REPUBLIC OF ALBANIA
STATE AUTHORITY FOR GEOSPATIAL INFORMATION (ASIG)

GEODETIC REFERENCE FRAME OF ALBANIA

STATE GNSS NETWORK (ACTIVE (ALBCORS) + PASSIVE NETWORK)

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10th EUPOS Technical Meeting,
Skopje North Macedonia,
24-25 October 2024

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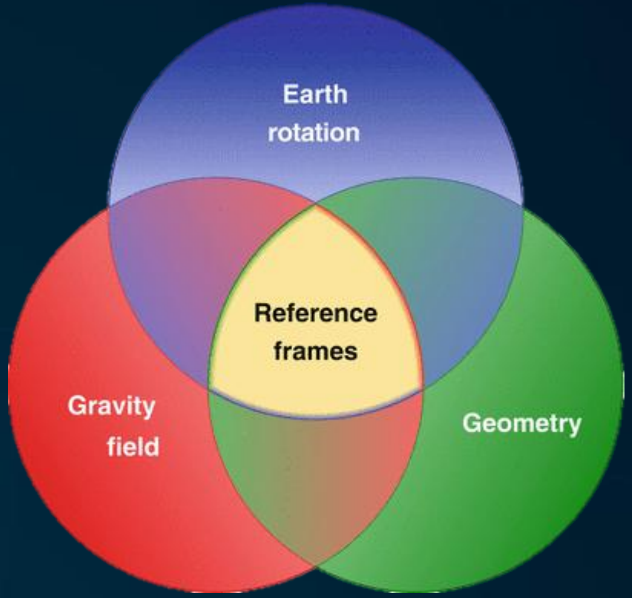
1. **CURRENT STATUS OF THE NEW GEODETIC REFERENCE FRAME IN ALBANIA (G.R.F)**
   STATE GNSS NETWORK (ACTIVE (ALBCORS) + PASSIVE NETWORK)

2. **FUTURE ACTIVITIES OF ASIG FOR NEW G.R.F IN ALBANIA**

CURRENT SITUATION OF G.R.F IN ALBANIA

- **Based on Law 72/2012 (& D.C.M. 699, date 7.8.2013), ASIG is the responsible organization for the establishment of the New Geodetic Reference Frame in Albania, including:**

  1. State GNSS Network (Active (CORS) + Passive Network)
  2. State Levelling Network (130 km)
  3. State Gravimetric Network (380 points)
  4. State Tide Gauge stations Network (4 stations)
  5. State Magnetometric Stations Network (11 stations)



- Following the EU requirements related to **CRS-EU (ETRS89 & EVRS)** we are establishing a modern **Geodetic Reference Frame**, based on GNSS technology and precise gravimetric geoid that will support accurate and efficient horizontal and vertical positioning throughout Albania.

CURRENT SITUATION OF G.R.F IN ALBANIA

State GNSS Network (Passive Network)

Passive GNSS Network

- 1st Order Passive GNSS Network: **42 points (2018-2019)**
- 2nd Order Passive GNSS Network: **338 points (2020-2023)**

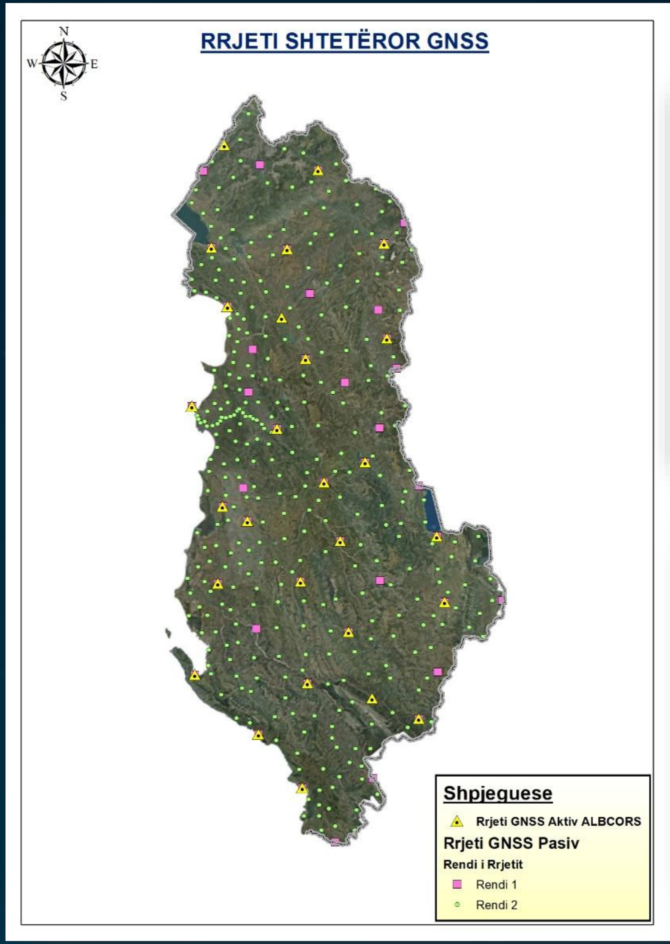
- These points are **common** with the points of other First and Second Order Networks includes in **Geodetic Reference Frame** of Albania.

- These points are **uniformly distributed** across the territory of Albania, forming a **Unique Geodetic Base** (G.R.F of Albania).

- **Unique Geodetic Base** (G.R.F of Albania) enables:

  - Stability control of Active GNSS Network - ALBCORS
  - Maintenance of the European coordinate reference system (ETRS89)
  - Geodetic control within the territory of Albania

Passive GNSS Network



PASSIVE POINTS

CURRENT SITUATION OF G.R.F IN ALBANIA

State GNSS Network (Passive Network)

Passive GNSS Network

Gravimetric Network measurements

- Implemented
  0 Order: 3 absolute points, 2015
  1st Order: 42 points, 2018
  2nd Order: 338 points, 2023

First geoid model in 2023

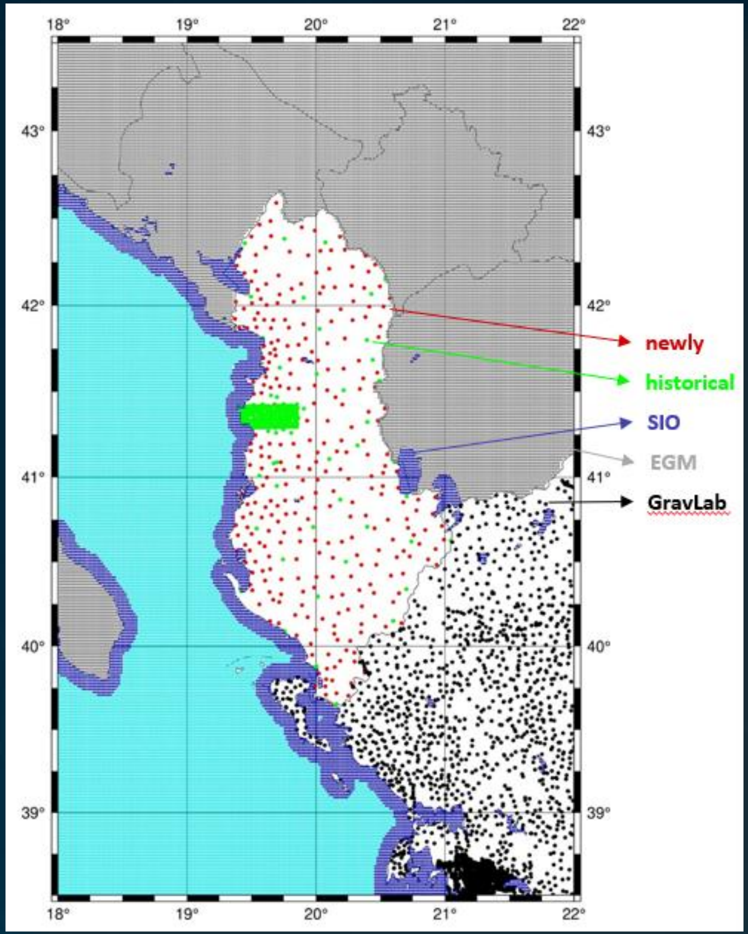
3rd Order (grid): 630 points, 2024 (on going)

Second geoid model in 2024 (on going in december)

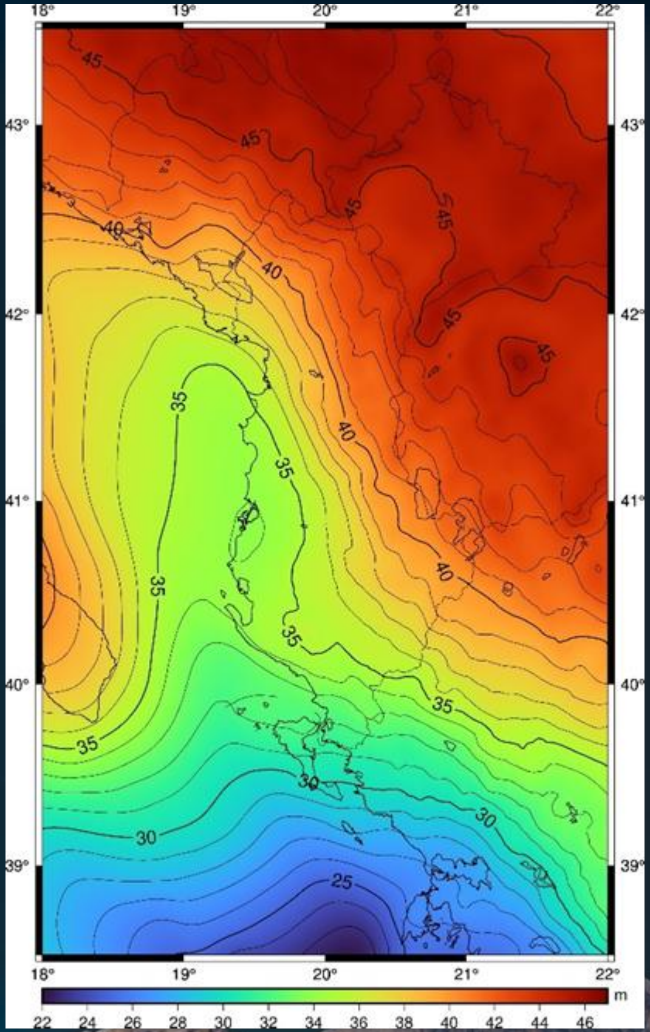
- Projected (2025-2026)

3rd Order (grid): 1500 points

Gravity Database



2DFTT Gravimetric Geoid



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CURRENT SITUATION OF G.R.F IN ALBANIA

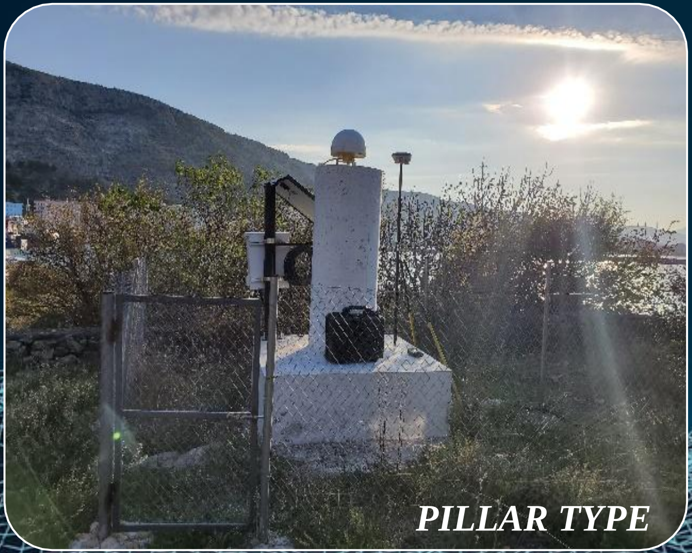
State GNSS Network (Active Network)

Active GNSS Network – ALBCORS

- 27 CORS stations - ETRF2000

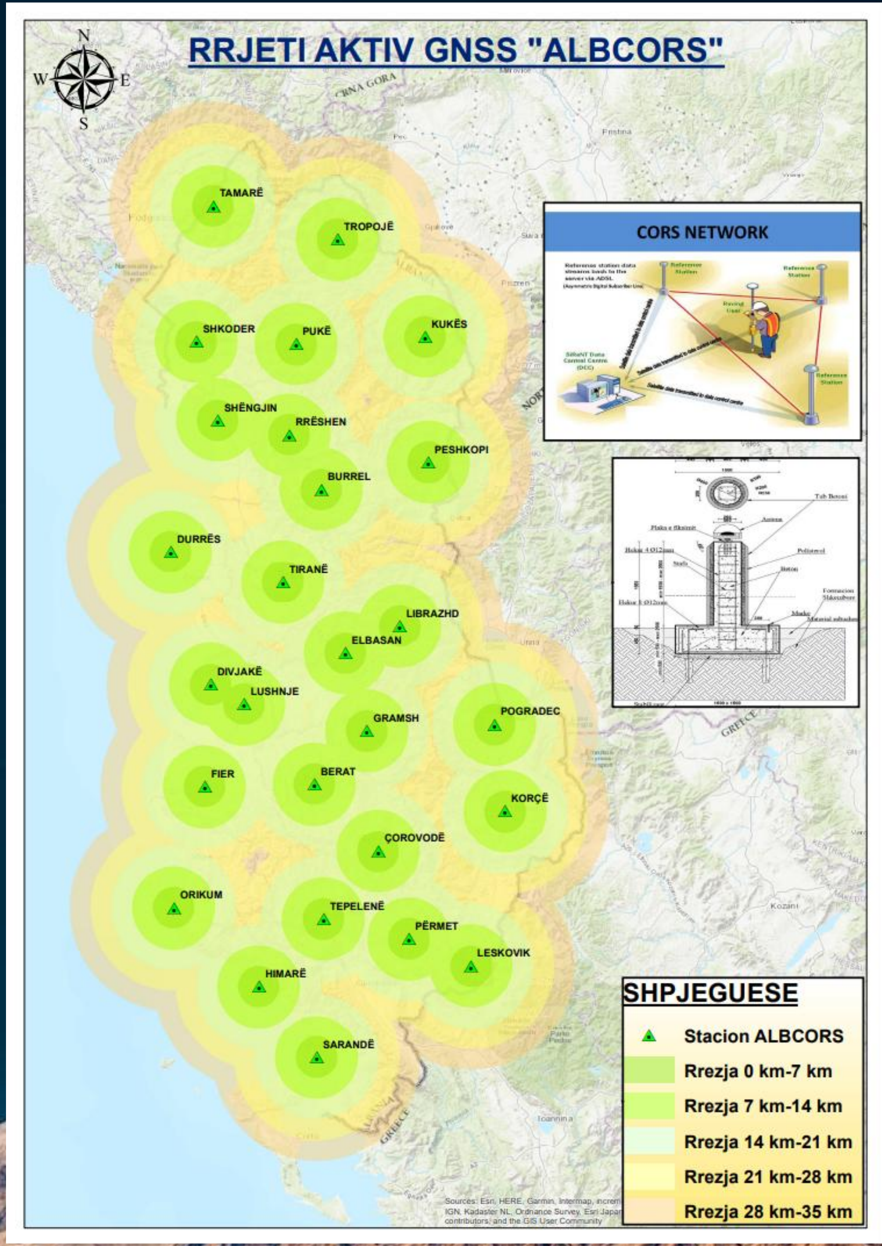
(21 pillar type & 6 roof type)

- Two main services: RTK (2-3cm,2D-3D) & PP (1cm, 3D)
- Currently running in Albania since December 2019
- Free of charge


PILLAR TYPE


ROOF TYPE

ALBCORS

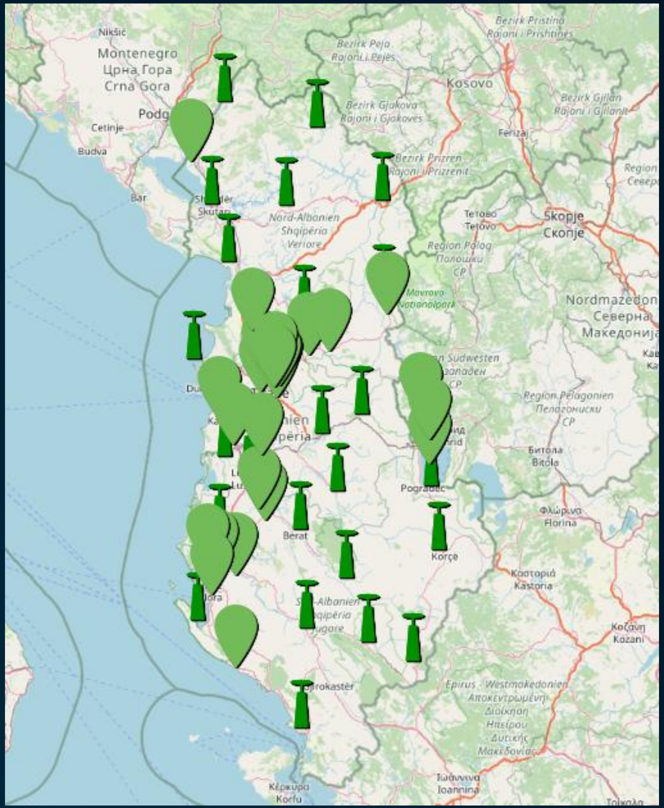


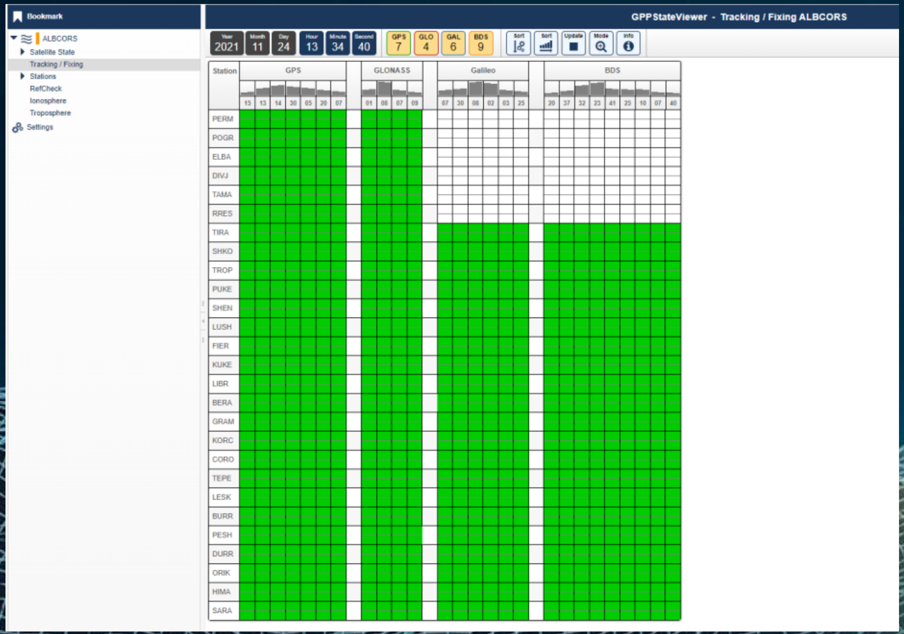
CURRENT SITUATION OF G.R.F IN ALBANIA

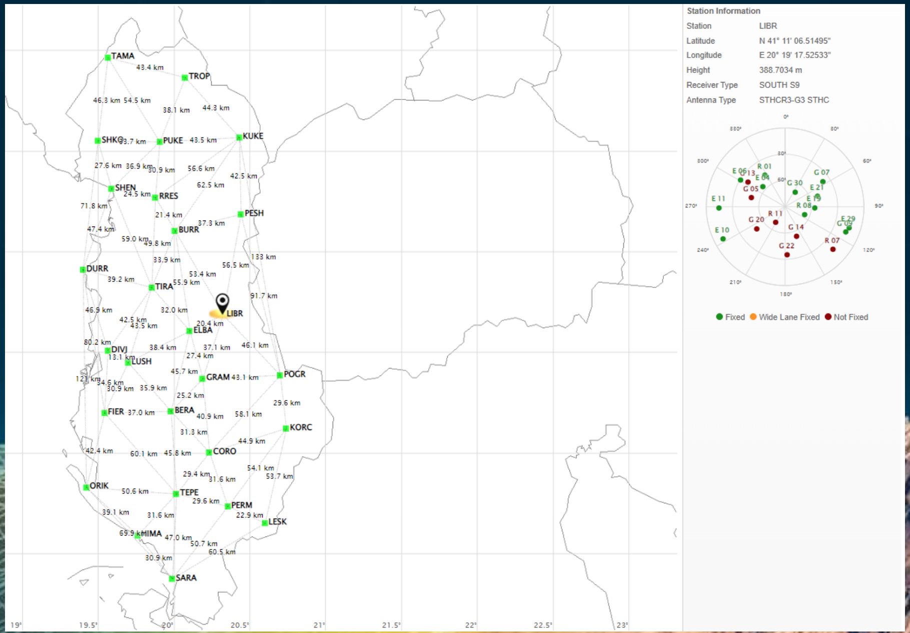
State GNSS Network (Active Network)

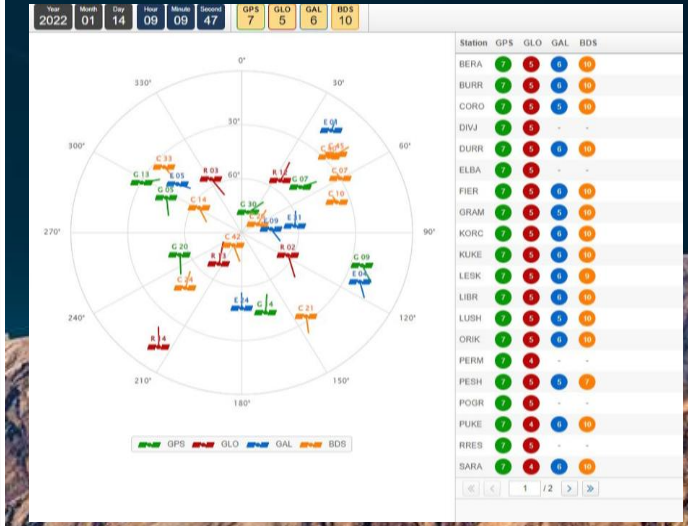
Active GNSS Network – ALBCORS

- Control Center – GNSMART (*Geo ++)*
- Currently, 330 users working with ALBCORS (daily monitoring)
- Agreement: Kosova & North Macedonia data exchange (Grecce & Montenegro are in negotiation)
- Maintenance







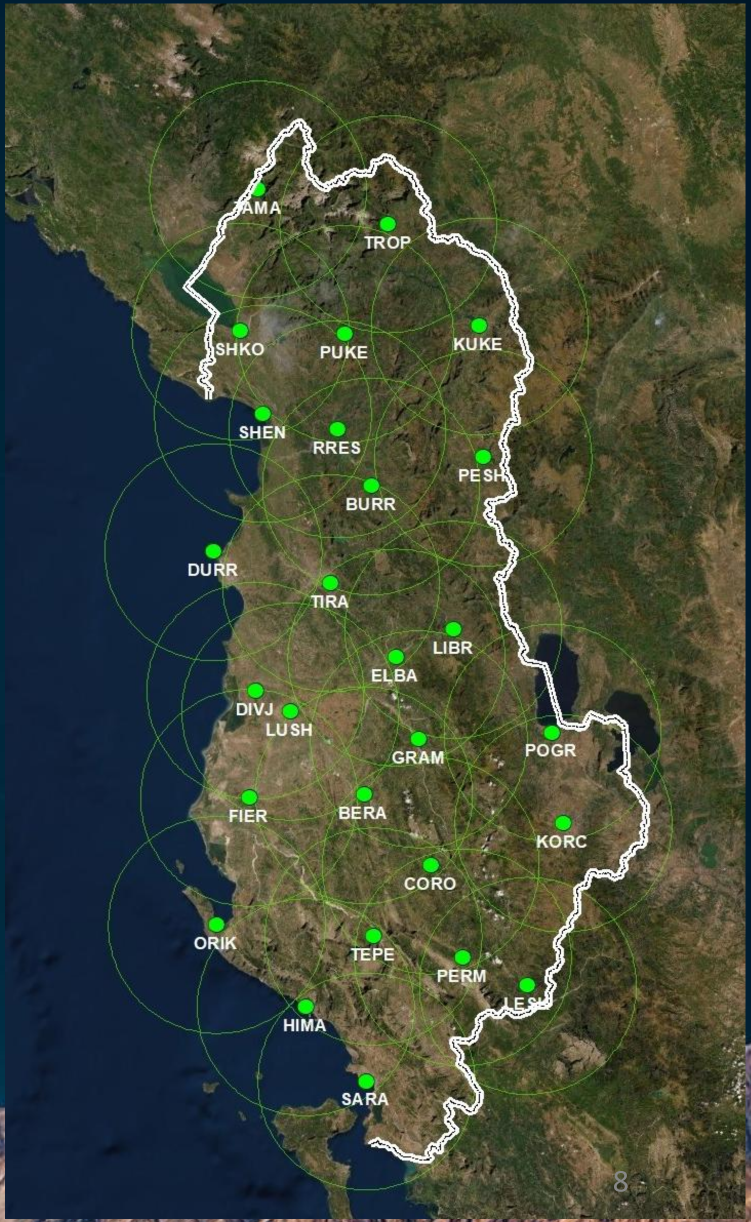


FUTURE ACTIVITIES OF ASIG

State GNSS Network (Active Network)

Active GNSS Network – ALBCORS (Future activities)

- To establish a modern vertical geodetic reference based on the calculation of the gravimetric geoid with an accuracy of ±2cm for the determination of orthometric heights in the territory of the Republic of Albania.
- Calculation of velocity vectors of 27 stations (Running since December 2019).
- Recalculation of 27 CORS stations and definition of a new epoch.
- To become part of EUREF Permanent Network EPN (1 station).
- Levelling lines to connect with neighbors countries (Kosova, North Macedonia, Montenegro ~450km)



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THANK YOU FOR YOUR TIME!

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