

GNSS processing for geohazard early warning: implementation in the EWRICA project

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1. Introduction of the EWRICA project

EWRICA

Early-Warning and Rapid ImpaCt Assessment
with real-time GNSS in the Mediterranean

Project partners:

- Deutsches GeoForschungsZentrum (GFZ)
- Universität Potsdam

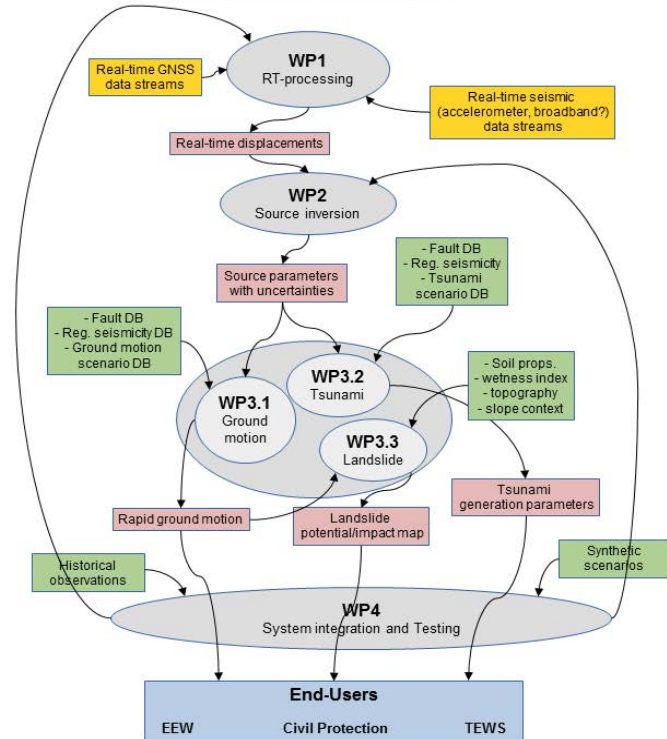
Cooperation partners:

- ❑ INGV-Rome
- ❑ NOA-Athen
- ❑ IPMA-Lisbon
- ❑ University of Malta
- ❑ BIG-Jakarta
- ❑ BMKG-Jakarta

RT GNSS processing (WP1):

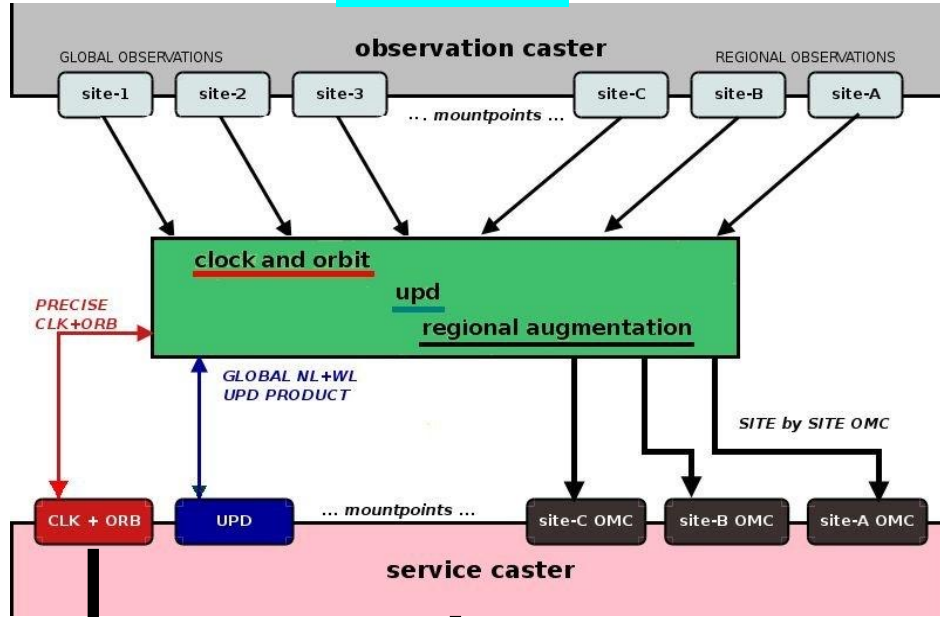
Provide precise earth
surface displacement to
other WPs

EWRICA Data Flow Model



2. Real-Time Precise Positioning System (RTPPS) at GFZ

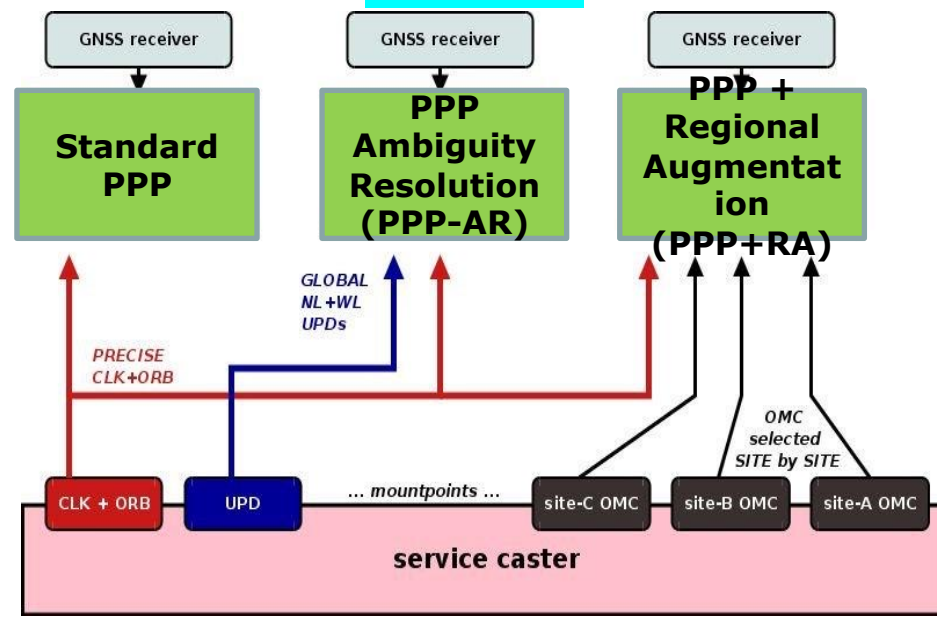
Server-side



SSRA00GFZ
IGS caster

PANDA software for real-time orbit and clock estimation

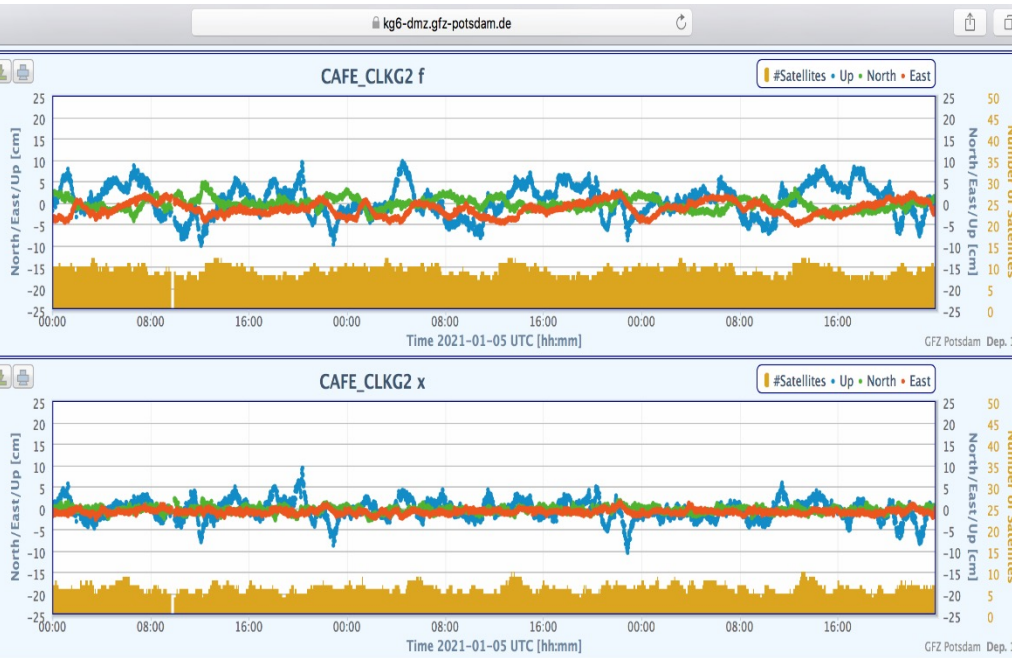
Client-side



GFZ RTPPP software for real-time PPP client

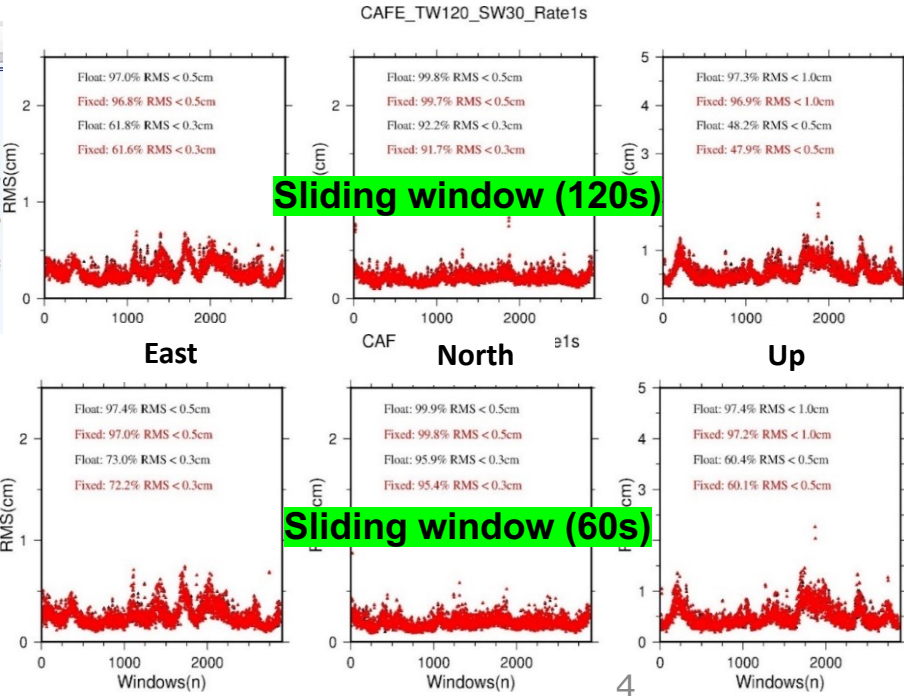
3. GNSS application in the earthquake monitoring

Original real-time positioning results



Date: Jan 5-7,2021

Re-processing using a sliding window



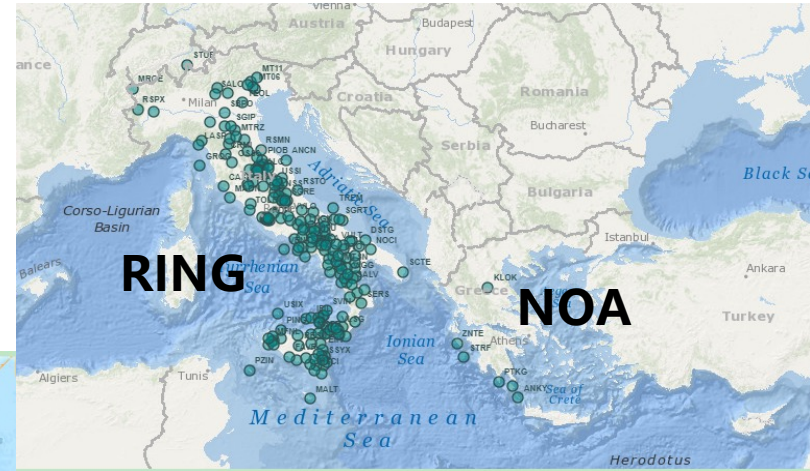
3. GNSS application in the earthquake monitoring

Data Processing

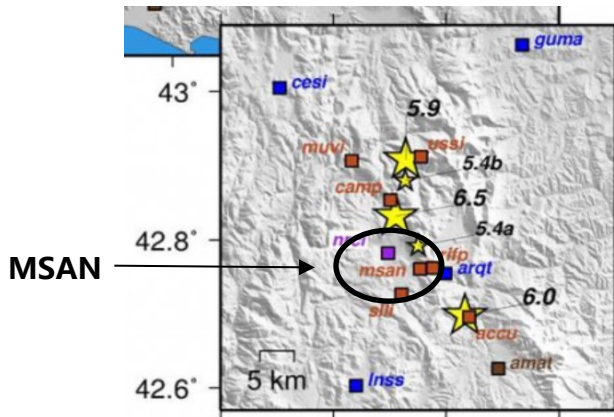
Real-Time Precise
Monitoring (RTPM)
System @ GFZ

Network

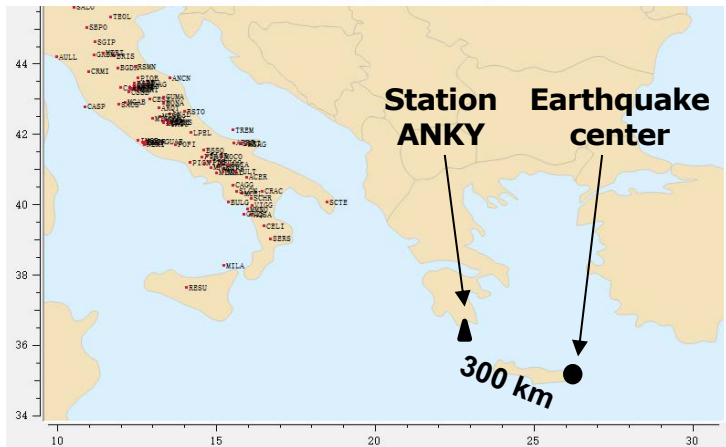
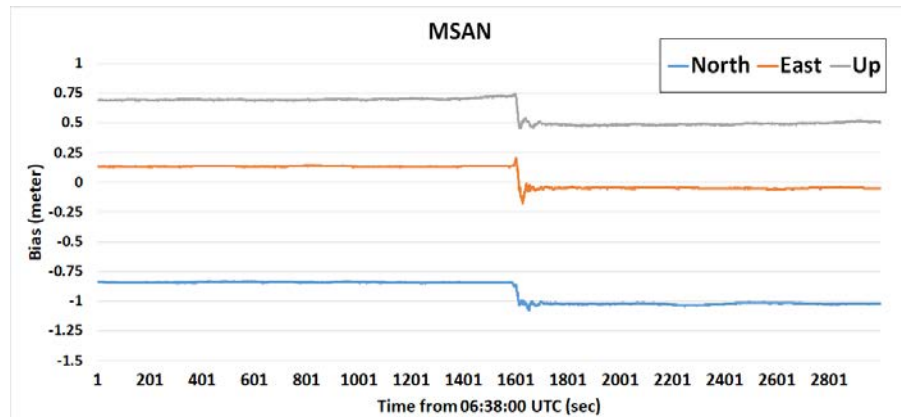
Italy: RING
Greece: NOA
Indonesia: BIG



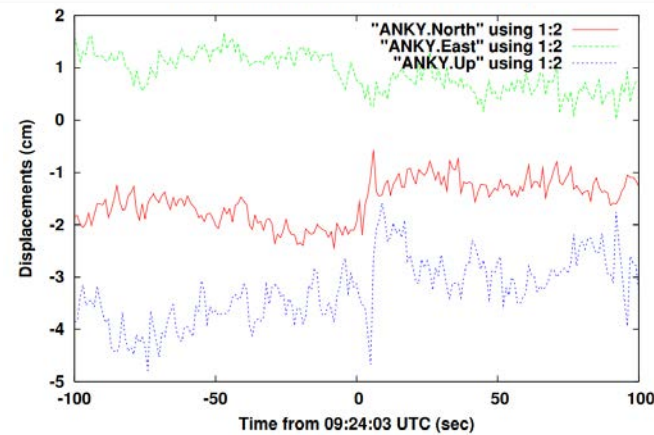
4. Earthquake event (RING and NOA)



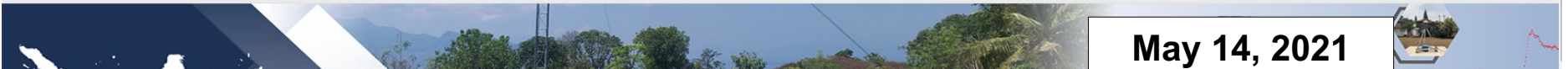
**Oct 30, 2016
Italy
Mw 6.5**



**Oct 12, 2021
Greece
Mw 6.3**



4. Earthquake event (BIG)

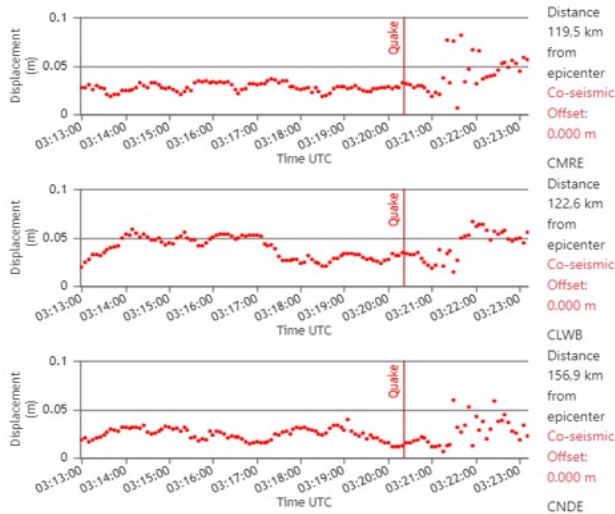


Horizontal Vertical

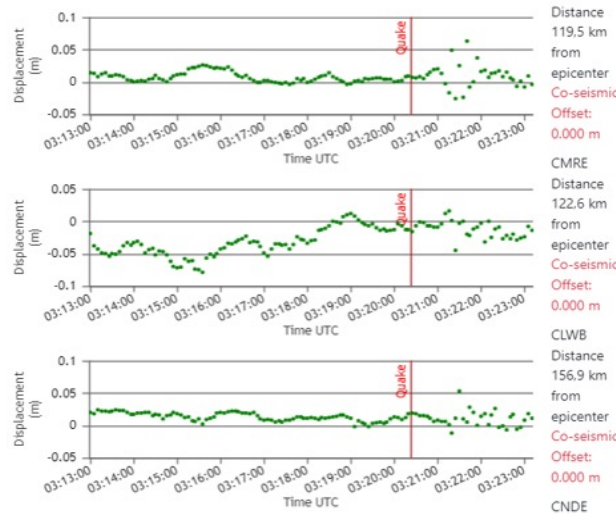
**May 14, 2021
Indonesia
Mw 7.2**

Waveform displacement at the nearest RT-GNSS station

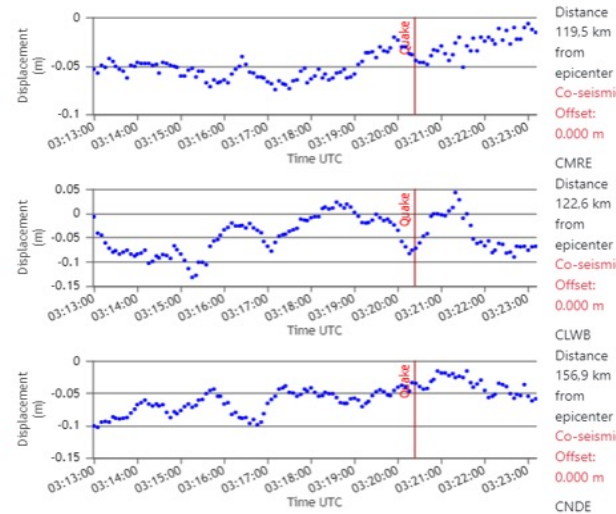
Northing



Easting



Up



THANKS