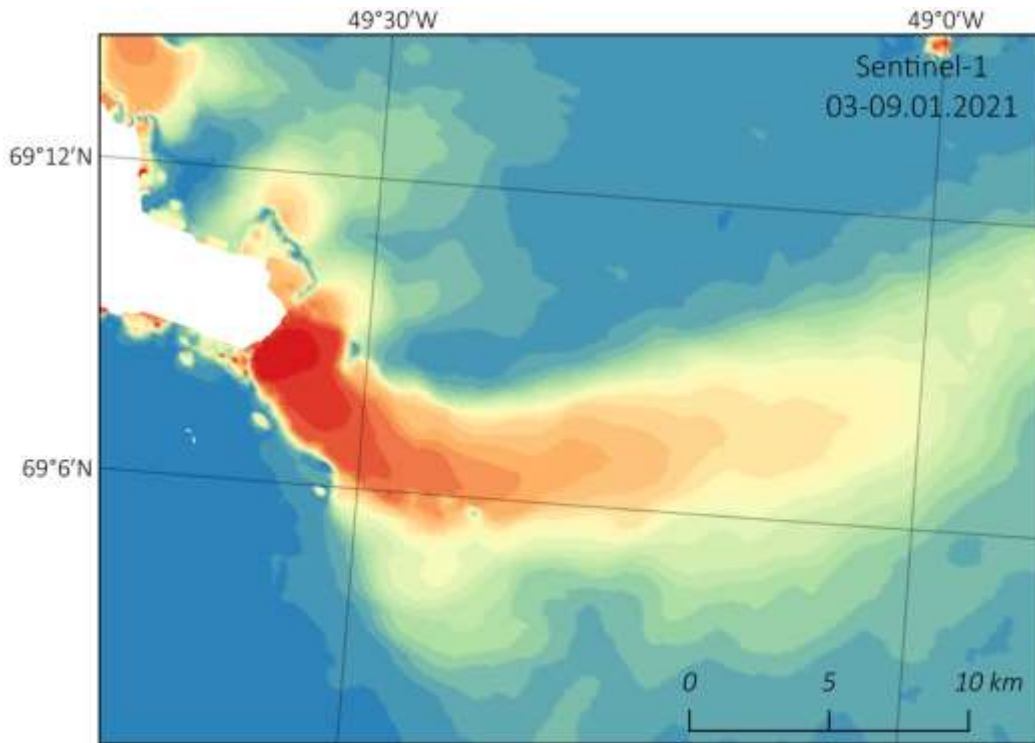
Technique that measures feature motion between two radar images using patch **intensity** cross-correlation optimization.



Sentinel-1
ICEYE

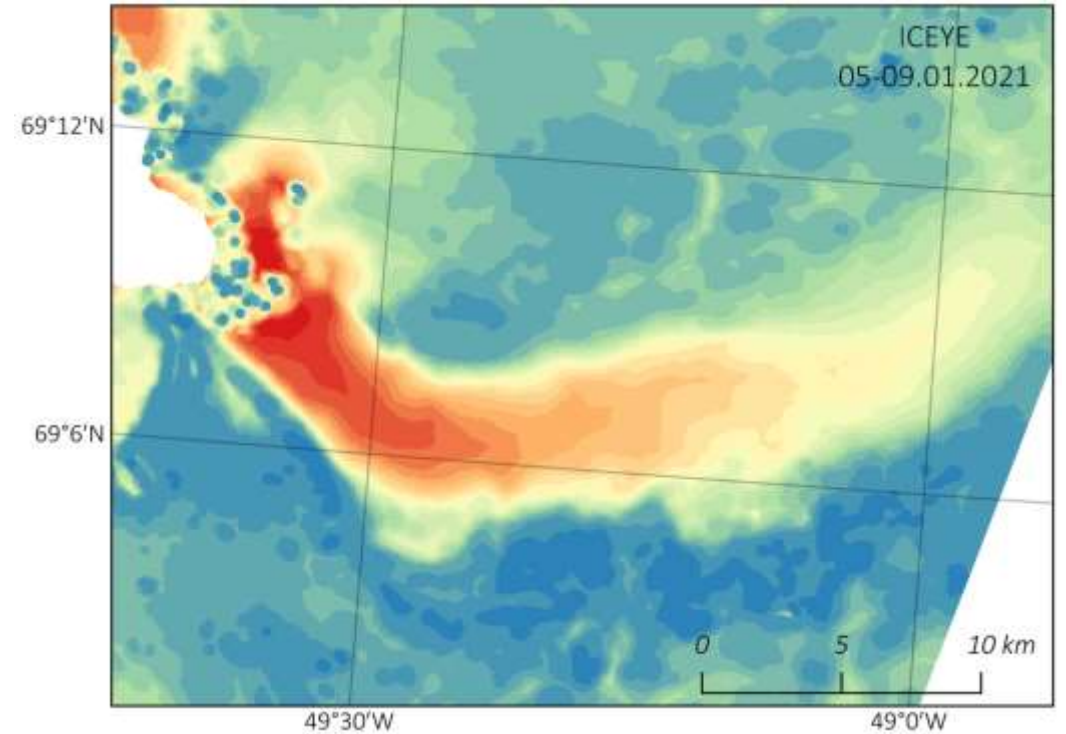
Sentinel-1
TerraSAR-X

Jakobshavn Glacier



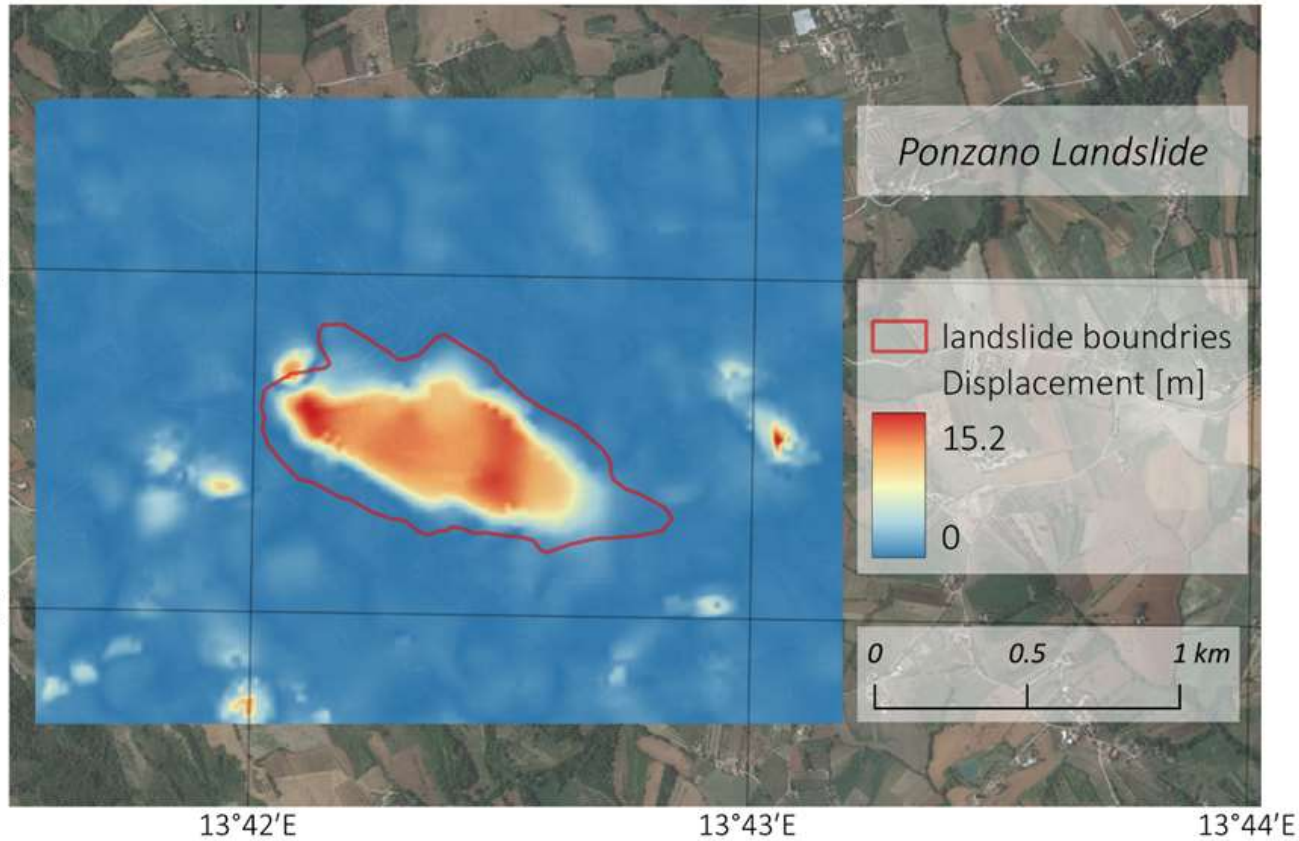
Velocity [m/day]

- 0.0-0.6
- 0.6-1.7
- 1.7-2.5
- 2.5-3.1
- 3.1-3.7
- 3.7-4.3
- 4.3-4.9
- 4.9-5.7
- 5.7-6.6
- 6.6-7.7
- 7.7-9.2
- 9.2-11.1
- 11.1-13.2
- 13.2-15.5
- 15.5-18.1
- 18.1-21.0
- 21.0-23.9
- 23.9-27.5
- 27.5-32.6
- 32.6-40.9



S-1: underestimation of displacement values compared to ICEYE
ICEYE: more accurate near terminus

Ponzano Landslide



Cause: intense rainfalls

Effect: rapid movements (several m/day)

Main displacements agree with other studies

Low accuracy near borders of landslide

Conclusions

Detection of rapid displacements in dangerous or isolated areas



Development of new SAR sensors (VHR) increases possibilities of applying OT in various cases



Combined with traditional InSAR techniques it might deliver information about full displacement field

Accuracy  further work