## **National Report of Greece**

Michail Gianniou KTIMATOLOGIO S.A. (Hellenic Cadastre)



#### **Outline**



- 2. Participation in the project for *Monitoring National ETRF Coordinates*
- 3. New EPN station in Greece
- 4. Geodetic connection with FYROM
- 5. Operation of HEPOS
- 6. Computation of a geometric geoid model





# 1. KTIMATOLOGIO S.A. member of EuroGeographics











## 2. Participation in the project for Monitoring National ETRF Coordinates

Participation in the EUREF TWG project "Monitoring official National ETRF coordinates on the EPN web site":

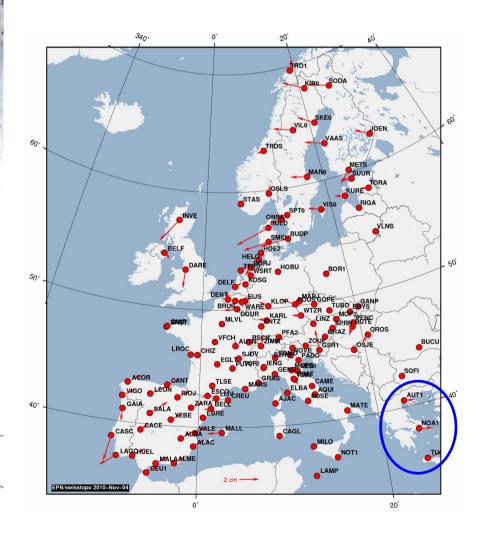
- In May 2010 the EUREF GR 2007 campaign was validated by EUREF.
- The coordinates of the three Greek EPN stations included in the EUREF GR 2007 campaign are now included in the comparisons.
- The level of consistency is quite satisfactory, especially considering the strong tectonic activity in Greece.

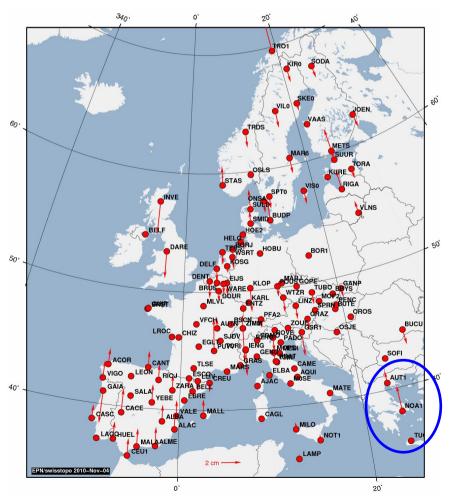


## 2. Participation in the project for Monitoring National ETRF Coordinates

#### Horizontal differences

#### **Vertical differences**



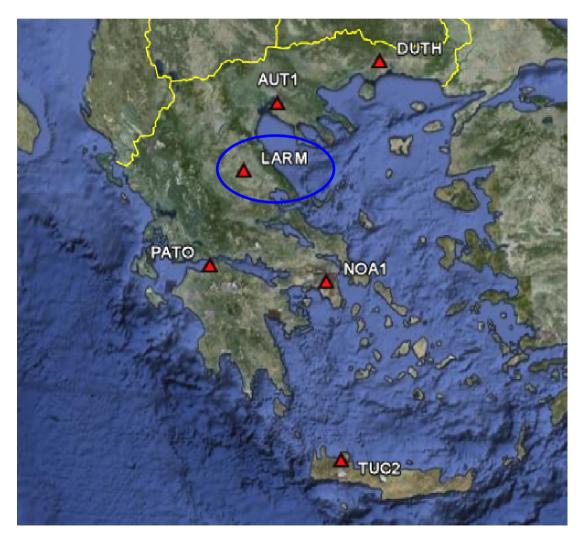






#### 3. New EPN station in Greece

In January 2011 the 6th Greek EPN station was installed.



**EUREF Symposium 2011, Chisinau** 



#### 3. New EPN station in Greece

Name: LARM

• IERS DOMES Number: 12610M002

EPN inclusion: 2011-05-01

Location: University of Thessaly, Larisa, central Greece

Installed by: Profs A. Fotiou and C. Pikridas
 Department of Geodesy and Surveying,
 Aristotle University of Thessaloniki

Tracking: GPS+GLONASS, Galileo ready



**EUREF Symposium 2011, Chisinau** 



#### 4. Geodetic connection with FYROM

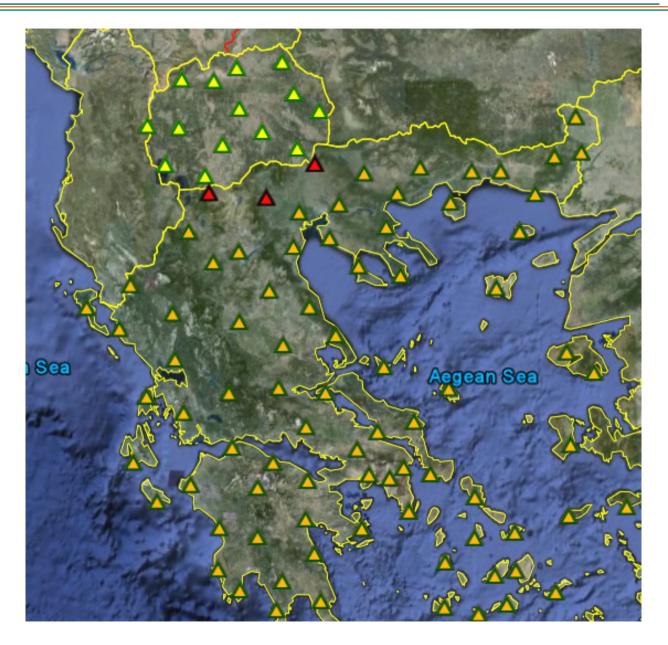
- In 2010 FYROM conducted a campaign to compute a realization of ETRS89.
- In order to establish a geodetic connection in ETRS89 between the two neighbor countries, data from 3 HEPOS stations were supplied to Lantmäteriet, that assists FYROM in the computations.
- The data will be used to assess the level of compatibility between the two ETRS89 realizations.





#### 4. Geodetic connection with FYROM

The three HEPOS stations used for the geodetic connection between Greece and FYROM



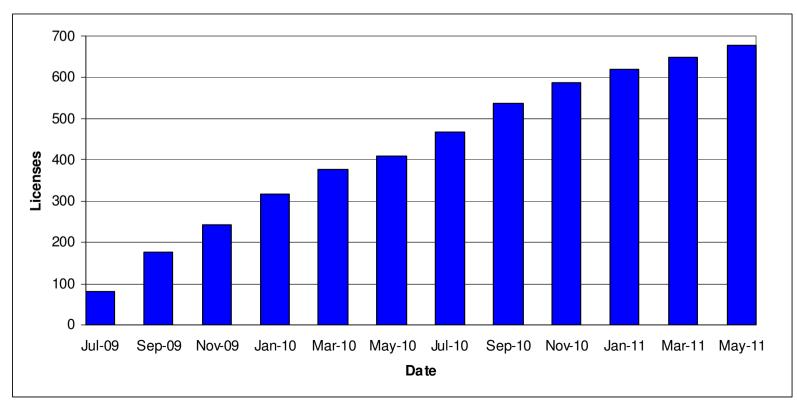




### 5. Operation of HEPOS



- HEPOS services are available to the users since 25/5/2009
- The number of users steadily increases





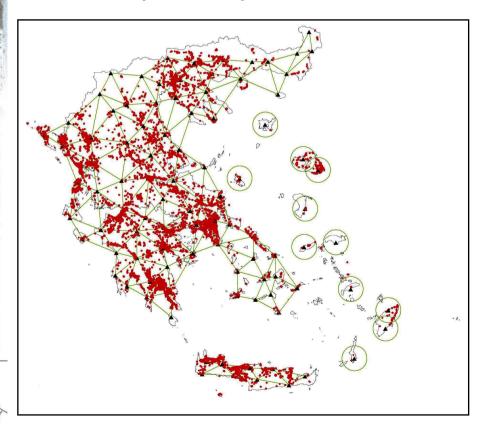


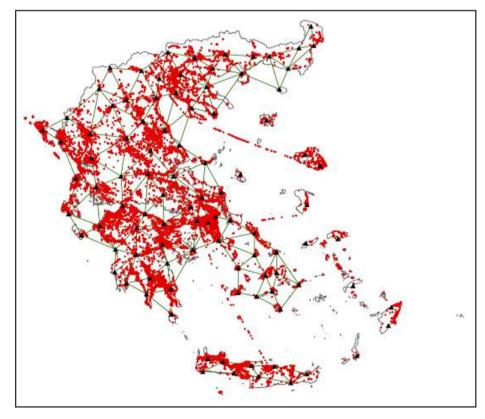
## 5. Operation of HEPOS

#### **Usage of RTK services**

Up to May 2010

Up to Dec 2010







## 6. Computation of a geometric geoid model

HEPOS is progressively being used by an increasing number of professional geoscientists.

The users often need to determine precise (orthometric) heights.

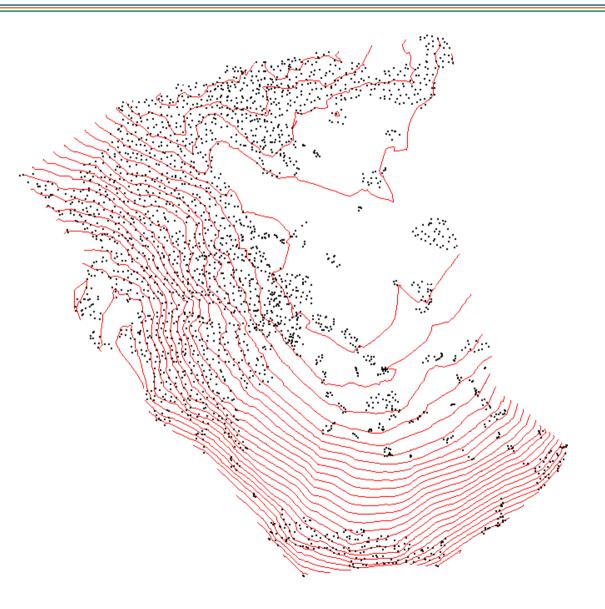
KTIMATOLOGIO S.A. computed a geometric geoid model to be used with HEPOS.

The geoid model is implemented in a new transformation software (HEPOS Transformation Tool), available on the HEPOS website (<a href="https://www.hepos.gr">www.hepos.gr</a>).





## 6. Computation of a geometric geoid model



The model was computed using about 2700 points distributed all over the country, i.e. points of the national triangulation network and selected leveling points that have been measured with GPS and connected to HEPOS, to obtain ellipsoidal height in ETRS89.



## **Acknowledgments**



The HEPOS project is part of the Operational Program "Information Society" and is co-funded by the European Regional Development Fund.











