



EPOS European Plate Observing System

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www.epos-eu.org

RDA P5 Large Scale Data Projects 20150308 EUROPEANPLATEOBSERVINGSYSTEM

Solid Earth Science

KEYWORDS

- Multidisciplinary contributions
- Geo-Hazards
- Geo-Resources
- Environmental changes

ESFRI

- EPOS-PP 201011-201410
- Encouragement from ESFRI
- EPOS-IP proposal being prepared



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EARTHQUAKES VOLCANIC ERUPTIONS

TECTONICS

ISUNAMIS

SURFACE DYNAMICS CABORATORIES

"Numbers" of solid earth science

MAP OF:

- Seismic/GPS stations
- Laboratories
- -- etc....

as 1 Iniversity Complutence of Madrid - Seismic Network - WG 1

Diversity in data type and formats

http://www.epos-eu.org/ride/



full screen ON/OFF Legend--- 🐨: Laboratory - 🗒 🕼: Seismic Station (Orfeus) - 📴: GPS Station - 🐮: Other sta

(full screen UN/OFF) Legend--- 💌. Laboratory - 😅. Seismic Statio



Data is obtained by:



...Once you have the data...



Dealing with complexity of users

- where does the user go
 - Too many offerings
- User role can be dynamic
 - Am I a data provider? A data consumer?
 - Am I a service provider/manager?
- User role authorities and responsibilities
 - Am I allowed to access software services?
 - Am I allowed to access laboratory services?
 - Am I allowed to access computing / detector services?
- User role preferences
 - Device: mobile? Laptop?...
 - Modality: keyboard/mouse / gesture/ speech...





Rights Costs



Dealing with the complexity of usage

Ownership and IP (data, software, publications)



- Permissions to use (data, software, facilities/equipment including computing)
- Conditions of use: (by class of user) (licence) acknowledgement, citation, payment
- Conditions of use: (by class of user) (licence) constraints on further actions





Dealing with complexity of request

$f_{Request}(user, data, software, facilities, equipment)$

with constraints

- (user X data,user X software,user X facilities/equipment,
- data X software,
- data X facilities/equipment,

software X facilities/equipment)





Scientist at work





7 Preparatory Phase Project

Scientist at work

Then... what can the scientist do?

- Integrate use of SAR, GPS, Accelerometric Data, etc.
- Use different codes and languages (python, fortran, any other...)
- Perform heavy processing online (use of HPC resources)
- Compare results (e.g. focal mechanism catalogues)
- Compare different data
- Save data in personal area
- •...and more... (even download the data)

Compatibility layer



3-layer metadata model



Contextual (CERIF metadata model)

(http://www.eurocris.org/) Common European Research Information Format



- Metadata Entities and Relations
- Used as metadata engine at contextual level
- 3. CERIF-XML exchange format and APIs



Compatibility Layer

e-Infrastructure Metadata Model

Complete cohort of researchers, research managers, innovators, media



Complete ICT environment for research

The EPOS Added Value EPOS prototype for Solid Earth Science

Download GSAC data file

2011-10-29 00:00:...

2011-10-30 00:00:...

2011-10-31 00:00:

2011-11-01 00:00:...

2011-11-02 00:00:...

2011-11-03 00:00:...

text 2011-10-28 10:00:... url

GPS DATA

DOWNLOAD

ftp://renag.unice.fr/data/2011/301/theo3010.11d.Z

ftp://renag.unice.fr/data/2011/302/theo3020.11d.Z

ftp://renag.unice.fr/data/2011/303/theo3030.11d.Z ftp://renag.unice.fr/data/2011/304/theo3040.11d.Z

ftp://renag.unice.fr/data/2011/305/theo3050.11d.Z

ftp://renag.unice.fr/data/2011/306/theo3060.11d.Z

ftp://renag.unice.fr/data/2011/307/theo3070.11d.Z

3090.11d.Z

3100.11d.Z

3110.11d.Z

3120.11d.Z

3130.11d.Z

3140.11d.Z

3150.11d.Z

2011-11-04 00:00:... ftp://renag.unice.fr/data/2011/308/theo3080.11d.Z

		About
Produ	ucts: people	Seismic Station 🔲 Seismic Event
	RI or Facility	GNSS Station Seismic Waveform
10	Date Lat	Lon
Min	2014-09-21	Clear Results
Max	2014-09-22	Search
Chat	iene	
Stat	lons	
Shc	ow on map	
Netw	ork: all Networks	
	Station	Facility
-	Station Santorini Sea 5, Greed	e Cyclades project 2002/03,RUB B
	Station Santorini Sea 6, Greed	e Cyclades project 2002/03,RUB B
	Station Santorini Sea 7, Greed	e Cyclades project 2002/03,RUB B
	Station Santorini Sea 8, Greec	e Cyclades project 2002/03,RUB B
	Station Schinoussa, Greece	Cyclades project 2002/03,RUB B
	Station Serifos, Greece	Cyclades project 2002/03,RUB B
	Station Sifnos, Greece	Cyclades project 2002/03,RUB B
	Station Thirasia, Greece	Cyclades project 2002/03,RUB B
	Alpe Faloria	FReDNet repository powerd by
	Caneva	FReDNet repository powerd by
	Codroipo	FReDNet repository powerd by
	Fusea	FReDNet repository powerd by
	Joanaz	FReDNet repository powerd by
	Medea	FReDNet repository powerd by
	Mont Prat	FReDNet repository powerd by
	Noventa di Piave	FReDNet repository powerd by
	Palazzolo dello Stella	FReDNet repository powerd by
	Collalto di Susegana	FReDNet repository powerd by
	Trieste	FReDNet repository powerd by
	Udine	FReDNet repository powerd by
	Udine	FReDNet repository powerd by
	Varmost	FReDNet repository powerd by
	Zouf Plan	FReDNet repository powerd by
	ADAX	RENAG GNSS GSAC Repository (B)
	Cap d'Agde purification station	RENAG GNSS GSAC Repository (B)
	Mont Aigoual	RENAG GNSS GSAC Repository (B)
	ALLE	RENAG GNSS GSAC Repository (B)
	Alpe d'Huez	RENAG GNSS GSAC Repository (B)
	ANNE	RENAG GNSS GSAC Repository (B)

. ⊕

> Download seismic waveform time frame [-3,10] min:

SEISMIC DATA

DOWNLOAD

DEMO

Legend

 Results
 Hazard Map (EFEHR)
 Geology (OneGeology)

 © GNSS Station (GSAC)

GNSS Station (RIDE)
 Geismic Station
 Facilities
 Events

http://epos.cineca.it

Who's in(tegrated)?

- ORFEUS/EIDA: Waveform Data, Station Metadata, Orfeus Metadata for Waveforms
- VERCE: seismology e-Science centre
- SMdB Waveform Data
- EMSC seismic events
- AHEAD Earthquake Products Historical Data
- EFEHR Hazard & Risk Maps
- OneGeology Europe geological maps (Images (WMS), GeoSciML (WFS), and others)
- Geodesy geodetic data GSAC repositories (INGV, Geo Azur ,INOGS (FredNet), Univ Athens, NOA Greece)
- And the supersites (e.g. FUTUREVOLC, Iceland; MED-SUV (S. Italy); MARSITE (Marmara Sea))
- → and e-infrastructures: EUDAT, PRACE, EGI





European Plate Observing System | FP7 Preparatory Phase Project EPOS Interest in RDA

- To discover others' best practice that may be adopted by EPOS
- To share EPOS experience
- To participate in standardisation
 - Formats
 - Protocols
 - Best practice
- Especially metadata !





European Plate Observing System | FP7 Preparatory Phase Project EPOS and RDA Organisation

- Several members of EPOS e-infrastructure team attend
 - RDA plenaries
 - RDA/ESFRI meetings
- Keith Jeffery is co-chair of 3 metadata groups
 - MIG, MSDWG, DICIG
 - And provides coordination across them and also the provenance group
 - These groups reaching out to domain specific groups (e.g. biomed (ELIXIR), marine, agriculture...)





European Plate Observing System | FP7 Preparatory Phase Project Conclusion EPOS ad RDA

- We believe there is mutual benefit in EPOS-RDA collaboration
- EPOS is tackling multidisciplinary e-Science
- EPOS has a clear vision, architecture and has demonstrated feasibility
 - Based on metadata
- The EPOS architecture is general and not restricted to earth science





WebSite



Newsletter



R.I.D.E.





www.epos-eu.org/ride

Epos Social



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