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

Server-side

- Global Observations
- Regional Observations
- Clock and Orbit
- Regional Augmentation

Client-side

- GNSS receiver
- PPP
- PPP Ambiguity Resolution (PPP-AR)
- PPP + Regional Augmentation (PPP+RA)

GFZ RTPPP software for real-time PPP client

SSRA00GFZ IGS caster

PANDA software for real-time orbit and clock estimation

IGS 2022 Virtual Workshop, 29.06.2022
3. GNSS application in the earthquake monitoring

Original real-time positioning results

Re-processing using a sliding window

Date: Jan 5-7, 2021

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3. GNSS application in the earthquake monitoring

**Network**
- Italy: RING
- Greece: NOA
- Indonesia: BIG

**Data Processing**
Real-Time Precise Monitoring (RTPM) System @ GFZ
4. Earthquake event (RING and NOA)

Oct 30, 2016
Italy
Mw 6.5

Oct 12, 2021
Greece
Mw 6.3
4. Earthquake event (BIG)

May 14, 2021
Indonesia
Mw 7.2
THANKS