ESC2016-144 - poster in Session 11 - Deformation and seismicity of the Western Hellenic Arc – Ionian Sea Plate boundary – insights into the 2015 Lefkada M6.5 earthquake - poster board number 11-1, display time Friday, 09 Sep 2016, 09:00-19:00

The NOANET GSAC (Geodesy Seamless Archive Centers) tool for GNSS data dissemination in SE Europe

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INTRODUCTION

Since 2013, The National Observatory of Athens (NOA) participates in a USA-EU effort to unify access to GNSS data and metadata. NOA deployed a web service created by UNAVCO along with several partners, the U.S-based geodesy data centers GSAC (Geodesy Seamless Archive Centers; Boler et al., 2010; 2013; 2014; Meertens et al. 2013). GSAC consists of a Mysql Database which is updated and synchronized through smart Python programs with the main data repository and a full implementation JAVA code, which handles the queries from several users and outputs data in desired format (JSON, HTML, CSV, FTP WGET links etc.) (fig.1). The NOANET GSAC offers to the user 365/24/7 stability and capacity and hosts several GNSS data repositories like (NOANET, HEMUS-NET, PPGNet, CRL, NIEP, non permanent networks etc.; Ganas et al., 2011; Georgiev and Ganas, 2014). In addition it has the capability to host tide-gauge data and seismological data as well. The repository is accessed through http://194.177.194.238:8080/noanetgsac/gsacapi/. The NOA GSAC comprises one of key GNSS nodes for the geodetic dissemination phase of H2020 project **EPOS-IP** (Fernandes et al. 2014).

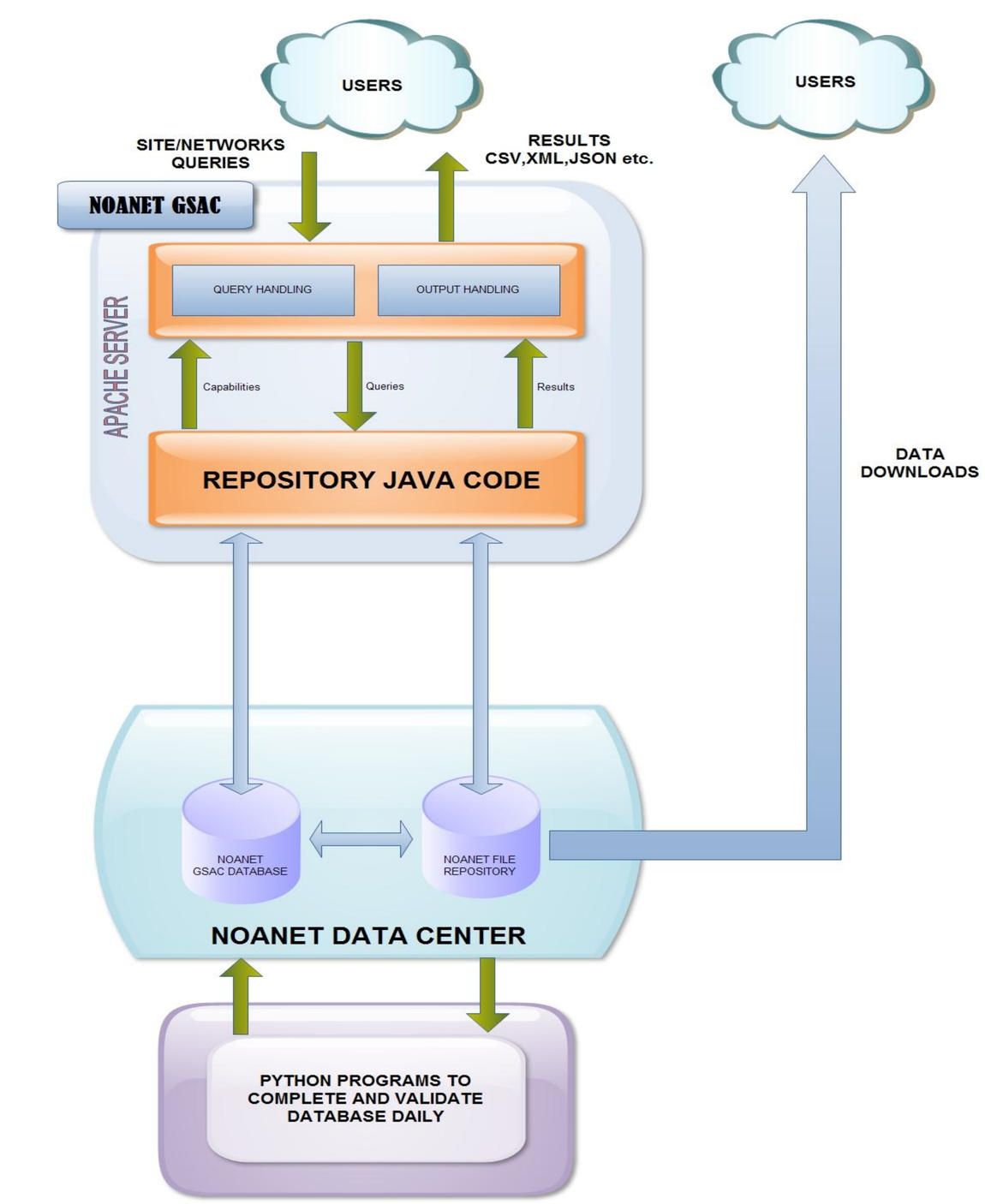

Fig1:Schematic diagram of GSAC

INFRASTRUCTURE AND SOFTWARE

For the deployment of the GSAC we use a VM on a dedicated Windows Server 2012 R2 machine with 16GB of RAM and a total data capacity storage of 4TB in RAID mirror mode, the whole system is connected to an uninterrupted power supply for providing to community continue data .
Also a web server and a dedicated MySQL database deployed to support the usage of the GSAC java code, the database filled every day with 30sec Unix compressed files of all the mentioned before GNSS Networks, also we achieved a 99% efficiency of the used database (fig2) for the international data queries (fig3)

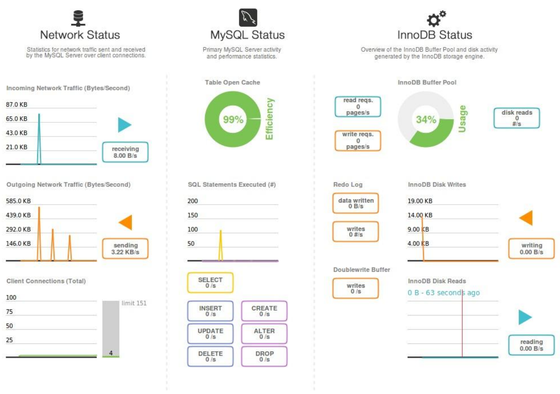

Fig2:Database efficiency

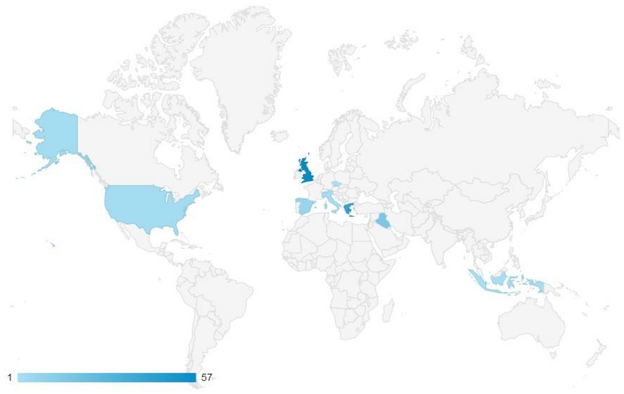

Fig3:International Map of queries

NOANET GSAC

NOANET GSAC was deployed in 2012 and it is still under development with new GNSS data and java code updates. As of July 2016 it contains 30-s data and associated metadata of 54 cGPS stations from around the Southeast Europe (fig 4). The NOA GSAC is still updating also it can be capable of providing seismological data as well as tide gauge data, so it is an ideal tool for providing complete data queries for different data sets in desired data form, for scientific usage (for example mapping regional tectonic deformation, measuring local earthquake offsets etc.). NOA GSAC currently provides access rinex files of permanent GNSS stations in Greece, Bulgaria, Romania and FYROM (Number of rinex files = 161595, Volume of data = 33.35 GB).

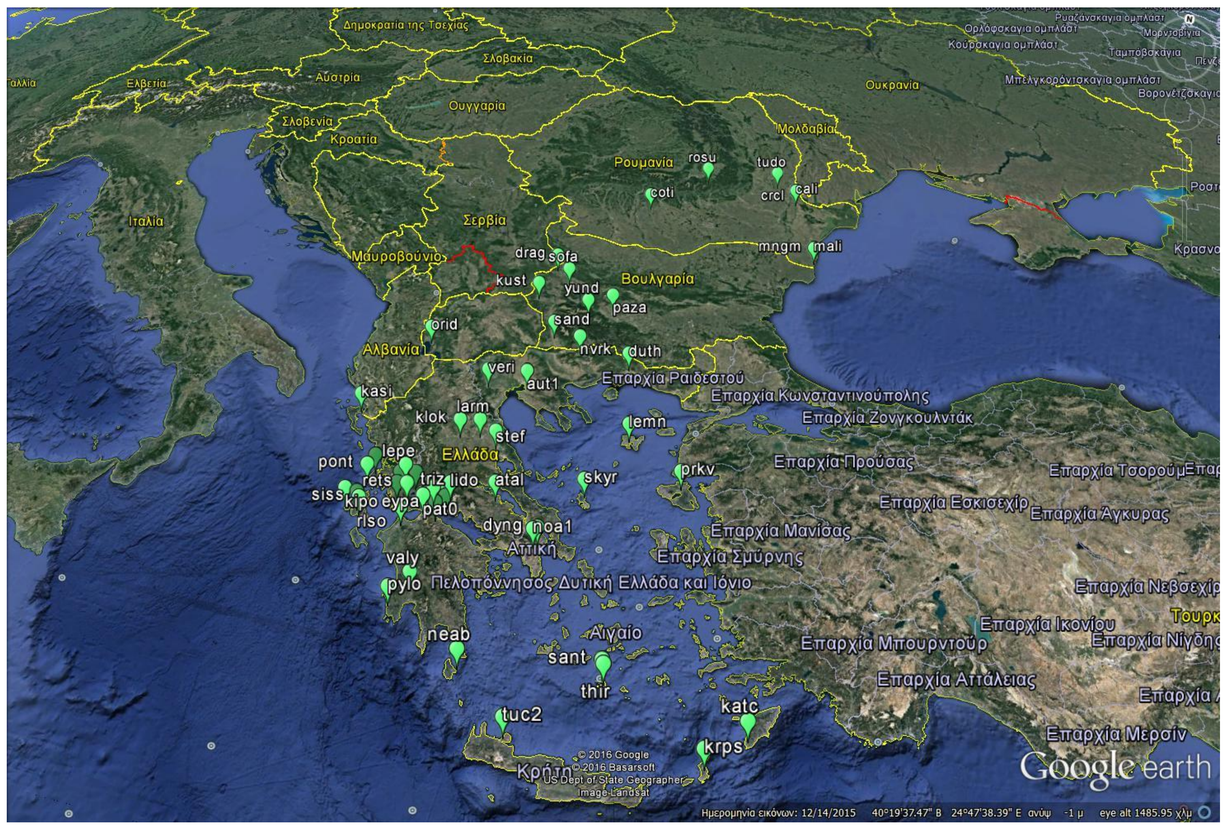

Fig4:cGPS stations map provided by NOANET-GSAC

FUTURE DEVELOPMENT

Our next step is to integrate the GSAC to the GNSS real time processing as a part of post processing module for real time verification . Also we will continue to develop GSAC code with further queries (fig 5)additions and continue to add others cGPS stations for a more complete data providing solution. Also we develop a script which will scan the data providers present in GSAS simultaneously with the database and will have the ability to supplement any gaps due to network problems or problems will arise in the transfer of data from the receivers. Additionally considering the possibility to add quality control of the data provided where appropriate.

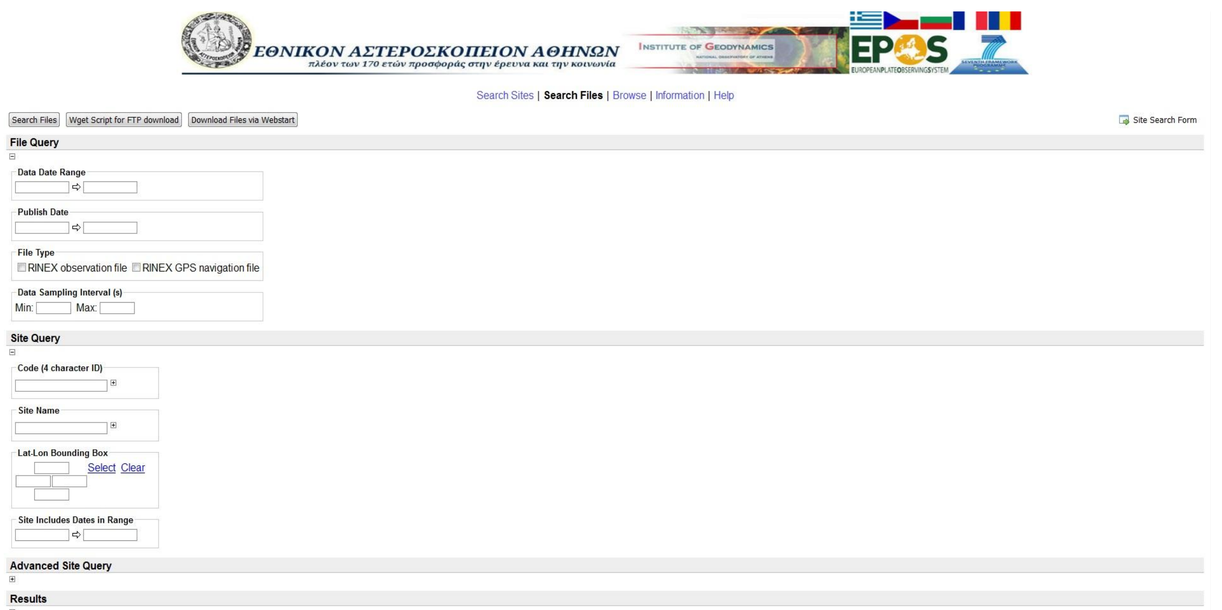

Fig5:NOANET GSAC file query page

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ACKNOWLEDGEMENTS

We are indebted to Stuart Wier (UNAVCO), Aline Deprez (Grenoble), Chris Pikridas (AUTH), Vassilis Sakkas (NKUA) E. Lagios (NKUA), A. Marinou (NTUA), Xanthos Papanikolaou (NTUA) Stylianos Bitharis (AUTH) for comments and suggestions. We wish to thank NIEP http://www.infp.ro/en/ staff (Director Dr Constantin Ionescu and Edward Nastase) for their collaboration. The access to HEMUS-NET data was made possible through a long collaboration with the Bulgarian Academy of Sciences (responsible Dr. Ivan Georgiev). BAS is an associate EPOS partner https://www.epos-ip.org/about/who-makes-epos/associate-partners . We thank Dr. Pierre Briole for the incorporation of selected CRL (an EPOS NFO) stations managed by ENS (FR). Six (6) Czech stations in Greece were added, following bilateral MoU between NOA and GOP/PECNY (thanks to Prof. Jiri Zahradnik, Vladimir Plicka and Jakub Kostelecky). We thank the EPOS WP 10 group for continuous feedback

This work was funded by:

This project has received funding from the European Union's Horizon 2020 research and innovation programm under grant agreement N° 676564

HORIZON 2020