

EIDA@NOA

National and Regional data node implementation

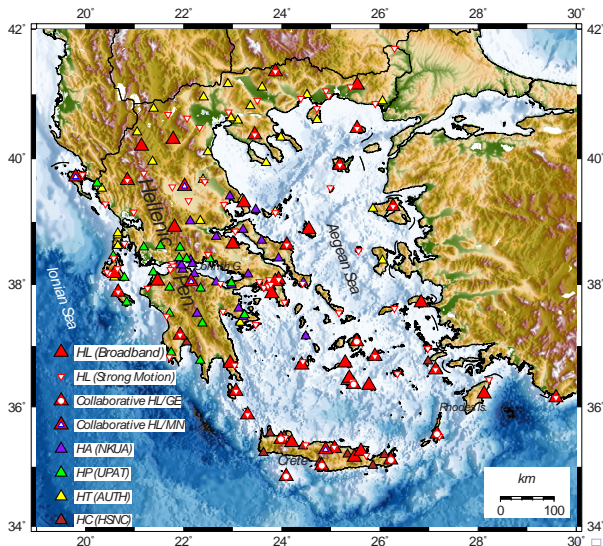
National Observatory of Athens (NOA)
C.P. Evangelidis

Iberian Coordination meeting, Madrid, 8 March, 2018



Hellenic Seismic Network (HL)

Hellenic Unified Seismic Network (HUSN)



HELPOS

2017-2020

HL BB : 51(22)

HL SM: 69

HP: 19(+3SP)

HT: 32 (+12SP)

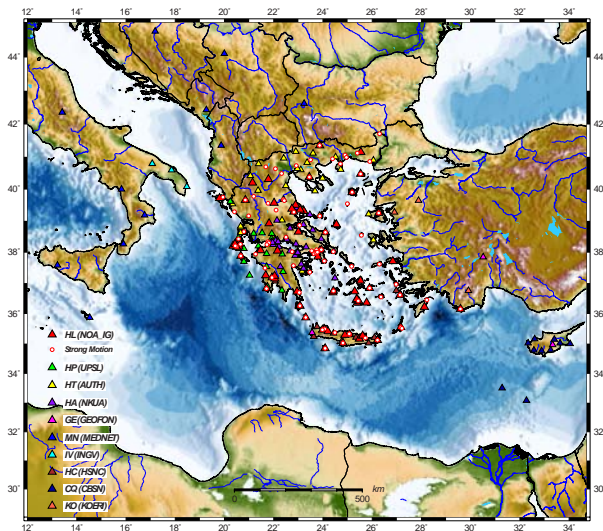
HA: 15

HC: 14



Monitoring the Southeastern Mediterranean

Realtime acquisition at NOA



EIDA Regional and National nodes

- 1 KNMI/ODC: European-Mediterranean, Netherlands
- 2 GFZ: European, Global, temporary deployments
- 3 RESIF: France, Global temporary deployments
- 4 INGV: Italy, European-Mediterranean (MedNet)
- 5 ETH: Switzerland
- 6 BGR: Germany
- 7 NIEP: Romania
- 8 KOERI: Turkey
- 9 **NOA: Greece**



NOA EIDA node

History

- *05-06-2015* NOA Official Proposal after an **unofficial consensus** with some key networks
- *27-08-2015* **Letters of support** from UPSL(HP), NKUA(HA), TEICrete(HC), AUTH(EG).
- *25-02-2016* Unanimously Approved by the ORFEUS Board of Directors
- *29-02-2016* NOA becomes one of the official federated FDSN data centers
- *01-03-2016* MoU between ORFEUS and NOA signed
- *12-05-2016* Operational and Synchronized with all other EIDA nodes



NOA EIDA Networks

Stations served now

Current Networks:

- **HL** (*N.O.A., Hellenic Seismic Network*) -60 stations
doi:10.7914/SN/HL
- **HP** (*University of Patras, Seismological Laboratory*) -9 stations
doi:10.7914/SN/HP
- **HC** (*T.E.I. of Crete, Seismological Network of Crete*) -14 stations
doi:10.7914/SN/HC
- **HA** (*National and Kapodistrian University of Athens, Seismological Laboratory*)
-2 stations
doi:10.7914/SN/HA
- **CQ** (*GSD of Cyprus, Cyprus Broadband Seismological Network*) -10 stations
doi:10.7914/SN/CQ
- **EG** (*SDGEE AUTH, EUROSEISTEST Strong Motion Network*) -4 stations
- **ME** (*Montenegro Seismological Observatory, Montenegrin Seismic Network*)
doi:10.7914/SN/ME

HH* and HN* channels from 2010 onwards. Data availability delayed by 15min to 24 hours.



NOA EIDA Services

EIDA@NOA node address

`eida.gein.noa.gr`

- **FDSN (dataselect + station)**

`http://eida.gein.noa.gr/fdsnws/`

- **ArcLink**

`eida.gein.noa.gr:18001`

- **WebDC3 (+ NOA catalog service via CSV event file)**

`http://eida.gein.noa.gr/webdc3/`

- **Routing**

`http://eida.gein.noa.gr/eidaws/routing/1/`

- **WGCatalog**

`http://eida.gein.noa.gr/eidaws/wfcatalog/1`





INSTITUTE OF GEODYNAMICS
NATIONAL OBSERVATORY OF ATHENS



Access to EIDA Data Archives

NDA EIDA node

The European Integrated Data Archive (EIDA), is a federated European data center that archives and provides access to seismic waveforms and their related metadata from the European research infrastructures. The distributed EIDA nodes contribute data from specific regions and have committed resources for the support, operation and development of EIDA. Seismological data from seismic stations located in Greece and the southeastern Mediterranean are included to the new regional EIDA node (NDA) hosted by the [Institute of Geodynamics](#) of the [National Observatory of Athens](#).

Node contributors


 National Observatory of Athens


 University of Patras


 T.S.S. of Crete


 National and Kapodistrian University of Athens


 Aristotle University of Thessaloniki


 Croatian Geological Survey


 ICSnet International, Inc.


 Institute for Hydrometeorology and Seismology, Montenegro Seismological Observatory

Current Networks:

- HE** (HELEN, Hellenic Seismic Network), doi:10.7914/IN/HE
- HP** (University of Patras, Seismological Laboratory), doi:10.7914/IN/HP
- HC** (TSS of Crete, Seismological Network of Crete), doi:10.7914/IN/HC
- HA** (National and Kapodistrian University of Athens, Seismological Laboratory), doi:10.7914/IN/HA
- CQ** (CSD of Cyprus, Cyprus Broadband Seismological Network), doi:10.7914/IN/CQ
- EG** (EGEEF AUTH, EUROSEISTEST Strong Motion Network)
- HE** (Montenegro Seismological Observatory, Montenegro Seismic Network), doi:10.7914/IN/HE
- XS (2015-2016)** (CZ - Lefkada temporary network), doi:10.7914/IN/XS_2015
- _NF0001** (Near Fault Observatory of Crete) - virtual network
- _HE2014** (Hellenic Unified Seismic Network - virtual network)

EDIN Web Services

Retrieve time series data and related metadata within the context of the International Federation of Digital Seismograph Networks (IFDSN, DOI:10.5912/IFDSN).

WebGIS

Retrieve time series data, related metadata, events information by interfacing with all EIDA nodes, through Graphical user interface. It uses the GDS/GDS protocol.

Data Inspector

View data availability, and data quality statistics.

- Data Availability Calendar:



Data Storage and Backup

- node is running on Virtual Machines (with backup of the VM images)
- Main data center (Athens-Thissio campus):
 - NOA Network Attached Storage (NAS) - main storage of data acquisition (SDS archive) in NOA
 - EIDA-NAS - copy of NOA-NAS (*at least all data concerning EIDA*)
 - EIDA-NOA VM Server “watches” the EIDA NAS
- Backup data center (Athens-Penteli campus):
 - EIDA NAS2 - copy of the entire NOA NAS
 - EIDA-NOA2 VM Server “watches” the EIDA-NAS2
- ★ *NAS have high availability storage with RAID 6, 70 TB, 2 Power supplies, 4 Gigabit LANs, etc*
- ★ Operated and maintained by NOA IT personnel



National consensus on a single National node on 2016

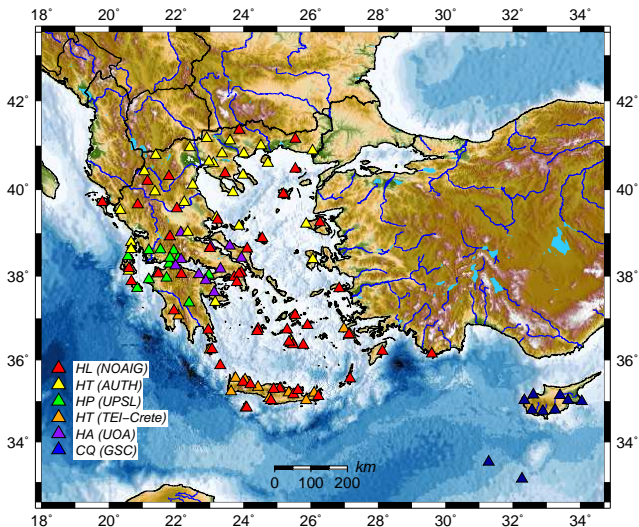
Based on:

- Realization for the LONG TERM COMMITMENT of the node operator
- Allocation of HELPOS NOA budget on HELPOS share towards the EIDA national node
- Critical data mass already loaded. Users experience so far good
- Realization that EPOS-ERIC will NOT assign much (if any) funds on EIDA nodes
- Strong EIDA EMB preference on single national nodes
- National EIDA node coordination from people with neutral point of view accepted by the others
- Ability to run and operate the node from THIRD physical location in Northern Greece
- Establishment of a National management-technical committee for coordination



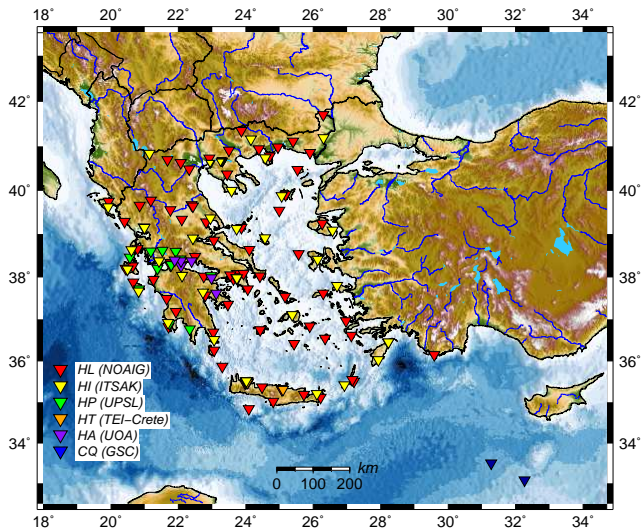
NOA EIDA node

HELPOS implementation (Broadband Stations)



NOA EIDA node

HELPOS implementation (Strong Motion Stations)



EIDA@NOA To-do List

Networks to be added soon:

- **HT** (*Aristotle University of Thessaloniki Seismological Network*)
- **HI** (*ITSAK Strong Motion Network*)
- **Temporary deployments** (*As many as possible national and international deployments in the area concerning aftershock studies or passive experiments*)



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Under implementation or testing:

- Third EIDA@NOA deployment in GRNET Cloud (Virtual storage + server)
EOSC-hub EC-H2020 project
- Proxy server implementation for load balancing and fail-over handling (between the 2-3 physical locations)
- Introductory Webpage with Instructions
- HELPOS Ticket-Forum web based for better coordination
- fdsnws-event Service with NOA(or HUSN) catalogue



To conclude

At NOA:

- Support a considerable national infrastructure (BB and SM networks, Data and Operational Center)
- Unlimited (but registered) access to seismic waveform data from networks in Greece and the Southeastern Mediterranean
- Securely archive seismic waveform data AND their related metadata
- Provide the appropriate credit and citations to the network operators



To conclude

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Personal Piece of advice:

- 1 Cooperate
- 2 Identify/acknowledge each institute/network/operator mission
- 3 Appoint people in management as much neutral as possible
- 4 A single national/regional node is much stronger and viable in the long term



Thank you!

