NATIONAL INSTITUTE
OF GEOPHYSICS, GEODESY AND GEOGRAPHY

BULGARIAN ACADEMY OF GEOGRAPHY

http://www.niggg.bas.bg

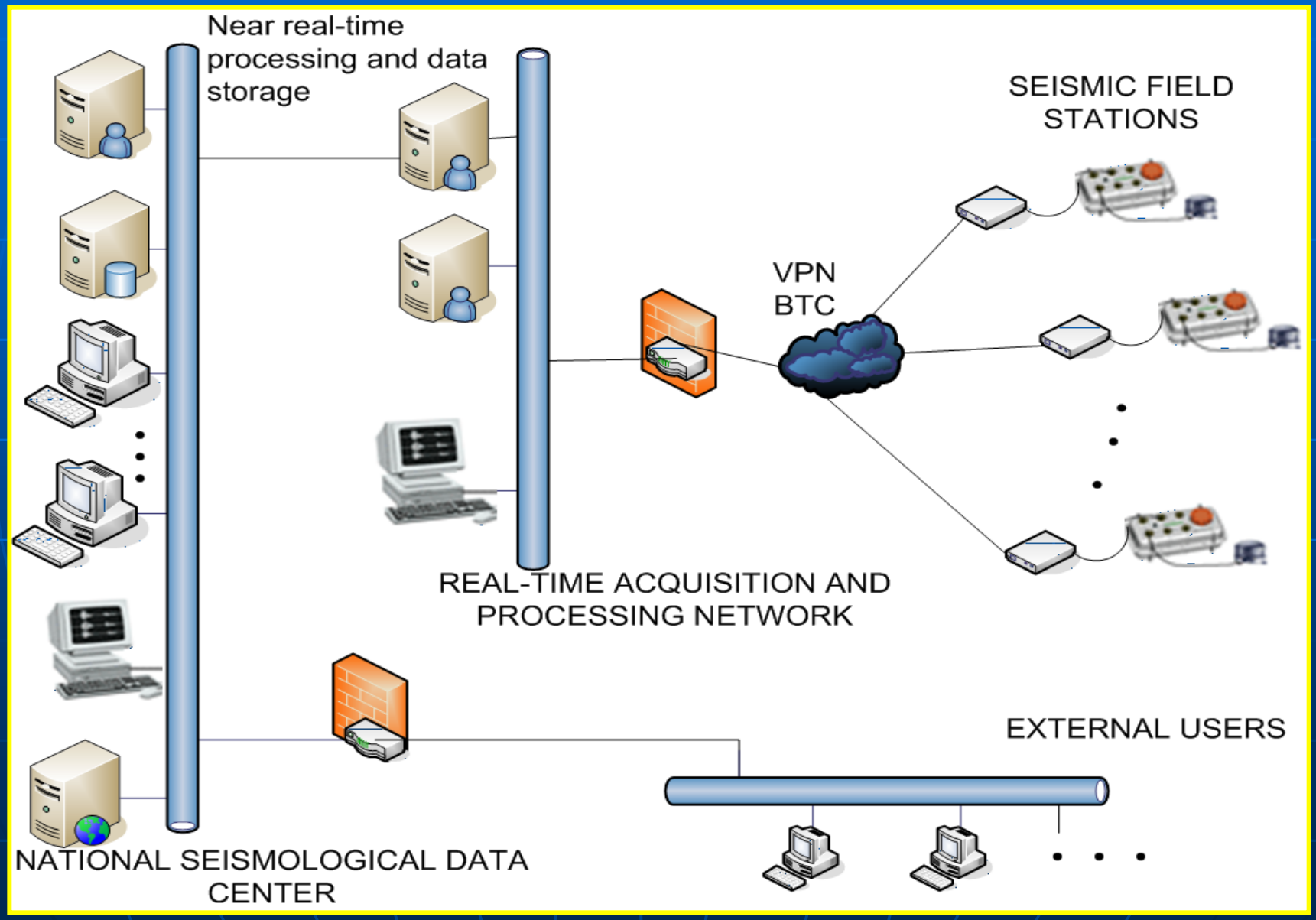
Operational Research Activity

The Institute provides Bulgarian state and society with operational, monitoring and expert information, analyses and assessments in the field of seismology, earthquake engineering, geography, current Earth's crust movements, physics of atmosphere and ionosphere, and environmental magnetism.

1. National Seismological Service

Its network includes 14 stations and observatories and two local networks – “Provadia” and “Kozlodui”. The Seismic Center in Sofia collects, processes, analyzes and interprets the information. This is the only system in Bulgaria which determines in real time the earthquake parameters in the country and the neighboring areas.

Schema of real-time acquisition and processing of seimological data



- **2. National Geomagnetic Service with Geomagnetic Observatory in Panagyurishte**

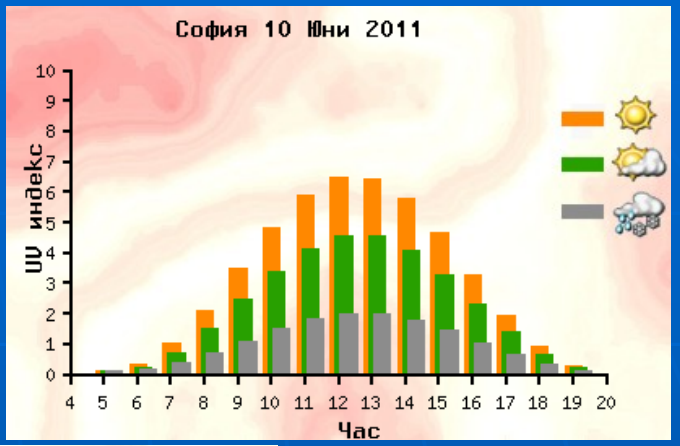
- It maintains the unique international geomagnetic standard by permanent absolute and comparative geomagnetic measurements. It is also a member of the world network of gigital geomagnetic observatories INTERMAGNET.
- The geomagnetic service is assigned for national body to create and maintain of the geomagnetic model of Bulgaria. The main users of the collected information are the Military-geographic service at the Ministry of Defense and the Agency for Cadastre of Bulgaria.

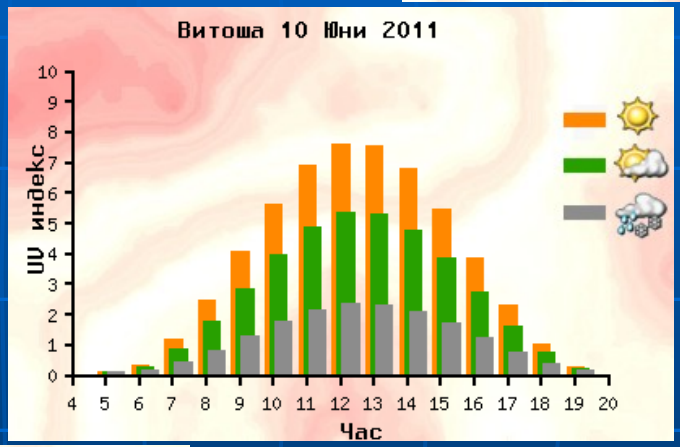
3. National Ionospheric Service

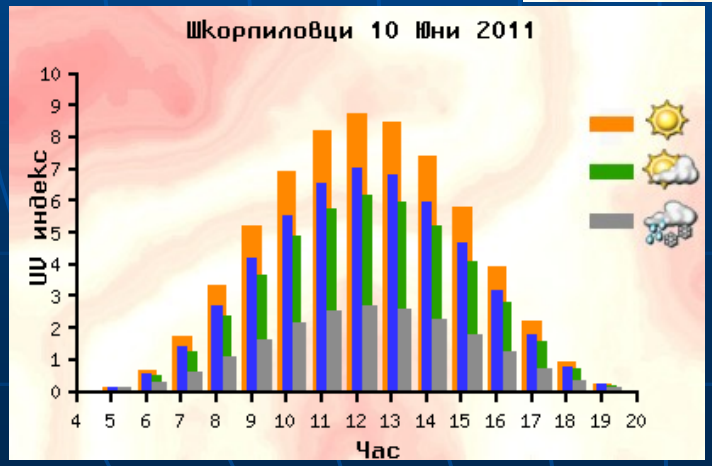
(at Observatory in Plana)

- It carries out daily registration, processing and analysis of the state of infosphere above the country. On the ground of these observations are made short-term (for 24 hours) and long- term (monthly) forecasts about the conditions for short-wave radio connections on Bulgarian territory for Ministry of Defense and all other concerned administrations. Data about the state of ionosphere are daily transferred in the International inospheric center for communications IDCE.

- **4. The Network for Terrestrial Measurements of Biologically Active Solar Ultraviolet Radiation**
- The Network uses three stationary devices located in the city of Sofia, the village of Shkorpilovtsi, Varna, and in the Vitosha Mountain.
- The devices supply hourly information and 24-hour forecast about the level of the biologically active UV radiation

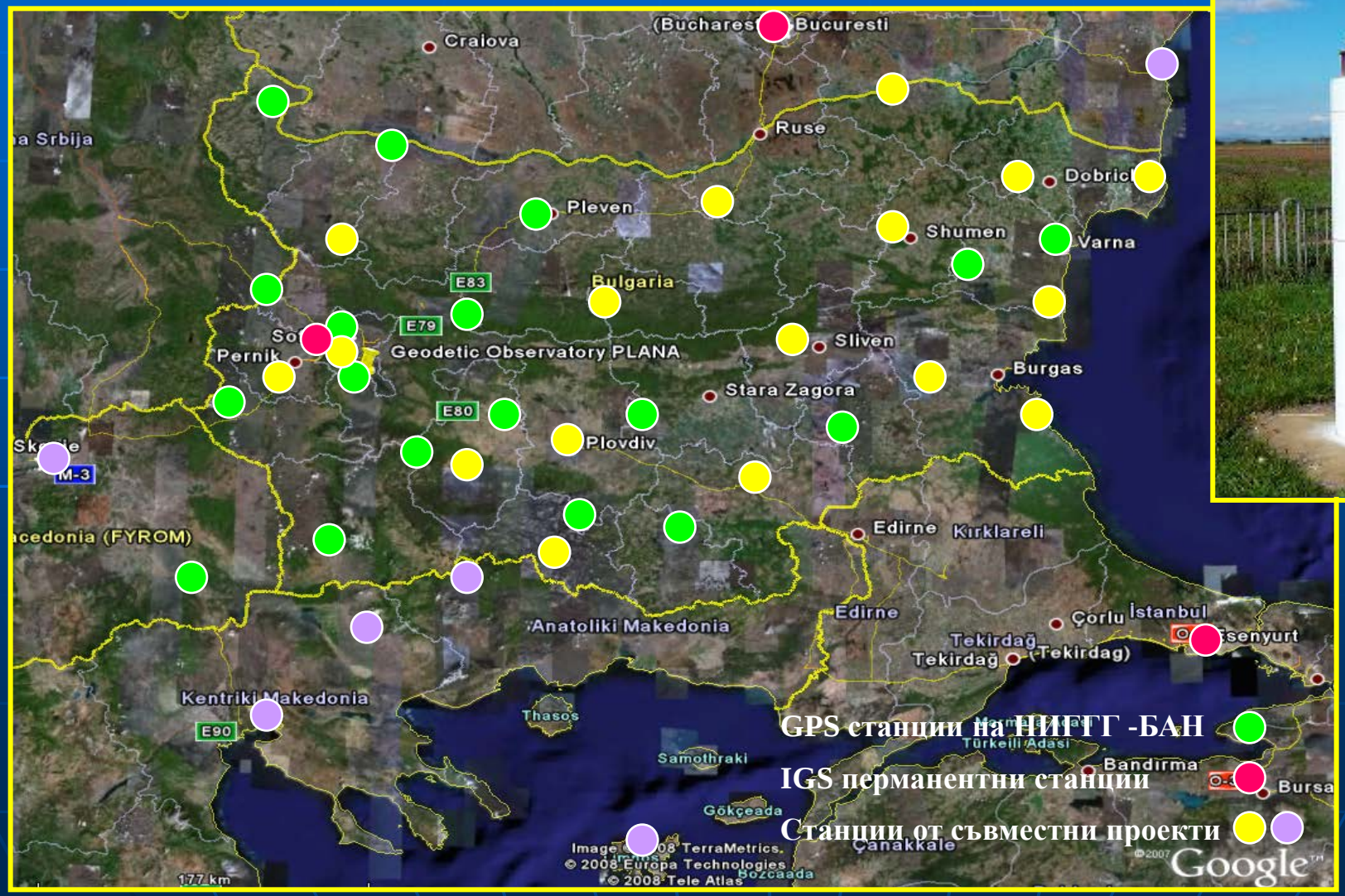






5. National Network of Permanent Global Navigation Satellite System (GNSS) Stations

The Network includes 22 permanent stations, which receive and transfer in real time information to the GNSS Centre in Sofia for collection and analysis.



6. National Strong Motion Network`

Includes 33 permanent registration accelerometric stations, which are location in the National Seismic network and engineering structures of various types. A Sofia Center, which uses GSM technology, collects, processes, and analyzes the information which is used for assessment of the seismic risk of towns and villages, buildings and equipments.

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- **7. National Mareographic Network**
- Jointly with the Agency of Geodesy, Cartography and Cadastre, NIGGG maintains the National network of mareographic stations in the Bulgarian Black Sea littoral – in Varna, Burgas, Irakli and Ahtopol.

- **8. Geophysic Observatory Vitosha**
- It is a unique station with underground tunnel with seismic, accelerometric and other equipments, participating in international projects and programs.

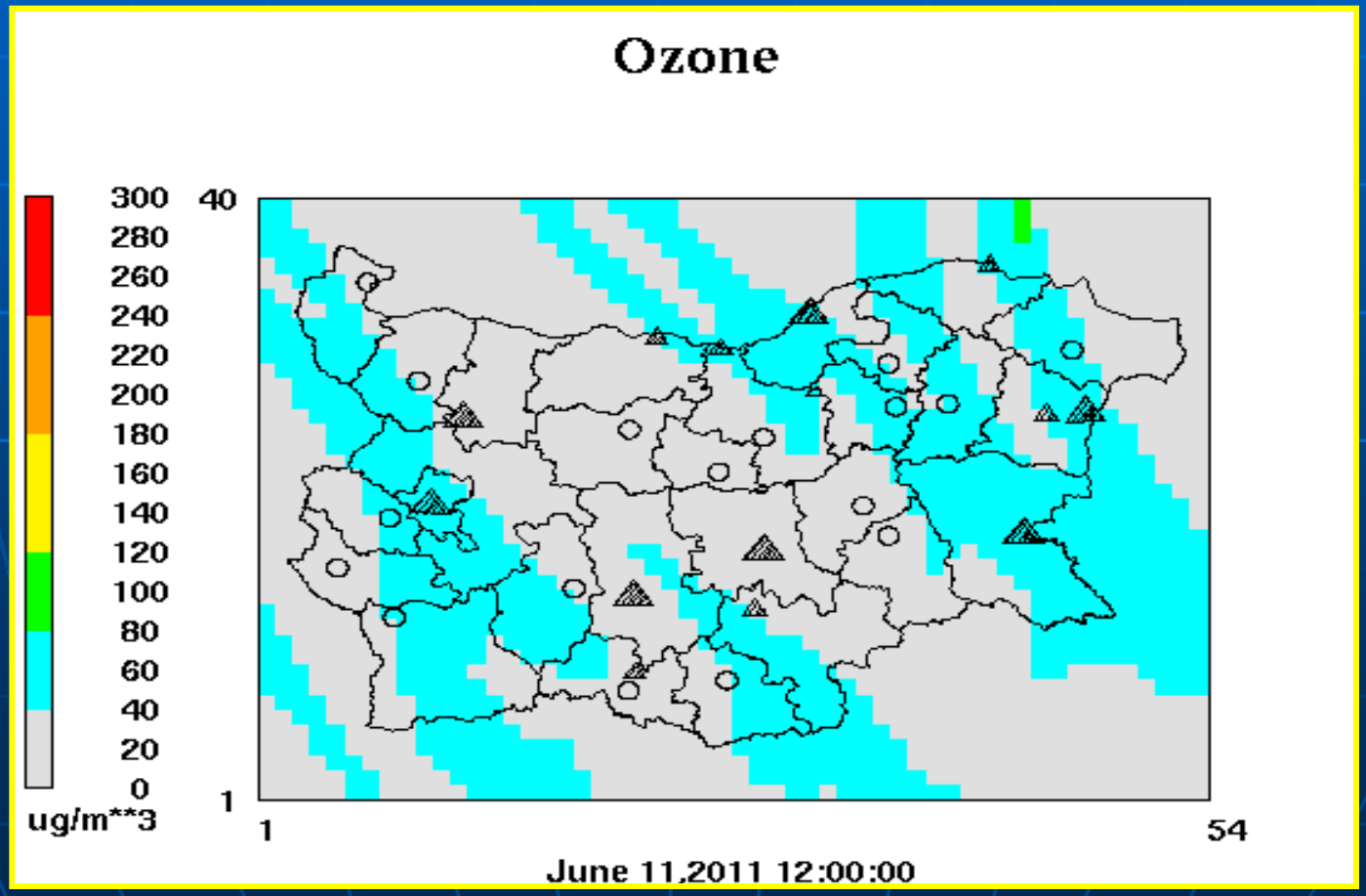
- **9. National Geodetic Observatory in Plana**
- This Service is furnished with unique astrometric and astronomic equipment, GPS receiver, accelerometric, ionospheric and automatic meteorological stations. It is realized a monitoring of the environmental and solar radiation according to national and international projects and programs.

10. Paleomagnetic Laboratory

This unique for Bulgaria lab is equipped with modern specialized devices for measuring and analysis of the magnetic qualities of rocks, sediments, soils, and baked-clay archaeological artifacts. It maintains a data base on values of the ancient magnetic field on Bulgaria's territory for the last 8 000 years.

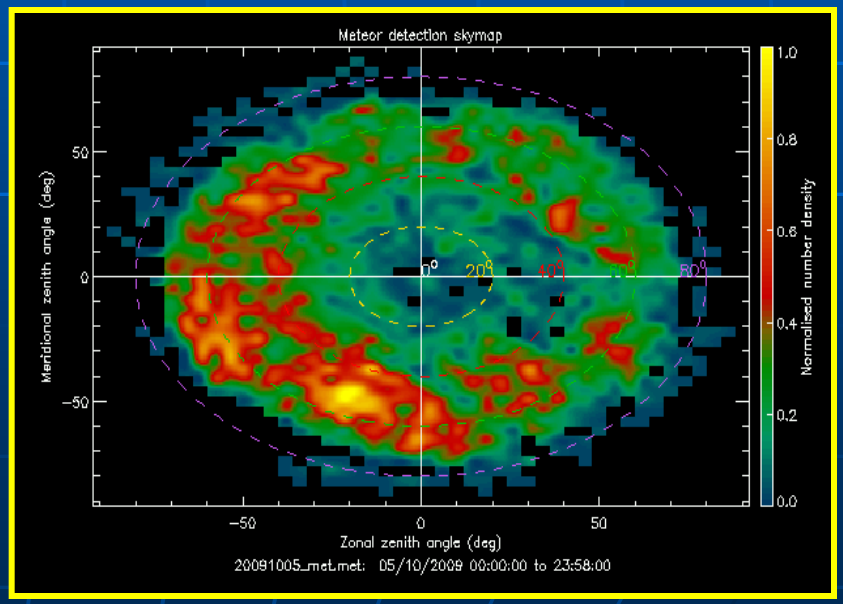
11. Forecasting System for the Levels of the Tropospheric Ozone in the Atmosphere

This completely automated System is based on modern, world-recognized models. It fully uses the national weather forecast and predicts the ambient ozone levels for 48 hours ahead. The information is updated every 12 hours and presented on the Institute's web site.



12. Meteor Radar (EMDR20)

- This is the only device of the kind for Central and Eastern Europe. Conducts monitoring of the thermodynamic regime of the mesosphere and the lower stratosphere. Studies the section of the Earth atmosphere which is affected by human activity, as well the solar activity that influences radio waves transmission.



13. Centers for collecting, processing and analysis of data

Center for Geographic Information to the Department of Geography collect, process, analyze and present physical and economic geographic data for the needs of the country's government.

- **National Center for Processing and Analysis of the Geodetic Data** from the measurements of the National GNSS network, State leveling and gravimetric networks. The Center carries out the processing of measurements, receipt of coordinates and velocities of the points and activities related to the maintenance of the State GPS network.
- **Computing Center** for collecting, processing and analysis of data form national and local accelerometric networks. Evaluates and identifies the dynamic characteristics of the seismic influences in environment, building and equipments for the needs of the earthquake engineering, prevention and diminution of the seismic risk.
- In the operational activity of NIGGG are occupied 60 % of the personnel.


OBSERVATORIES AND PERMANENT STATIONS OF
NATIONAL INSTITUTE OF GEOPHYSICS, GEODESY AND GEOGRAPHY
Geophysic Observatory
Geomagnetic Observatory
Geodetic Observatory
Seismic station
Accelerometric station
Ionospheric station
Permanent GPS station
Depth-gauge station
UV radiation station
ROMANIA
GREECE
SERBIA
R. OF MACEDONIA
BLACK SEA
SOFIA
PLOVDIV
VARNA
BURGAS
RUSE
20 10 0 20 40 km