EPOS SP – Grant Agreement n. 871121

D7.1 - First Report on the outcome and impact of the training workshops, targeted events and dissemination activities

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Executive Summary

This deliverable (D7.1) is written in the framework of the Work Package 7 of the EPOS Sustainability Phase (EPOS-SP) Project and summarizes the outcome and impact of the training workshops, targeted events and disseminating activities.

Despite the difficulties experienced due to the COVID-19 pandemic, most of the training and outreach activities that were planned, could be conducted as virtual events. There were two events where dedicated training on ICS was given. These were the AdriaArray Workshop jointly organized by the ORFEUS (2-9 November 2020) and the Nordic-EPOS Seminar jointly organized with the 51st Nordic Seismology Seminar (30 Sept. – 2 Oct. 2020) as virtual events. As a preparation for these events and with the purpose of preparing a complete training for the Integrated Core Services (ICS) data platform, dedicated training material (tutorials, user guidelines, etc.) and video modules were developed as part of three-level course program. Individual modules of Level-I were used in these training sessions in 2020. The Level-II and Level-III course material will be produced in 2021. In addition to training on ICS, two more topics were covered during the Nordic-EPOS Seminar, about “Data Management” and “FAIR Principles”.

In addition, specific national training and outreach events were conducted in Slovenia, Romania and Poland. These events covered a variety of topics, such as Thematic Core Services (TCS) related data portal training, promoting and raising awareness about EPOS at national level, etc.

Dissemination activities were planned in detail before the COVID-19 outbreak. However, some of these activities could not be conducted, due to cancellation or postponement of the previously planned scientific conferences. Therefore, special focus was given to digital dissemination material and constructing new EPOS web-pages.

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1. Introduction

This deliverable (D7.1) is written in the framework of the EPOS Sustainability Phase (EPOS-SP) Project supported by the EC H2020 Program (Grant agreement No. 871121). D7.1 is part of the Work Package 7 on Outreach and Training and summarizes the outcome and impact of the training workshops, targeted events and disseminating activities.

The main objective of Work Package 7 (WP7) is to support the "Outreach and Dissemination" of the EPOS Delivery Framework to society, including training for early career researchers and students. In order to achieve this goal, three tasks have been identified:

- Training on EPOS usage
- Outreach on operation of EPOS services
- Dissemination and communication

In each of these tasks, special focus is directed towards the countries and regions that are not currently formal members of the EPOS-ERIC. Targeted actions are planned to promote EPOS participation and usage. In addition, focused interaction with regard to the integration of new thematic core services (TCS) are planned to be conducted including the tsunami research community as well as the earthquake engineering community. The planned activities of WP7 are summarized in Table 1.below.

Table1. *Timetable of the planned activities in WP7.*

WP7	Year 1												Year 2												Year 3											
Task/Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Task 7.1	Preparation						1st training workshop						Preparation						2nd training workshop						Preparation						3rd training workshop					
Task 7.2	Preparation						1st event (fous on Balkan region)						2nd event (focus on Baltic region)						Preparation						3rd event (focus on OBS/Tsunami)						4th event (focus on Earthq. Eng.)					
Task 7.3	Int.Conf.& Events						Int.Conf.& Events						Int.Conf.& Events						Int.Conf.& Events						Int.Conf.& Events						Int.Conf.& Events					

Activities during the first nine months of the EPOS-SP Project were affected by the outbreak of COVID-19 in Europe. COVID-19 restrictions have started soon after the EPOS-SP Project kick-off meeting arranged in 10-12 February 2020 in Brussels, Belgium. As a consequence, most of the activities were conducted as videoconferences, online webinars or through other digital communication channels.

Activities in 2020 were mainly conducted as virtual meetings and in virtual workshops and conferences due to the COVID-19 restrictions. Most of the planned activities were conducted in time, except for delays in few of the planned events or cancellation of conferences in 2020. Training and outreach activities that are jointly planned are coordinated with associated projects and a comprehensive list was prepared. Dissemination and communication activities were partially affected by the COVID-19 and some of the planned activities could not be done.

Various training material were developed for the first level (Level-I) of the planned training courses on ICS-C, including video-modules, interactive exercises with several use-cases, feedback questionnaires and user guidelines. In addition, a dedicated list of existing EPOS related videos is created with relevant links.

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2. Training and outreach activities

Soon after the kick-off meeting of EPOS-SP, it became clear that training events planned needed to be converted into virtual training sessions and hence digital training material had to be produced. Training material included the following:

- Training course for ICS-C
  - Level-I (Introduction of EPOS and the basic functionalities of the Data Portal)
  - Level-II (Thematic Use Cases)
  - Level-III (Workflows and Processing)
- Digital material for training in ICS-C
  - Video-modules
  - Use-cases
  - Assignments and interactive exercises
  - Feedback questionnaires
  - ICS-C Guidelines

Training course

ICS-C training course are designed in three levels starting with a basic level and moving into more advanced levels including complex uses of the ICS-C system.

Level-I (Target audience - students/researchers)

1. Introductory level (pre-recorded video + short Webinar on different technical platforms and different audiences + user guidelines)
   a. What is EPOS?
   b. Why EPOS?
   c. Whom is EPOS meant for?
   d. What is the course structure? (outline of the course and learning outcomes)
   e. Which data and services does EPOS offer? (a general overview + explain content on the landing page)
   f. Where to find the course material (additional information about use cases, useful resources, etc.)
2. The basics (pre-recorded videos + live webinar)
   a. Part-1: (ca. 15 min pre-recorded video)
      i. Data portal overview (general layout overview)
      ii. Browse data (faceted search, service details, coverage region)
      iii. Select data (select multiple datasets, how to detect mappable services)
      iv. Download data (how to download data, chose formats)
      v. Advanced search (free-text search, keywords)
   b. Part-2: (ca. 15 min pre-recorded)
      i. Configure services (apply new or modify parameters)
      ii. Console tab (logging of actions)
   c. Part-3: (ca. 15 min pre-recorded)
      i. Login (login procedure + explaining the concept behind authentication and authorization)
      ii. Workspace (concept of creating and sharing, how to add items)

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Level-II (Target audience – society)

Use-cases (use-cases are dependent upon the target audience and their background) (methods: pre-recorded video + webinar, where each use case needs to be approved by the relevant TCS) . Examples of use-cases may be as followed:

a. *Use-Case-1:* Seismogenic faults combined with Historical Earthquakes, Areas with Near Fault Observatories and GNSS data
b. *Use-Case-2:* Geological maps combined with Macroseismic data, Anthropogenic hazards and Borehole data

Level-III (Target audience – scientists)

Workflows and processing (using the ICS-D solutions developed in ENVRI-FAIR project) (methods: pre-recorded video + Webinar + if necessary – face to face meetings)

a) ICS-D functionalities
b) Python coding introduction (Jupyter Notebooks)
c) Workflow compositions
d) Workflow deployments

Training material

User guidelines document for ICS-C is prepared and made available to the participants of the training workshops. A detailed plan for producing training tutorial videos was made using the following structure:

1. Start with a plan (Know your audience)
2. Write a script (step by step; screenshots and narration text)
3. Record the audio narration
4. Record video of your screen
5. Cut out mistakes and trim extra footage
6. Sync your audio and video
7. Produce and share the video

Each step above has quality assurance (QA) procedure with:

- Draft version
- Reviewing and testing
- Revision
- Reviewing and testing
- Approval
- Final version

All video production related to training are being conducted using this structure. The first two ICS-C tutorial video modules (Level-I, Introduction and Level-I: Part-1 Search/find/display) are already completed and used during the training sessions. An example of a script is given below (Figure 1).

Visual identity for the video modules such as intro, outro, animated background, EPOS ERIC logo placement animation and subtitle layout has been developed by a professional company. Same video template will be used throughout the EPOS tutorials to provide harmonized and unified look to users.

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	Action	Narration
1	EPOS visual indentity	
2	 *Picture of front page of the Portal*	Hi, and welcome to the EPOS ICS Portal tutorial. This is the introduction video for the level 1 tutorials which teaches you the basic functionalities that the EPOS ICS Portal has to offer. After this introduction video, the level 1 tutorials include Part-1 on "Data Search", Part-2 on the "Configuration of Services" and Part-3 on the Workspace.
3	Bullet point list showing what we will cover - What is EPOS - How can EPOS benefit you and the society - The EPOS ICS Portal	In this introduction video you will get a brief overview of what EPOS is, how EPOS can benefit you and the society and more specifically; what the EPOS ICS Portal can offer you.
4	EPOS EUROPEANPLATEOBSERVINGSYSTEM EPOS logo	(WHAT IS EPOS?) So, what is EPOS? EPOS, or European Plate Observation System is a European initiative to create and operate a sustainable, distributed and long-term access to solid Earth science data and services. The Solid Earth data and services are provided by diverse European Research Infrastructures and are integrated under a common, federated framework, namely EPOS ERIC. Our vision is to support collaborative research approaches in solid Earth science data and services by making them universally accessible and usable.
5		EPOS project is a pan-European project involving more than 25

Figure 1. *Example script prepared for a video-module.*

Two example Training Videos – Level-1: Module-1 Introduction to ICS and Module-2 on ICS search/find/display functionalities are available in a dedicated YouTube channel for EPOS Training. The link to the EPOS-Training channel is as follows:

https://www.youtube.com/channel/UCW-W9nukPpUP4iH94D4D1rw

Various use-cases for ICS-C system were already identified during the EPOS Implementation Phase and were adopted during the developments of the ICS-C system. Based on these experiences, several dedicated use cases are prepared, taking into account the target audiences in training and outreach events.

In each training session, pre-recorded video modules are accompanied by hands-on training on ICS-C system using various use-cases involving cross-disciplinary data. Several exercises, that follow use cases with various complexity, are prepared. After the exercises are conducted, users provide feedback in dedicated online forms about the execution of tasks directly.

2.1 Training and outreach events

Training activities were planned in connection with the target of geographical regions as well as targeting thematic communities. In this regard, the first training event targeting the Adriatic-Balkan-Dinarides (ABD) region was planned jointly with WP4 and ORFEUS in connection with the AdriaArray Workshop. This workshop was originally planned to be a physical meeting in Sopron, Hungary and was supposed to be done in May 2020. However, due to COVID-19 restrictions, the workshop was postponed to 2-9 November 2020 and was held as a virtual event. A dedicated training session on ICS-C Data Portal was conducted on the 2nd of November 2020 (more than 232 participants were registered for the AdriaArray Workshop and 32-46 participated in the training session). The program of the training session as well as the synoptic program of the AdriaArray Workshop are included in Annex 1.

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In addition to the ICS-C training mentioned above a dedicated training session on Data Management and FAIR principles was conducted during the Nordic-EPOS Seminar jointly arranged by the Nordic Seismology Seminar as a virtual event during the period 30 September – 2 October 2020. More than 50 people from the Nordic countries participated in the training session. The program of the joint Nordic-EPOS and Nordic Seismology Seminar is included in Annex 2. During the training session, invited speakers from the EPOS-ERIC gave short presentations on current practices. The training session initiated positive discussions and as a result a new dedicated working group is established, composed of data managers from the Nordic countries responsible for national monitoring networks. This working group aims to coordinate and harmonize the activities related to data management and adoption of the FAIR principles following the EPOS experience across Nordic countries.

Outreach activities were planned for targeted events similar to the training activities. Therefore, the training and outreach activities are coordinated to be jointly held in the dedicated events for the target geographical areas and target thematic communities.

In 2020, following activities were conducted:

- EPOS presentations during the EGU (4-8 May 2020)
- EPOS presentations during the Nordic-EPOS Seminar | Nordic Seismology Seminar (Virtual meeting 30 Sept – 2 Oct 2020)
- ICS-C Demo presentations during the Nordic-EPOS Seminar | Nordic Seismology Seminar (Virtual meeting 30 Sept – 2 Oct 2020)
- Introductory video and training on EPOS ICS Data Portal during the ORFEUS | EPOS-SP | AdriaArray Workshop (Virtual meeting 2-9 November 2020)

Despite these difficulties, most of the planned activities in WP7 during the first nine months of the project, were successfully completed. A coordination meeting for the WP7 Partners were organized as a videoconference on 30 March 2020. In this meeting, feasibility of conducting the planned activities in 2020 considering the COVID-19 restrictions were discussed. Several strategic decisions were made, such as preparation of digital material for training, planning for virtual meetings and workshops and joining the training and outreach activities in the planned events.

Detailed planning for the for 2020 and 2022 resulted in a comprehensive list of activities and events given in Annex 3. In the following table (Table 2), list of activities conducted in 2020 are shown.

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Table 2. *List of training and outreach activities conducted in 2020.*

Event start time	Action/Event	Relevant Projects
20200601	Development of **tutorial**s on DMP and FAIR principles	Nordic-EPOS; ENVRI-FAIR
20200301	Development of **tutorials, user guidelines and manuals** on EPOS- ICS-C Portal	EPOS-ERIC; EPOS-SP; ENVRI-FAIR
20200301	Development of **user guidelines and manuals** on EPOS-N Portal	EPOS-N
20200301	Development of **trainning courses** for EPOS ICS-C	EPOS-ERIC; EPOS-SP
20200301	Development of **training videos** for EPOS ICS-C	EPOS-ERIC; EPOS-SP
20200301	Development of a **video-database** for EPOS	EPOS-ERIC; EPOS-SP
20200504	**Dissemination** activities at EGU-2020	EPOS-SP; EPOS-N
20200930	**Virtual training session**s in data quality, archiving and curation, and DMP	Nordic-EPOS; ENVRI-FAIR
20200930	**Training session**s in implementation of FAIR principles and metadata standardization and harmonization	Nordic-EPOS; ENVRI-FAIR
20200930	Development of **guidelines** for seismic waveform distribution node (EIDA-node) within EPOS Seismology	EPOS-N; Nordic-EPOS
20201102	AdriaArray International **Workshop**	EPOS-ERIC; EPOS-SP

National training and outreach activities

In the following, training and outreach activities from the partner organizations are summarized.

ZRC-SAZU – Slovenia

On 13 July 2020 at Karst Research Institute ZRC SAZU (Postojna, Slovenia) arranged a workshop on RI-SI-EPOS regarding the use of research infrastructure (RI), purpose of RI, evidence of the use of RI, project citations, publications etc., and attended by 18 participants (https://izrk.zrc-sazu.si/en/programi-in-projekti/ri-si-epos#v).

Partners of Slovenian national consortium EPOS-SI and ZRC SAZU as leading institution are taking part in the project "Development of research infrastructures for the international competitiveness of the Slovenian RRI SPACE – RI-SI-EPOS". The operation is co-financed by the Republic of Slovenia, the Ministry of Education, Science and Sport and the European Union from the European Regional Development Fund. Within this

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project the «possible future» NFO (Near Fault Observatory, EPOS TCS 9) site in SW Slovenia was equipped with portable seismic stations (https://izrk.zrc-sazu.si/sites/default/files/prenosne_potresne_opazovalnice_a3_format.pdf), which have been installed in spring-summer 2020.

Preliminary studies of possible future NFO (Near Fault Observatory, EPOS TCS 9) site in SW Slovenia were presented at EGU april 2020 virtual meeting (egu2020-4657-print.pdf).

INCDFP – Romania

As a participant of the WP7 - Outreach and Training, the National Institute for Earth Physics (Institutul National de Cercetare Dezvoltare pentru Fizica Pamantului – INCDFP RA) is responsible for Task 7.2 - Outreach on operation of EPOS services for Adriatic-Balkans-Dinarides region. Unfortunately, due to the ongoing Covid-19 pandemic many of the scheduled events were cancelled or postponed. Being in accordance with the social distancing norms and taking into account the various circumstances of some participants, we were forced to organize these events exclusively online. In line with this, INCDFP organized two important events in November 2020.

The first event was the 5th edition of the GEOSCIENCE International Symposium, hosted by Romanian Society of Applied Geophysics and co-organized by INCDFP, in November 20-21 2020 in Bucharest, Romania. The Symposium offered a wide range of topics and invites contributions in various research areas, with the clear intention of providing the geoscientific community with the opportunity to share scientific knowledge and expertise, as well as to discuss the newest trends in the field of applied or theoretical geoscience.
The importance of EPOS to research in Solid Earth Science was promoted at GEOSCIENCE 2020 International Symposium, with the paper entitled “Romania continues the partnership in the new stage of EPOS-ERIC project (Sustainability Phase)”. The paper was presented in the ‘Networks and Open Data in Seismology’ session, and the extended paper will be published in the Proceedings Volume of the GEOSCIENCE International Symposium. The presentation provided a general background of EPOS activities, architecture, governance model, and services implemented (Thematic Core Services). In addition, presentation of the Romanian institutions participating in EPOS, as well as Romanian infrastructures integrated in the project were given. The target groups for this event was students, young researchers, scientists, as well as industry users and private sector representatives.

The European Researchers’ Night, was another event co-organized by INCDFP on 27 of November. The importance of EPOS to research in Solid Earth Science was promoted by Thematic Core Services. This is a large-scale event that promotes scientific research to all audience, such as universities, research institutes, teachers, students and general public. INCDFP aims to attract young people to research, and to inform a large audience on EPOS infrastructure, services and its impact on research community and society, by organizing short trainings, lectures and debates. During the preparation period, INCDFP has collected information and contact details of relevant people/institutions, universities, local authorities, private companies from Romania and the specific countries of interest. The results of EPOS project were also promoted on INCDFP’ website and through our social media channels, such as Facebook and Twitter.
http://www.infp.ro/index.php?i=nws&id=23&news_title=INCDFP%20partener%20%C8%99i%20%C3%AEn%20noua%20etap%C4%83%20a%20proiectului%20european%20ESFRI%20%E2%80%93%20EPOS%20(Europe

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an%20Strategy%20Forum%20on%20Research%20Infrastructures%20-%20European%20Plate%20Observation%20System)&fbclid=IwAR2_RshEWaypbEqlv4KCjM3Z4qhonFjbMYm7XL7bHaiMuR215feIUJscWNM
https://www.facebook.com/INCDFP/photos/a.1676191785748023/3229868533713666/
https://twitter.com/incdfp/status/1255763893659602949

IG-PAS - Poland

During the reporting period, IG PAS team conducted the following activities:

- Training - on level II (Thematic use cases) TCS AH proposed following use cases:
  1. Basic discovery of the content including searching via ICS and browsing on TCS level Users are asked to search via ICS the Anthropogenic Hazard cases, then is redirected to TCS website to discover more details such as what kind of anthropogenic hazard poses danger in chosen area, how it is related to the industrial operations and what is spatial and temporal range of the hazard.
  2. Calculation of basic parameters related to anthropogenic seismicity such as event location, magnitude estimation, focal mechanism and general interpretation of the obtained parameters regarding the industrial operation background. (we can treat every calculation method as a separate use case)
  3. Calculation of seismic hazard related to time dependent industrial operations with emphasis on the difference between the stationary hazard and anthropogenic time-dependent one.
- Outreach - the possible course for PhD students and its form (usage of open platform graasp.eu) has been discussed internally in IG PAS. The IS-EPOS platform was used, during 15 hours long course "Introduction to Seismology" on PhD studies in IG PAS.
- Dissemination - production of dissemination materials (notebooks and paper folders).

2.2 Outcome and impact of the training and outreach events

As listed above in 2.1, several training and outreach events were conducted in 2020. Demonstration of the EPOS ICS Data Portal was conducted on several occasions with following impact:

1. **EGU 2020**
   Presentation followed by a demo of the portal by using a scientific use case was given in session Earth & Space Science Informatics (ESSI). Abstract is available here: https://meetingorganizer.copernicus.org/EGU2020/EGU2020-19050.html?pdf. The whole EGU was arranged as virtual meeting with very limited interactivity (public chat only) so it was difficult to receive feedback and interest from audience.
2. **The joint 2020 Nordic Seismology and Nordic EPOS Seminar, 30 September - 2 October 2020**
   Training video focused on introduction of the ICS Data Portal prepared by UIB was played back (https://www.youtube.com/watch?v=lV4hanuCwwM). Audience appreciated high quality of the video tutorial. Link to the public version of the portal was shared with participants. No immediate feedback was received on functionality of the portal. Possible presence of more datasets from the Nordic countries was discussed.
3. **AdriaArray Workshop, arranged by ORFEUS, Virtual meeting 2-9 November 2020**

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Introductory video was presented and training on EPOS ICS Data Portal was given. The four hour training session led by UIB team was split into three blocks: 1) Introduction of EPOS, 2) First training assignment by following simple scientific use case (75 min) and 3) Second training assignment by following advanced scientific use case (90 min). The first block contained general presentation of EPOS and its development since 2002 until present followed by introduction video (ca 6min) prepared by UIB. Both assignments in second and third block were provided to participants as Google Form documents with defined tasks to be followed and with questions to be answered. There were up to 46 participants following the training. Important and critical points learned and obtained from the participants are summarized below:

- From the first assignment where the basic search functionality of the ICS Data Portal was tested 97% acknowledged that the portal provides new approach for searching of data for research and 65% consider content of the services useful.
- Most of them also appreciated seing the two training videos (introduction and search functionality).
- The seconnd assignement contained 8 various scientific tasks. Most of them were completed succesfully but some partial steps were difficult to complete due to technical problems at ICS side:
    - Despite all the tasks were sucessfully tested the day before the training session, having multiple users accessing the portal at the same time caused problems.
    - There was 408 error (= Request Timeout; an HTTP status code that is returned to the client when a request to the server takes longer than the server's allocated timeout window) shown in console log which was probably caused by the converter component which couldn't manage to process quickly enough multiple simultaneous requests. This problem was first observed already at Task 1 but mostly at Task 2 when users were trying to access catalog of earthquakes.
    - This issue was recorded into the public ICS issue tracker and is being followed.
    - Trying to resolve the error during the session caused delays and frustration among participants. It also changed the course of the training and there were more interventions from the side of organizers then planned.
    - Testing of the system by dedicated group of people (large enough) should be done before other training arrangements.
- Despite technical difficulties, 86% of participants considered the training very useful.
- The participants consider the portal mostly easy to understand (84%), are satisfied with the general functionalities (70%) and most of them think to use the portal again in the future (86%). See full report about the training in Annex 1 for more details.

3. Dissemination and communication activities

The task 7.3 is in charge to ensure an effective communication and dissemination activities of the EPOS SP project, following the strategy described in the EPOS RI Communication Plan and also evaluating the success of the communication activities adopted. In order to manage, improve and maximise the impact throughout the project's lifetime both qualitative and quantitative data (statistics) were gathered, defining the metrics to measure and monitor the impact of EPOS SP's communication, outreach, and dissemination activities. Measuring the impact of communication activities is in general difficult because it is short-lived and there is often a significant delay before any apparent effect. Nevertheless, new methods and processes are being constantly developed and utilised. EPOS has defined realistic objectives for communication activities (see the KPI list in Table 3). Detailed statistics obtained for various dissemination

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activities (web-pages, twitter, facebook, etc.,) are described and analysed with comparisons of data, statistics about pageviews, follower count, shares, likes, clicks, retweets, reaches, and audience demographics, etc. A thorough analysis of these statistics allows to investigate the Task 7.3 measures and the effectiveness of the tools adopted, information on how the activities are performing, who's the EPOS audience, and how they behave. Furthermore, it provides opportunities to mitigate the possible weaknesses, by adopting dynamically targeted actions.

The details of the statistics obtained by using various digital platforms from Facebook insights, Twitter analytics, Google Analytics, MailChimp, etc., are shown in Annex 4.

Main activities planned in 2020 were:

- Participation in International Conferences in Earth Science, such the EGU, AGU, IUGG, IASPEI, IAVCEI, ESC etc.
    - dedicated stands for EPOS, videos, short lectures, presentations, etc.
- New web-pages developed for EPOS-ERIC/EPOS-SP.
- Visibility of the EPOS Integrated Core Services (ICS) for the various stakeholders will be a special focus within the dissemination activities.
- A detailed description of the EPOS dissemination and communication activities can be found in the Deliverable 7.4.

3.1 Dissemination and communication activities

During the first half of 2020, EPOS communication plan was developed. Recommendations from this were used in Deliverable *D7.4 Dissemination and Communication Strategy*, which was completed at M3 of the project.

EPOS SP project use the EPOS web-pages and the social media accounts promoting its goals, with messages tailored to its target audience. The prioritized social media platforms created since the beginning of the EPOS infrastructure are: Twitter @EPOSeu, Facebook, YouTube and LinkedIn.

During the first 3 months after the project start, individual key performance indicators (KPIs) for WP7 were identified (see Table 3). A dedicated video database (EPOS-VIDA) is developed including all EPOS related videos with relevant links. There are currently 26 EPOS related videos in EPOS-VIDA (see https://docs.google.com/spreadsheets/d/1esmqG2a5nf9STBsZmhl0VeqkTSYfokQOszAOgAnN-JU/edit#gid=0). In addition, a dedicated dissemination list is being prepared and all related dissemination activities are collected in this list (see Milestone MS86).

Some of the planned dissemination and communication activities were affected by the COVID-19 restrictions. During the European Geosciences Union (EGU) annual conference (4-8 May 2020), the original plan was to have a dedicated EPOS stand where dissemination materials would be made available, short demo sessions would be arranged for the EPOS ICS Portal as well as TCS related show cases would be presented. This could not be realized because the entire EGU in 2020 was arranged as a virtual conference. Despite this, there were several EPOS related presentations and several participants have joined the discussions representing the EPOS interests.

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The official EPOS web-pages are currently under construction. EPOS website is re-designed in a new, modern and effective way, with specific pages dedicated to the EPOS-SP project which provides relevant information about the Work Plan, the Beneficiaries, and its goals and benefits. It will be published within June 2021. Furthermore, a dedicated intranet system was implemented and various templates for documents, presentations, deliverables, reports were prepared and being used.

3.2 Outcome and impact of the dissemination and communication activities

EPOS communication spaces are shown in Figure 2. In this figure the need for a wide spectrum of communication activities both internal and external is obvious. Most of the internal communication activities involve both communication within the EPOS-SP project work packages and among the project partners. However, there is need to establish good communication lines also with the EPOS-ERIC structures, including both the Thematic Core Services (TCS) and Integrated Core Services (ICS), as well as the governing bodies of EPOS-ERIC. These internal communications are handled by the establishment of the joint intranet space where both EPOS-ERIC and EPOS-SP activities are included.

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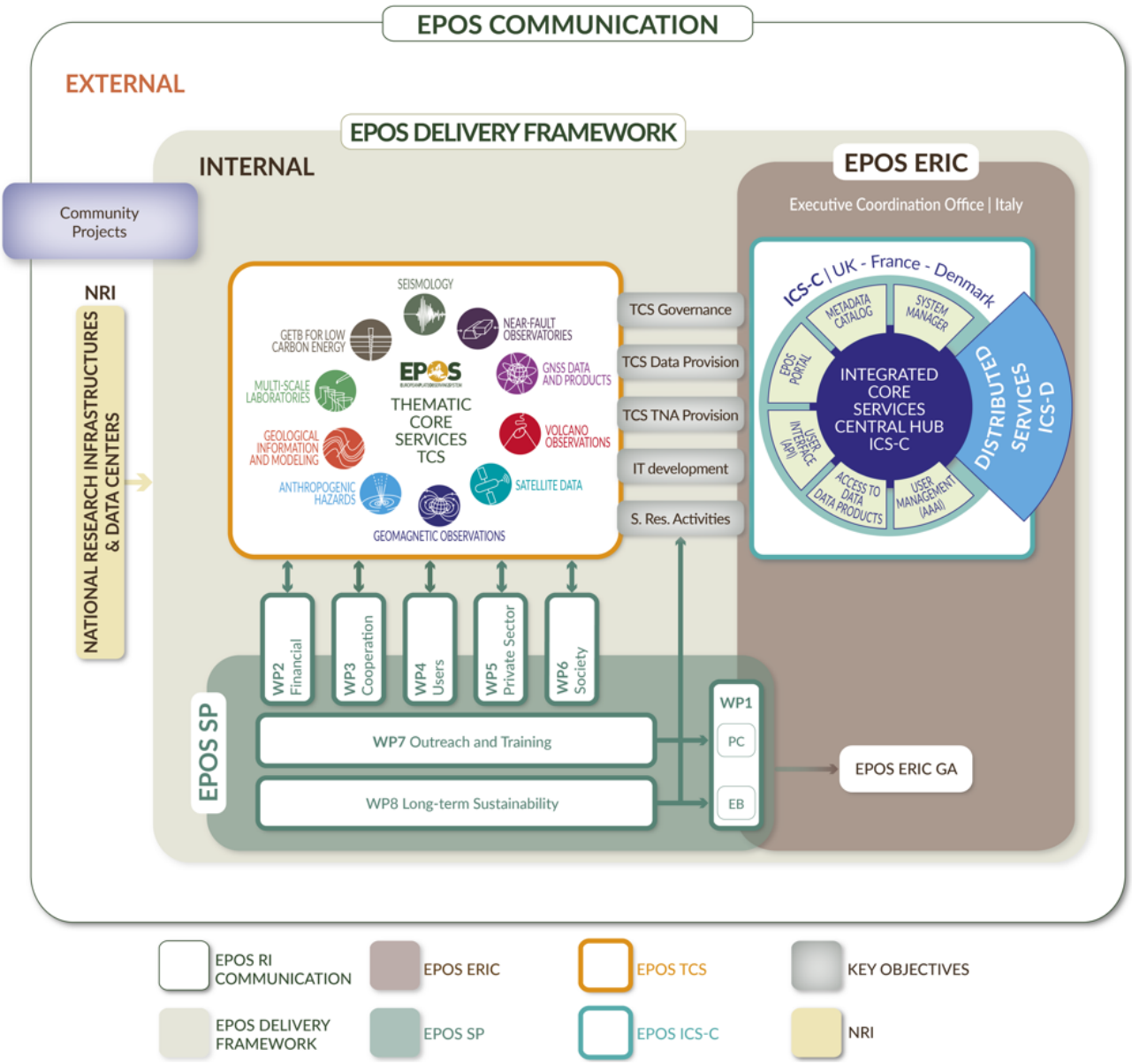

Figure 2. *EPOS communication spaces (adopted from D7.4).*

The adopted intranet solution allows having dedicated internal groups for the various work packages (WPs) and governing bodies of EPOS-SP project, as well as the EPOS-ERIC bodies and activities. Access to these different sub-groups is organized by localized access to some of the internal bodies to members only. In addition, by having a shared document repository, a wider transparency is secured where individual sub-groups share information within each group but also have the possibility to share with the entire intranet user community.

Interest and influence of various stakeholders in EPOS are shown in Figure 3. Active interest and influence are primarily associated with the solid Earth science community data providers, data users and students, together with solid Earth science community projects and organizations. On the other hand, several government and funding agencies, the European Commission, ESFRI and EOSC programmes are also showing active interest in EPOS and influence EPOS.

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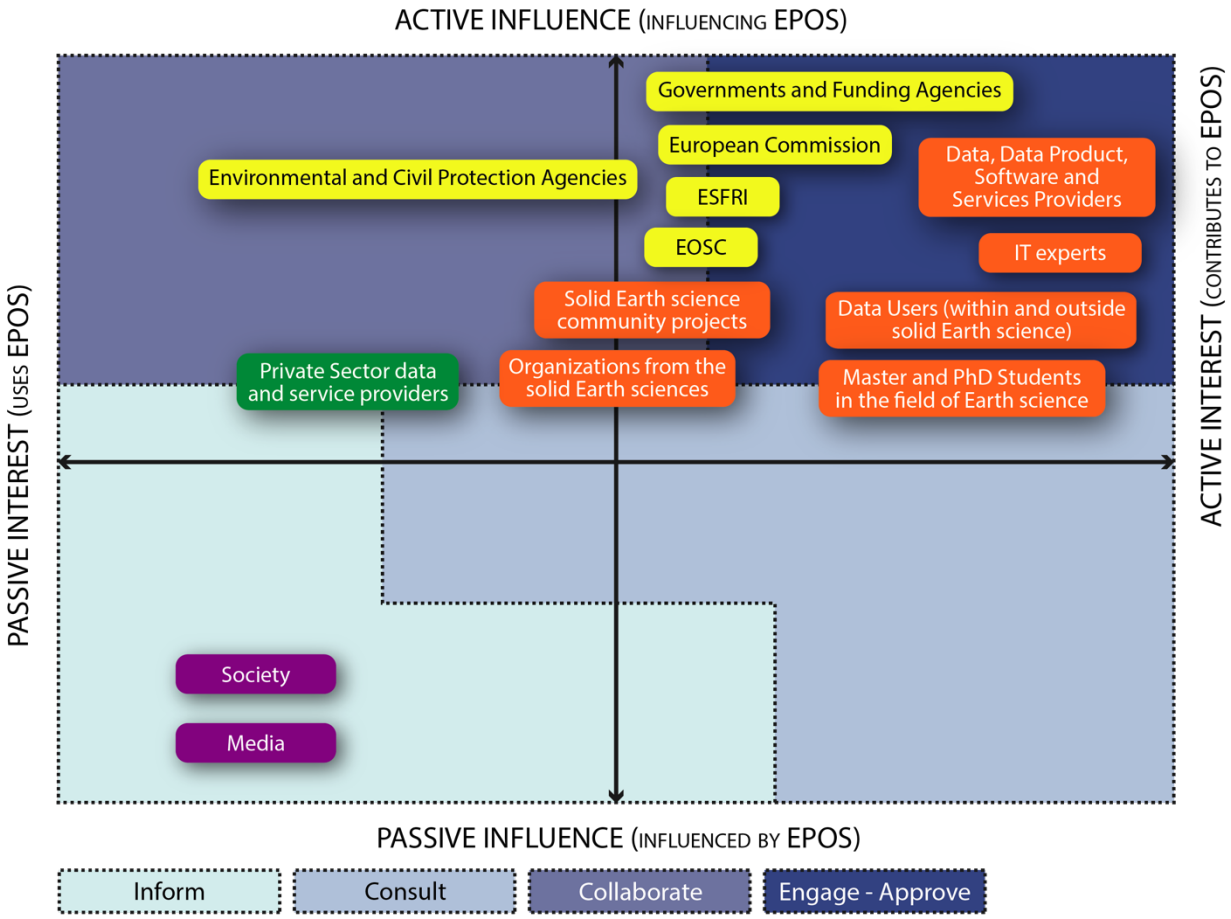

Figure 3. *Diagram showing the state of stakeholders in a matrix of their interest in EPOS or their influence of EPOS (adopted from D7.4).*

Currently, society at large and media are considered to have passive interest and influence. Private sector data and service providers on the other hand, may actively influence EPOS, while having a passive interest. This complex picture therefore requires a set of communication activities that are tailored to address the stakeholders. In the diagram, the different communication strategies for the various groups of stakeholders, including information distribution, consultation, collaboration and engagement and approval, are indicated.

A document with a detailed plan of actions has been created to decide all meaningful actions to be carried out during the period 2021-2022 by the WP7, in synergy and collaboration with the EPOS ERIC RI communication office, and all EPOS communities. The document systematically identify, if there are some actions missing and in what time horizon should they be carried out, highlighting the stakeholder groups, the different goals we expect to reach from each action, their urgencies, timeline, and the corresponding responsibilities.

Main outcomes of the statistical analysis of the web-pages and social media accounts (Twitter, Facebook, LinkedIn) are given in Annex 4 (see the following link for details: https://docs.google.com/document/d/16fwurYKQMPiS_iGwEo5CZ6UqazW3ZY29/edit#).

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4. Concluding remarks

In general, during the first year of the EPOS-SP project, impact and the outcomes of the training and outreach activities has been satisfactory based on the number of participants on each event as well as the feedback received. The dissemination activities related to participation in larger scientific events and promoting EPOS has been challenging mainly due to the cancellation or postponement of conferences (e.g. European Seismological Commission General Assembly – ESC-2020), or conferences held virtual (e.g. European Geosciences Union, EGU-2020), enforced by the COVID-19 restrictions.

Key performance indicators (KPI) for WP7 activities and events were identified in the beginning of 2020. The current status of the KPIs achieved is summarized in the table below (Table 3).

Table 3. *Key Performance Indicators for Work Package 7 and status at month 9 of the project.*

KPI n.	Description	Objective (Target)	Purpose	Means of verification	M9	Corrective Actions
7.1	Training: Number of training sessions	3	Contributing to the usage of the EPOS contents / services / Engaging stakeholders	Training plan	3	Virtual event
7.2	Training: Number of industrial users involved in trainings	3	Contributing to the usage of the EPOS contents / services / Engaging stakeholders	Participant lists	4	Virtual event
7.3	Training: Number of researchers involved in trainings	40	Contributing to the usage of the EPOS contents / services / Engaging stakeholders	Participant lists	107	Virtual event
7.4	Training: Number of early career scientists and students involved in trainings	30	Contributing to the usage of the EPOS contents / services / Engaging stakeholders	Participant lists	30	Virtual event
7.5	Training: Number of questionnaires submitted (within six months after the training)	50	Contributing to the usage of the EPOS contents / services / Engaging stakeholders	Questionnaire	41	Virtual event
7.6	Training: Number of views of each training video	30	Maximize dissemination of EPOS results	Analytics	190	Virtual event
7.7	Training: Number of tutorial documents opened/downloaded	30	Maximize dissemination of EPOS results	Analytics	NA	
7.8	Outreach: Number of outreach events	3	Maximize dissemination of EPOS results	report	4	Virtual event
7.9	Outreach: Number of industrial users attending the events	15	Maximize dissemination of EPOS results	Participant lists	4	Virtual event
7.10	Outreach: Number of researchers attending the events	300	Maximize dissemination of EPOS results	Participant lists	107	Virtual event
7.11	Outreach: Number of early career scientists and students attending the events	100	Maximize dissemination of EPOS results	Participant lists	30	Virtual event

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7.12	Outreach: Number of government Officials attending the events	20	Maximize dissemination of EPOS results	Participant lists	NA	Virtual event
7.13	Outreach: Number of participants from the targeted regions	100	Maximize dissemination of EPOS results	Participant lists	38	Virtual event
7.14	Outreach: Number of participants from existing thematic groups	100	Maximize dissemination of EPOS results	Participant lists	107	Virtual event
7.15	Outreach: Number of participants from new thematic groups	40	Maximize dissemination of EPOS results	Participant lists	NA	
7.16	Outreach: Number of outreach materials	7	Maximize EPOS communication and dissemination of results	Report on Dissemination and communication materials	3	
7.16.1	Number of Brochure (per year/ per target audiece)	1	Maximize EPOS communication and dissemination of results	Report on Dissemination and communication materials	NA	
7.16.2	Number of Flyers (per year)	4	Maximize EPOS communication and dissemination of results	Report on Dissemination and communication materials	1	
7.16.3	Number of leaflet/posters (each event)	2	Maximize EPOS communication and dissemination of results	Report on Dissemination and communication materials	2	
7.17	EPOS website -percentage of unique new visitors of 10 most visited pages (per year)	40%	Maximize EPOS communication and dissemination of results	google analytics/report of dissemination & communication - qualitative analysis	88%	
7.18	D&C: SP website pages - number of views/unique new visitors (monthly avg)	20	Maximize EPOS communication and dissemination of results	Analytics	1310/866	
7.19	Social media - Twitter - Number of SP tweets (monthly average)	8	Maximize EPOS communication and dissemination of results	twitter stats/Analytics	12 in tot, 1,333 monthly avg)	
7.20	Social media - Twitter - Number of impressions of SP tweets / qualitative analysis of new followers /	high /expected/ Low	Maximize EPOS communication and dissemination of results	twitter stats/Analytics	low	
7.21	social media - Facebook SP - number of posts related to SP (monthly average)	8	Maximize EPOS communication and dissemination of results	google analytics	3	
7.22	social media - LinkedIn SP - number of posts related to SP	8	Maximize EPOS communication and dissemination of results	google analytics	0	
7.23	social media - Youtube SP - number of videos created by SP (webinars- tutorial- e-learning, trainings- use cases - interviews))	10	Maximize EPOS communication and dissemination of results	report on Dissemination and communication materials	2	

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7.24	Number of visualisations of SP videos on YouTube	100	Maximize EPOS communication and dissemination of results	google Analytics	0	
7.25	Newsletter - Number of SP articles (per year)	8	Maximize EPOS communication and dissemination of results	mailChimp statatistics	0	
7.26	Number of Scientific publications linked to EPOS SP project	2	Maximize EPOS communication and dissemination of results	Publications suggested by OpenAIRE / EU portal, continuos reporting	2	

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Annex 1 – AdriaArray Workshop

THE EPOS SP PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT N° 871121

Project Number: 871121

Project Acronym: EPOS SP

Project title: European Plate Observing System Sustainability Phase

Report on EPOS ICS Data Portal training during AdriaArray Workshop 2020

2 November 2020

Task 7.1 Training on EPOS usage

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Table of content

Summary

The training on EPOS ICS Data Portal usage during the AdriaArray Workshop was planned activity within Tasks 7.1 and 7.2 in EPOS-SP project (see table below). The AdriaArray Workshop was initially planned for May 2020 (Sopron, Hungary) but due to COVID-19 pandemic and travel restrictions the workshop was postponed to 2-6 November 2020. The EPOS ICS Data Portal usage arranged as a virtual training was placed in the first day of the workshop 2 November as one session in time slot 13:30-17:30. There was 238 registered participants for the whole AdriaArray workshop and 46 participants joined the EPOS training session.

The training session on EPOS was split into three blocks: 1) Introduction of EPOS, 2) First training assignment by following simple scientific use case (75 min) and 3) Second training assignment by following advanced scientific use case (90 min). The first block contained general presentation of EPOS and its development since 2002 until present followed by introduction video (ca 6min) prepared by UIB. Both assignments in second and third block were provided to participants as Google Form documents with defined tasks to be followed and with questions to be answered.

The STAGING environment of EPOS ICS Data portal was used during the training (https://epos-ics-c-staging.brgm-rec.fr/data/search) instead of the PRODUCTION version (https://www.ics-c.epos-eu.org/) due to more advanced features implemented there (graph view, table view) and also due to the most recently updated metadata about services.

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*Table **Errore. Per applicare Caption al testo da visualizzare in questo punto, utilizzare la scheda Home.**.1. Time-table of the planned activities in WP7. EPOS ICS Data Portal training is related to activities in red frame.*

WP7	Year 1												Year 2												Year 3											
Task/Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Task 7.1	Preparation						1st training workshop						Preparation						2nd training workshop						Preparation						3rd training workshop					
Task 7.2	Preparation						1st event (fous on Balkan region)						2nd event (focus on Baltic region)						Preparation						3rd event (focus on OBS/Tsunami)						4th event (focus on Earthq. Eng.)					
Task 7.3	Int.Conf.& Events						Int.Conf.& Events						Int.Conf.& Events						Int.Conf.& Events						Int.Conf.& Events						Int.Conf.& Events					

List of participants

There were 46 participants attending the EPOS ICS Data Portal virtual training (40 also registered in AdriaArray workshop – table below).

Name Surname	Affiliation	Country
Andrej Gosar	Slovenian Environment Agency, Seismology Office	Slovenia
Antje Schlömer	LMU Munich	Germany
Carlo Cauzzi	ORFEUS & SED@ETHZ	Switzerland
Constantin Ionescu	National Institute for Earth Physics	Romania
Damiano Pesaresi	OGS	Italy
Dejan Valčić	Seismological survey of Serbia	Serbia
Didem Cambaz	KOERI	Turkey
Dino Bindi	GFZ-Potsdam	Germany
Felix Borleanu	National Institute for Earth Physics, Romania	Romania
George Kaviris	National and Kapodistrian University of Athens	Greece
Gergana Georgieva	Sofia University "Sv. Kliment Ohridski"	Bulgaria
Giuliana Rossi	OGS National Institute of Oceanography and Applied Geophysics	Italy
Hana	Kampshova	Czech Republic
Helga K.S. Indrøy	University of Bergen	Norway
Istvan Bondar	CSFK	Hungary
Jadranka Mihaljevic	Institute of Hydrometeorology and Seismology of Montenegro	Montenegro
Jan Michalek	University of Bergen	Norway
Jarek Bienkowski	KNMI	Netherlands
Jiří Vackář	Ústav struktury a mechaniky hornin, AVČR	Czech Republic
Jordi Diaz	Geo3bcn - CSIC (formely, ICTJA-CSIC)	Spain
Lucia Fojtikova	Earth Science Institute of the Slovak Academy of Sciences	Slovakia
Luděk Vecsey	Institute of Geophysics, Czech Academy of Sciences, Prague	Czech Republic
Lyuba Dimova	Sofia University "St. Kliment Ohridski"	Bulgaria

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Maria Infantino	Electricité de France	France
Marta Stojmanovska	UKIM-IZIIS	North Macedonia
Martin Möllhoff	DIAS (Dublin Institute for Advanced Studies)	Ireland
Martina Čarman	ARSO, Slovenian Environment Agency	Slovenia
Matthew Agius	L-Università ta' Malta	Malta
Mladen Živčić	ARSO, Ljubljana, Slovenia	Slovenia
Monika Bociarska	Institute of Geophysics Polish Academy of Sciences	Poland
Navid Kheirdast	International Institute of earthquake engineering and seismology (IIEES)	Iran
Piotr Środa	Institute of Geophysics, Polish Academy of Sciences	Poland
Renata Lukesova	IRSM CAS CZ	Czech Republic
Reneta Raykova	Sofia University, Faculty of Physics	Bulgaria
Roberto Davoli	University of Granada	Spain
Stanka Šebela	ZRC SAZU	Slovenia
Susana Custodio	FCUL	Portugal
Vasilis Kapetanidis	National and Kapodistrian University of Athens	Greece
Vladimír Plicka	Univerzita Karlova, MFF	Czech Republic
Yongki Andita Aiman	IMGW University of Vienna	Austria

Participation fluctuations:
43 – 13:30
44 – 13:38
46 – 14:20
41 – 15:04
42 – 15:51
35 – 17:26
32 – 17:37

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Program of the training

EPOS-SP AdriaArray Workshop Program

Virtual training session on ICS-C Data Portal

Monday, 2 November 2020 at 13:30 - 17:30 (CET)

Time	Title	Description
13:30 – 13:45	Welcome and Introduction	Include a plan for the entire afternoon and practical information
13:45 – 14:00	Introduction to EPOS	General introduction to EPOS-ERIC and ICS
14:00 – 14:15	Introduction video	Watch this in plenum
14:15 – 14:30	Explaining 1st assignment	Explain the 1st assignment on using the "search video" and executing the assigned tasks, general questions and discussion
14:30 – 14:45	**Coffee break**	
14:45 – 15:30	Executing 1st assignment	Execute the 1st assignment on using the "search video" for conducting the assigned tasks, general questions and discussion
15:30 – 15:45	Feedback collection	Participants give feedback on their execution of the 1st assignment through a simple questionnaire
15:45 – 16:00	Explaining 2nd assignment	Explain the 2nd assignment on using the ICS-C system and executing the assigned tasks, general questions and discussion
16:00 – 16:15	**Coffee break**	
16:15 – 17:00	Executing 2nd assignment	Execute the 2nd assignment on using the ICS-C system for conducting the assigned tasks, general questions and discussion
17:00 – 17:15	Feedback collection	Participants give feedback on their execution of the 2nd assignment through a simple questionnaire
17:15 – 17:30	Open discussion and closure	General discussions, feedback, wish list for the next training

Training content

The training was arranged in three blocks. The first block was general introduction of EPOS in presentation (Kuvvet Atakan) and followed by introduction video (ca 6 min; https://youtu.be/h5t3OPNNmW0) watched in plenum.

In the second block a link to SEARCH video (16 min; https://youtu.be/M5im1tz0HKM) was given to participants to be watched individually. At the same time explanation of the first assignment was given (https://forms.gle/gSKxEygdaSYhx1To8). Participants then followed the assignment on their own with remote assistance from UIB Team when needed. After the assignment a quick evaluation of collected feedback was given. There were 32 responses received from the first assignment.

The third block was dedicated to more advanced second assignment (https://forms.gle/FuXhTBRTMDoDjEyBA) where participants were following scientific use case and completing eight tasks from various scientific domains. There were 14 responses received from the second assignment even though there were 35 participants present at the end of the training

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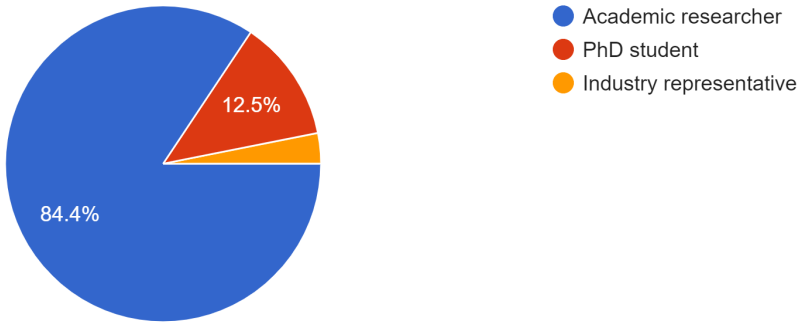
session. During execution of the second assignment we encountered technical issues while navigating through the ICS Data Portal. Those issues are described after the second assignment.

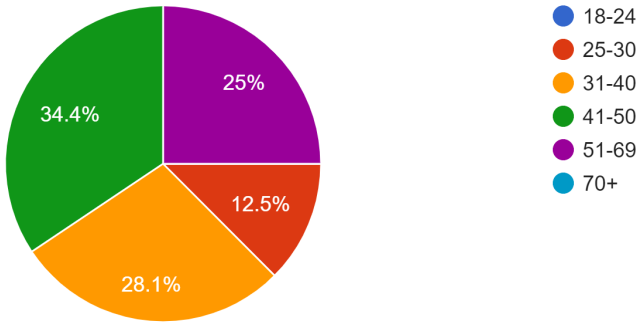
Details of the assignments, received remarks and collected feedback are described in individual sections below.

Audience

Who are you?
32 responses



How old are you?
32 responses



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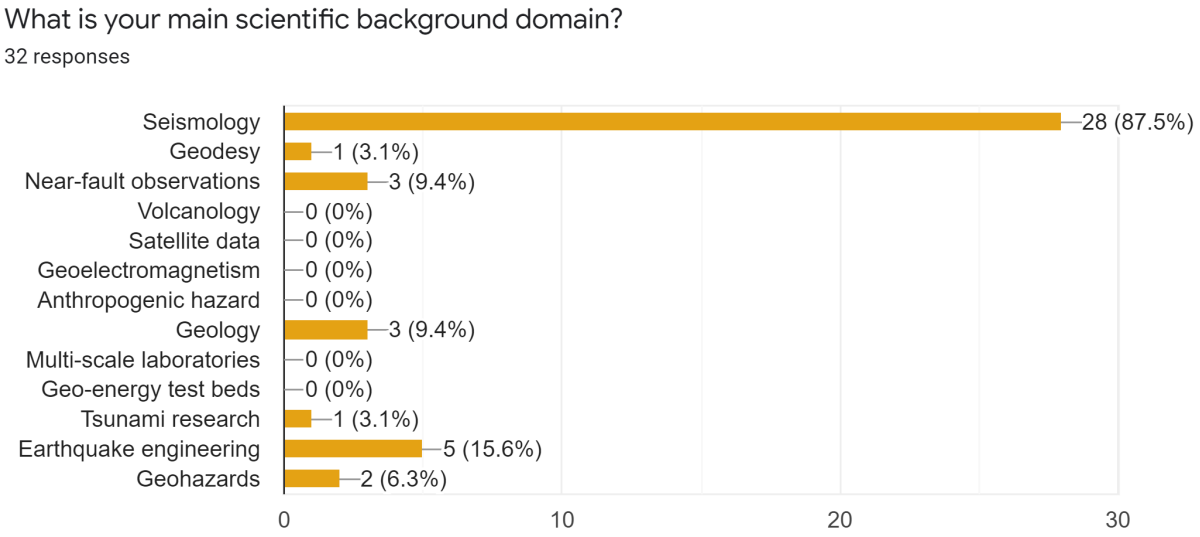

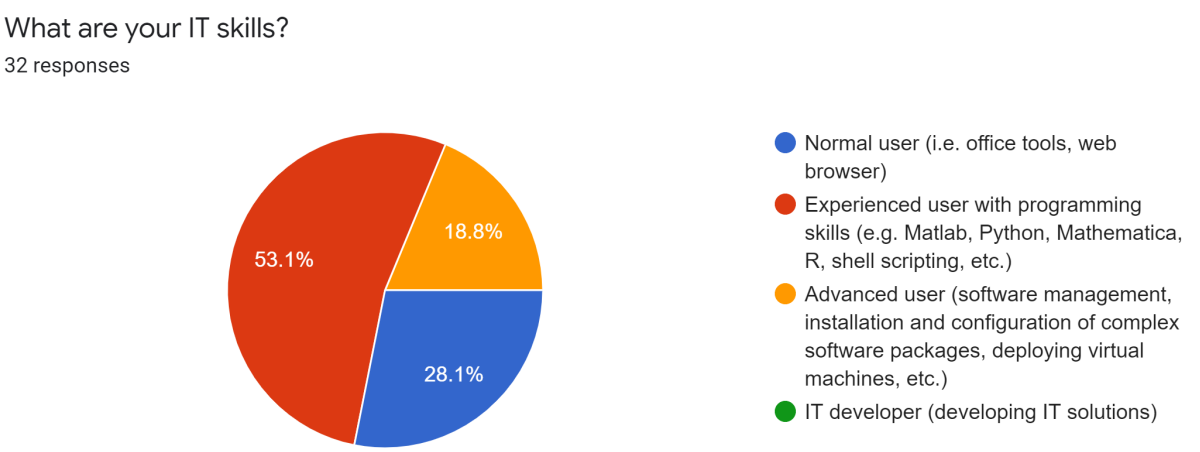

Assignments

First assignment (75 min)

There was a mistake in the Google Form which resulted in duplication of the second option. The red and orange areas should be counted as one, i.e. 30.8% selected the second option.

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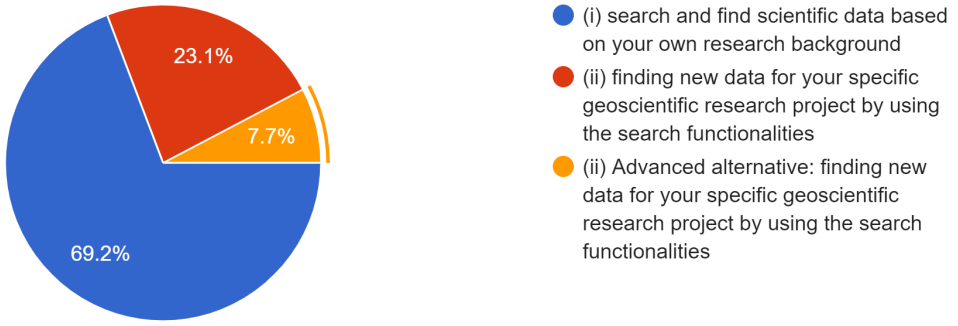
Two alternative exercises can be conducted in EPOS ICS-C Data Portal during the first assignment. Please select one of the choices below.

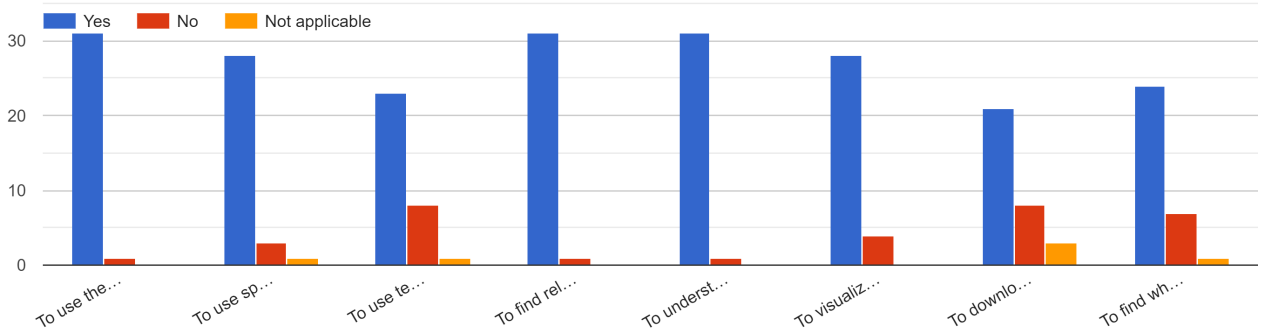
13 responses



Based on your selection above, please enter the EPOS ICS-C Data Portal, try to find data of your interest and answer the questions below. Use Chrome web browser if possible.
After your visit and search at EPOS Data Portal, did you manage:

1. To use the filter tools efficiently?
2. To use spatial filter during your search?
3. To use temporal filter during your search?
4. To find relevant services?
5. To understand what are the services about (from description)?
6. To visualize content of services?
7. To download the dataset?
8. To find what you were looking for?

After your visit and search at EPOS Data Portal, did you manage:



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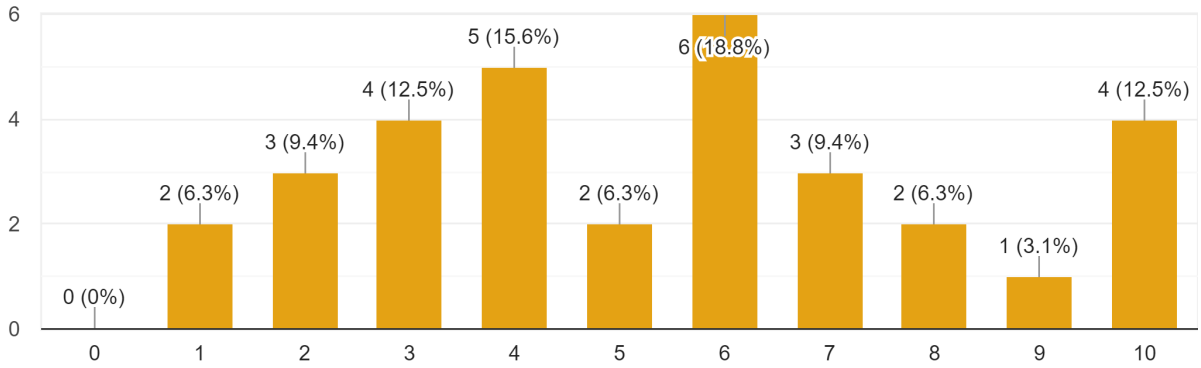
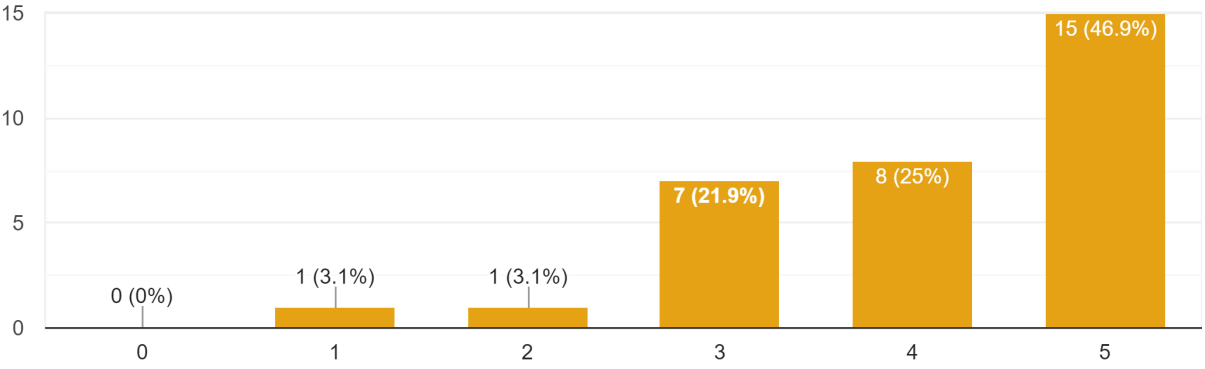
How many useful services did you find?

32 responses



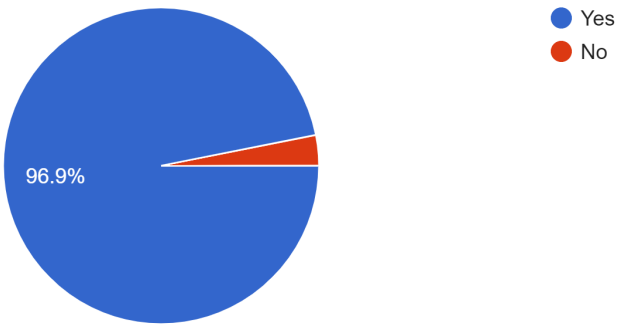
Do you consider the EPOS Data Portal useful for searching scientific data?

32 responses



Does the EPOS Data Portal provide new approach for searching of data for your research?

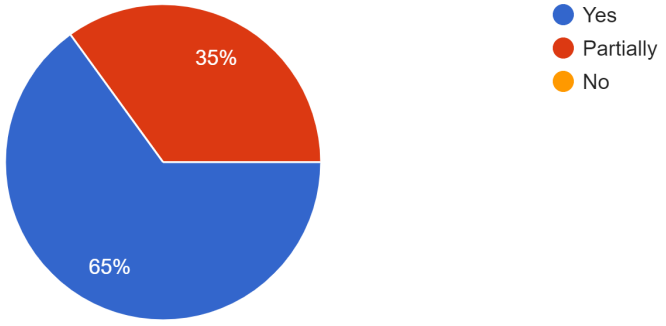
32 responses



The EPOS SP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 871121

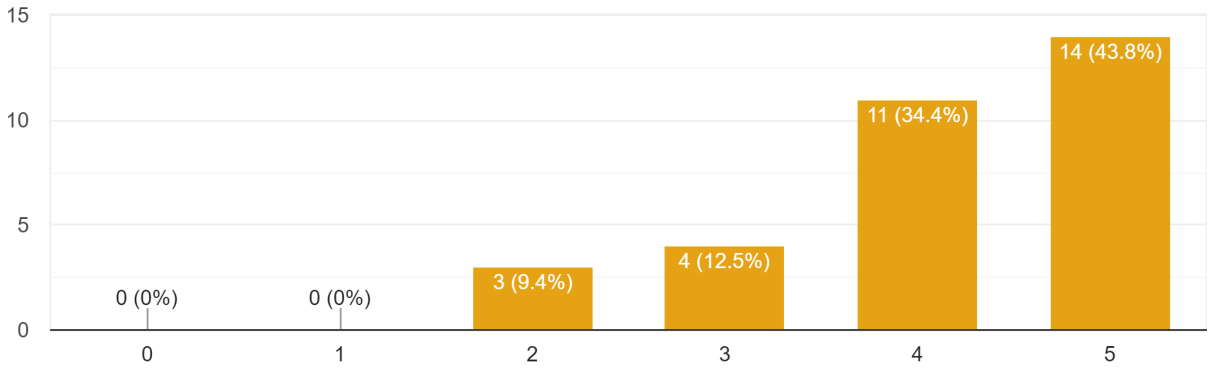
Did you find the content provided by the services useful?

20 responses



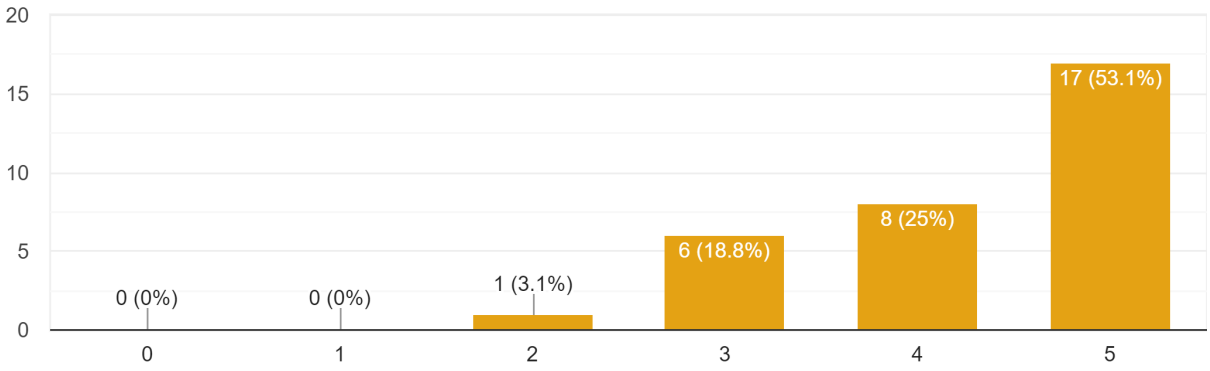
Did you find the background information given in the 'INTRODUCTION' video useful?

32 responses



Did you find the 'SEARCH' video useful?

32 responses



Comments on training videos:

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- I have seen it for the first time. I think just need to practice more and the portal will be useful for me.
- I could not see on the map the moment tensor solutions (maybe it is not possible) only a red star, and once I clink on it, I could not slide the window describing it, so that I could not understand whether the information was in or not. The same for the GNSS velocities, some error message appeared .... Probably it is only matter of exercise.

Second assignment (90 min)

Advanced exercise by using scientific data from a Near Fault Observatory (NFO) in Italy.

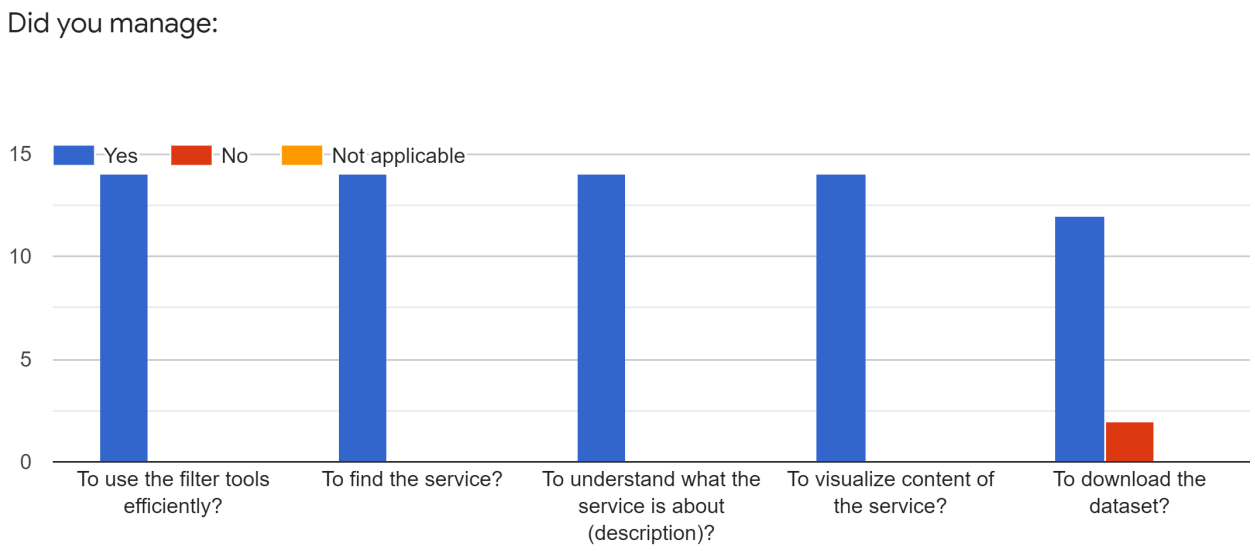
As a researcher, you are investigating a major fault zone that is monitored by a range of scientific instruments, including seismic, geodetic and geochemical stations. Your main goal is to find transient signals that may be related to the activity of the fault. Below, we provide you with some basic tasks that will help you to explore the EPOS ICS Data Portal.
We suggest that you focus on the Alto Tiberina near-fault observatory (TABOO - central Italy).
Link to portal: https://epos-ics-c-staging.brgm-rec.fr/data/search

For each task we asked 5 questions which were repeated under each task.
Did you managed:

1. *To use the filter tools efficiently?*
2. *To find the service?*
3. *To understand what the service is about (description)?*
4. *To visualize content of the service?*
5. *To download the dataset?*

For some tasks we included additional questions.

Task 1: Find and display seismogenic faults in Italy. Pin the service into your list of selected items.



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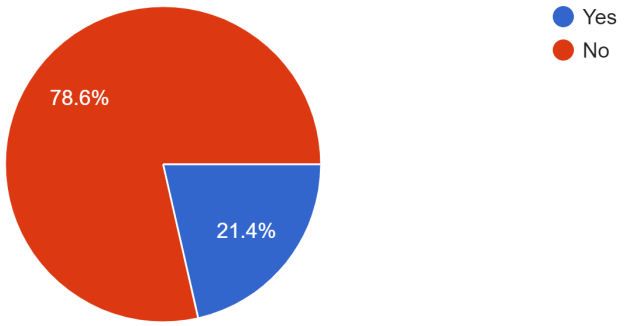
Comments on task 1

- I was receiving the following error first... after a while I retried and the faults showed up without errors. I also downloaded them in kml.
- ERROR17:11:22GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=Seismology/EDSF/Distribution/WFS_CrustalFaults&format=application%2Fepos.geo%2Bjson&params=%7B%22maxlatitude%22%3A%2252%22%2C%22srsName%22%3A%22EPSG%3A4326%22%2C%22minlatitude%22%3A%2230.303092956543%22%2C%22request%22%3A%22getFeature%22%2C%22version%22%3A%222.0.0%22%2C%22outputFormat%22%3A%22json%22%2C%22service%22%3A%22WFS%22%2C%22typeNames%22%3A%22EDSF%3Acrustal_fault_sources_top%22%2C%22minlongitude%22%3A%22-12.3925075531006%22%2C%22maxlongitude%22%3A%2245.2800407409668%22%7D
- I did not used the hint. I was just lucky. I had tried and it worked
- version 'OGC WMS' didn't show any faults
- I tried to download different services in different formats without success. Altought it was ok for the next tasks.

Hint to task 1
Open 'Advanced search' and type 'fault' into the search box, 'Apply'. Navigate to Seismology and select 'European Database of Seismogenic Faults - Crustal Faults (OGC WFS)' service.

Did you use the hint?
14 responses



Task 2: Find, display and add recent earthquakes to your list of selected services.

Note: There was problem with the 'TABOO Events' service and not all managed to complete all questions in this task. In such case they were selecting the last option from the available answers.

How many earthquakes M>2 were located around TABOO observatory (43°-44°N, 11.9°-13°E) between 2010 and 2016?
14 responses

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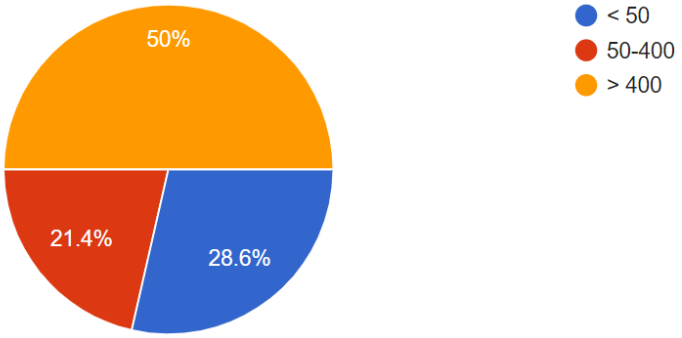
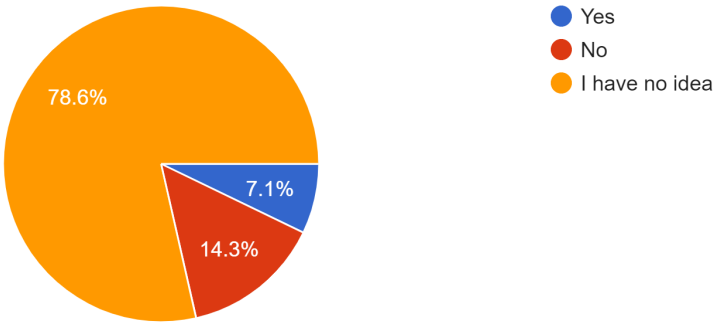
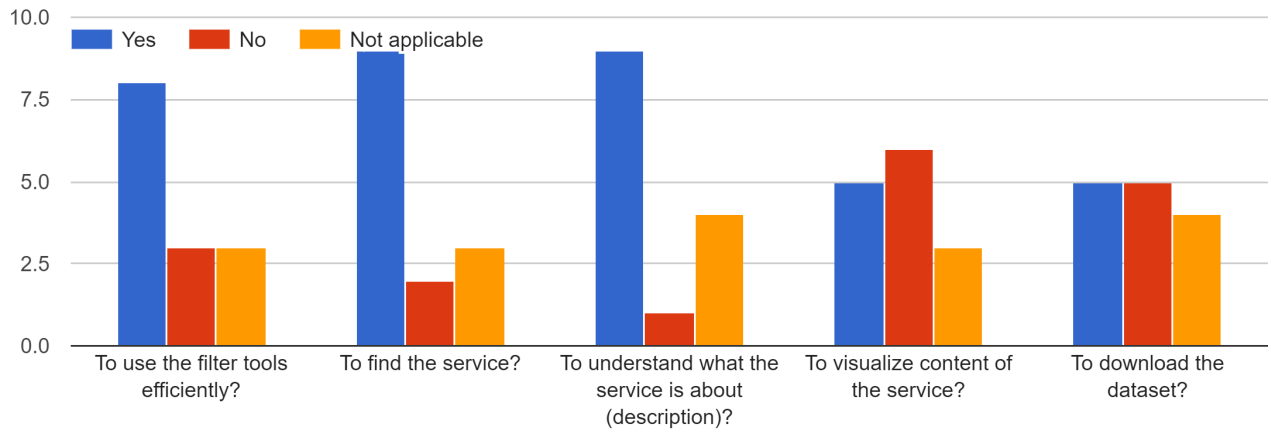


From the distribution of earthquakes is there indication for any new fault(s) not captured in the EDSF dataset (previous task)?

14 responses



Did you manage:



Comments:

- ERROR17:11:45GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=https://www.epos-eu.org/epos-dcat-ap/Seismology/Dataset/AHEAD/events/distribution/restful&format=application%2Fepos.geo%2Bjso

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n&params=%7B%22maxlongitude%22%3A%2234%22%2C%22includeallorigins%22%3A%22false%22%2C%22minlongitude%22%3A%22-34%22%2C%22minlatitude%22%3A%2233%22%2C%22includeallmagnitudes%22%3A%22false%22%2C%22maxlatitude%22%3A%2274%22%2C%22starttime%22%3A%221000-01-01T00%3A00%3A00Z%22%2C%22endtime%22%3A%221899-12-31T23%3A59%3A59Z%22%2C%22nodata%22%3A%22204%22%2C%22orderby%22%3A%22time%22%2C%22format%22%3A%22xml%22%2C%22limit%22%3A%22300%22%7D

- when trying to enter the min/max latitude/longitude limits the search on the "TABOO Events" service would not work because the form asks first for the northern margin (maximum latitude), then for the southern margin (minimum latitude), then for the eastern margin (maximum longitude) and then for the western margin (minimum latitude). This is a bit counter-intuitive. Usually such forms have the minimum latitude first, then maximum latitude, then minimum and maximum longitude.
  Trying to get events from the Parameters of modern earthquakes (1998-present) - FDSN event service: ERROR17:11:21GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=https://www.epos-eu.org/epos-dcat-ap/Seismology/Dataset/001/EMSC/Distribution&format=application%2Fepos.geo%2Bjson&params=%7B%22format%22%3A%22xml%22%2C%22maxlatitude%22%3A%2243%22%2C%22minlongitude%22%3A%2213%22%2C%22starttime%22%3A%222012-01-01T00%3A00%3A00Z%22%2C%22minlatitude%22%3A%2244%22%2C%22nodata%22%3A%22204%22%2C%22includearrivals%22%3A%22false%22%2C%22includeallorigins%22%3A%22false%22%2C%22minmagnitude%22%3A%225%22%2C%22maxlongitude%22%3A%2211.9%22%2C%22endtime%22%3A%222019-03-31T00%3A00%3A00Z%22%7D
- I can't see the name of the fault, namely, clicking on a fault, I would expect, as in share, the name and features of the fault would appear...?
- ERROR: ERROR17:11:10GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=https://www.epos-eu.org/epos-dcat-ap/Seismology/Dataset/001/EMSC/Distribution&format=application%2Fepos.geo%2Bjson&params=%7B%22format%22%3A%22xml%22%2C%22maxlatitude%22%3A%2244.01064%22%2C%22minlongitude%22%3A%2211.88881%22%2C%22starttime%22%3A%222010-01-01T14%3A55%3A36Z%22%2C%22minlatitude%22%3A%2243.0257%22%2C%22nodata%22%3A%22204%22%2C%22includearrivals%22%3A%22false%22%2C%22includeallorigins%22%3A%22false%22%2C%22minmagnitude%22%3A%225%22%2C%22maxlongitude%22%3A%2212.96141%22%2C%22endtime%22%3A%222016-12-31T15%3A16%3A56Z%22%7D
  ERROR17:11:20GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=https://www.epos-eu.org/epos-dcat-ap/Seismology/Dataset/001/EMSC/Distribution&format=application%2Fepos.geo%2Bjson&params=%7B%22format%22%3A%22xml%22%2C%22maxlatitude%22%3A%2244.01064%22%2C%22minlongitude%22%3A%2211.88881%22%2C%22starttime%22%3A%222010-01-01T14%3A55%3A36Z%22%2C%22minlatitude%22%3A%2243.0257%22%2C%22nodata%22%3A%22204%22%2C%22includearrivals%22%3A%22false%22%2C%22includeallorigins%22%3A%22false%22%2C%22minmagnitude%22%3A%225%22%2C%22maxlongitude%22%3A%2212.96141%22%2C%22endtime%22%3A%222016-12-31T15%3A16%3A56Z%22%7D
- I first got: Error: GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=https://www.epos-eu.org/epos-dcat-ap/Seismology/Dataset/001/EMSC/Distribution&format=applicatio later it worked by not using general FDSN service but 'TABOO events', but when selecting data range 2010-2016 again got the error: "Error: GET (408) https://epos-ics-c-stag"

Hint to task 2

1. To locate TABOO NFO, search for 'Alto Tiberina' in Map view, then zoom out until you see W and E coastlines of Italy. Draw rectangle around this area as bounding box. 2. Search for 'events' in free

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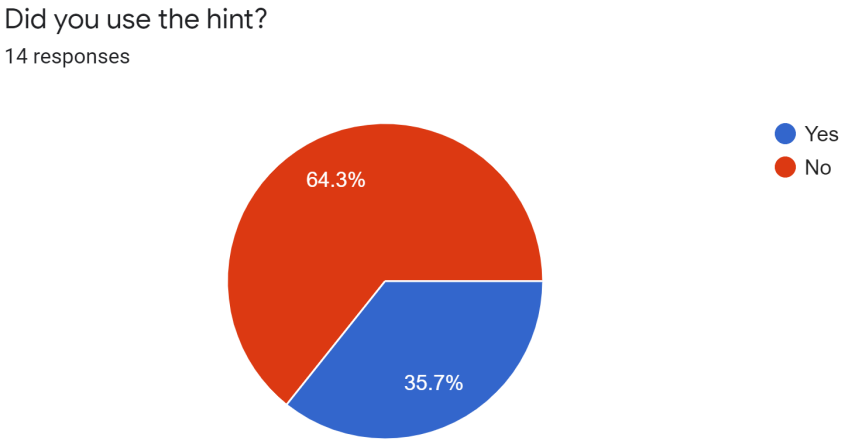
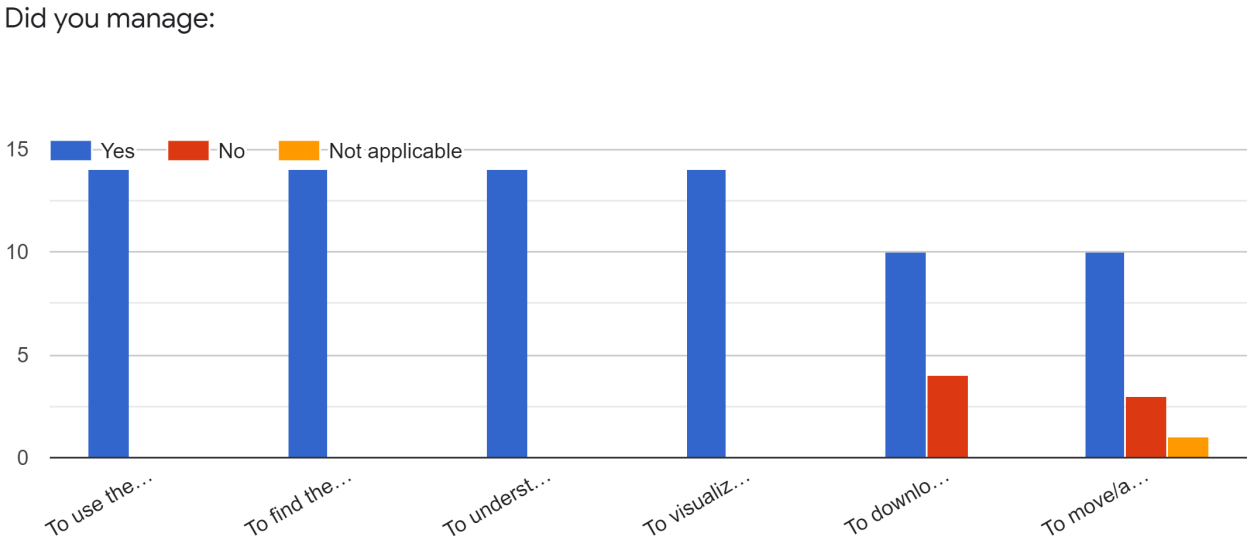
text search, 'Apply'. Those two filters limit the number of services to 10. Navigate to 'NFO -> Seismological Data -> Seismological Products -> Earthquakes data -> TABOO Events'. 3. Use Configuration pane to adjust the bounding box, time span and minimum magnitude level.



Task 3: Find and display a geological map. Adjust transparency. Move the map layer of seismogenic faults so that the faults appear on top of geological map.

There is one more (last) question comparing to others:

6. To move/adjust layers in 'Map view'?



Comments on task 3

- the geotiff download doesn't work on the geological map (onegeology-Europe layer): This XML file does not appear to have any style information associated with it. The document tree is shown below. <ServiceExceptionReport xmlns="http://www.opengis.net/ogc" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.3.0" xsi:schemaLocation="http://www.opengis.net/ogc http://schemas.opengeospatial.net//wms/1.3.0/exceptions_1_3_0.xsd"> <ServiceException

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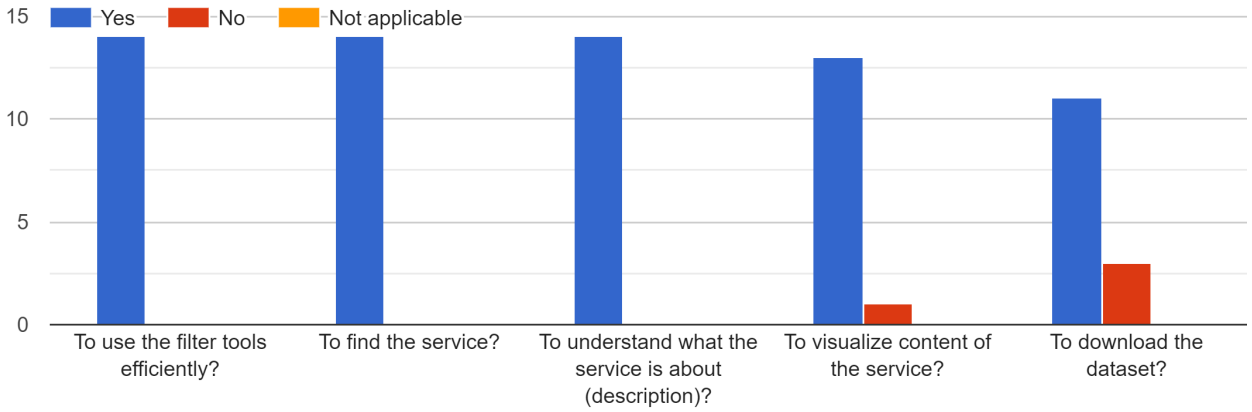
code="InvalidFormat"> msWMSLoadGetMapParams(): Image handling error. Unsupported output format (image/geotiff). </ServiceException> </ServiceExceptionReport>

- I found out how to re-order layers, but one layer couldn't be moved, it was listed in a separate box.

Task 4: Find and display seismic stations in the TABOO region.

Did you manage:



Comments on task 4

- ERROR17:11:24GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=https://www.epos-eu.org/epos-dcat-ap/Seismology/Dataset/002/Distribution/002/INGV&format=application%2Fepos.geo%2Bjson&params=%7B%22station%22%3A%22*%22%2C%22starttime%22%3A%222012-01-01T00%3A00%3A00Z%22%2C%22channel%22%3A%22*%22%2C%22endtime%22%3A%222019-02-01T00%3A00%3A00Z%22%2C%22level%22%3A%22station%22%2C%22maxlatitude%22%3A%2247.11%22%2C%22nodata%22%3A%22404%22%2C%22network%22%3A%22IV%22%2C%22location%22%3A%22*%22%2C%22maxlongitude%22%3A%2218.48%22%2C%22minlatitude%22%3A%2236.61%22%2C%22minlongitude%22%3A%226.74%22%7D
- Error at the first try when I request any stations. On the second try has worked ERROR:

  ERROR17:11:57GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=https://www.epos-eu.org/epos-dcat-ap/Seismology/Dataset/002/Distribution/002/RESIF&format=application%2Fepos.geo%2Bjson&params=%7B%22minlatitude%22%3A%22-90%22%2C%22endtime%22%3A%222017-01-01T00%3A00%3A00Z%22%2C%22maxlatitude%22%3A%2290%22%2C%22channel%22%3A%22*%22%2C%22maxlongitude%22%3A%22180%22%2C%22station%22%3A%22*%22%2C%22network%22%3A%22*%22%2C%22level%22%3A%22station%22%2C%22starttime%22%3A%222016-01-01T00%3A00%3A00Z%22%2C%22minlongitude%22%3A%22-180%22%2C%22location%22%3A%22*%22%7D

  ERROR17:11:57GET (408) https://epos-ics-c-staging.brgm-rec.fr/api//webapi/v1.3/execute?id=https://www.epos-eu.org/epos-dcat-ap/Seismology/Dataset/002/Distribution/002/RESIF&format=application%2Fepos.geo%2Bjson&params=%7B%22minlatitude%22%3A%22-90%22%2C%22endtime%22%3A%222017-01-01T00%3A00%3A00Z%22%2C%22maxlatitude%22%3A%2290%22%2C%22channel%22%3A%22*%22%2C%22maxlongitude%22%3A%22180%22%2C%22station%22%3A%22*%22%2C%22network%22%3'

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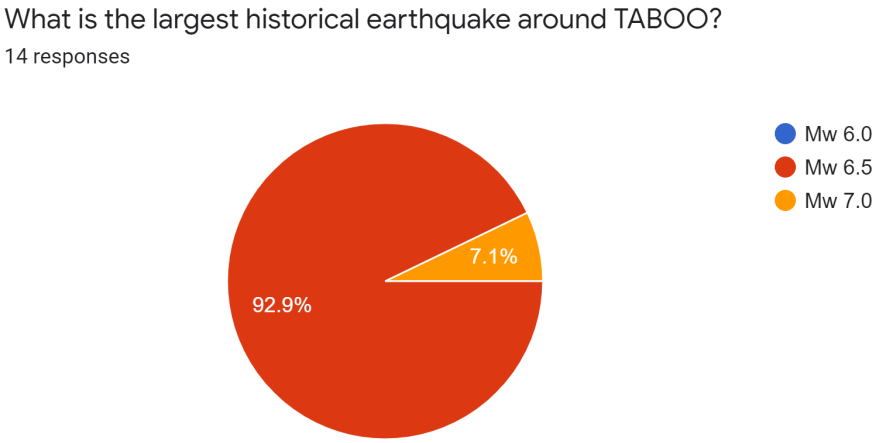
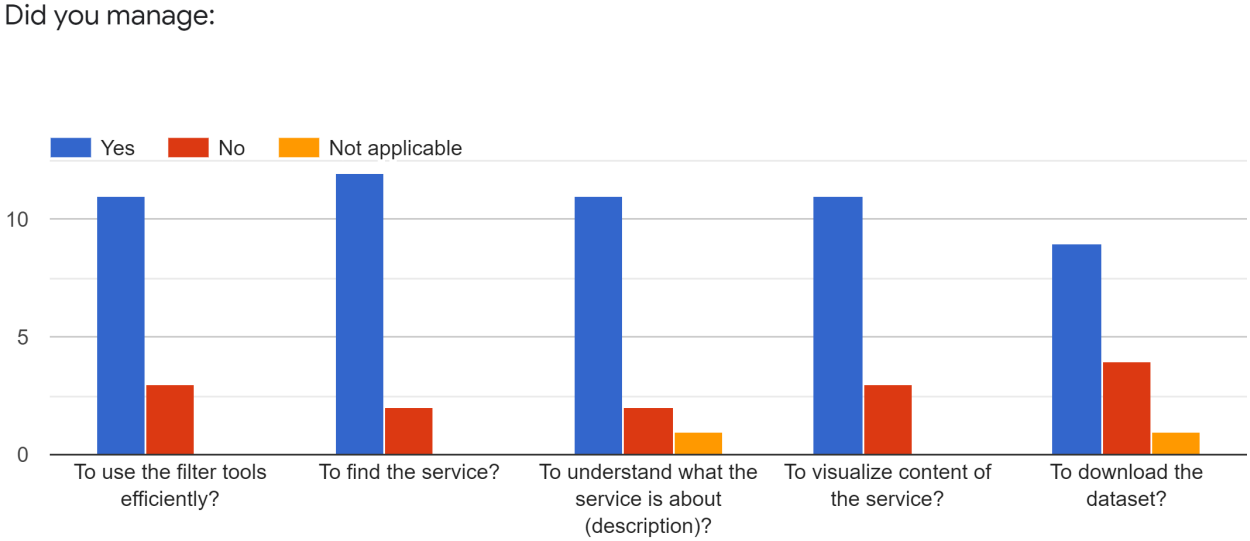
A%22*%22%2C%22level%22%3A%22station%22%2C%22starttime%22%3A%222016-01-01T00%3A00%3A00Z%22%2C%22minlongitude%22%3A%22-180%22%2C%22location%22%3A%22*%22%7D

Task 5: Find and display historical earthqukes in the region.





Comments on task 5

- I used the "Parameters of historical earthquakes (1000-1899) - OGC WFS" service. Then in the Table I tried to sort by magnitude but it wouldn't work.
- Sorting the table according to the Magnitude didn't work for me.
- I just guess the magnitude
- I couldn't find out how to sort historic events wrt. magnitude inside interface, I downloaded spreadsheet and did it 'outside'.
- Table of events (historical) could be better organised. On small laptop's screens is hard to found the parameters.

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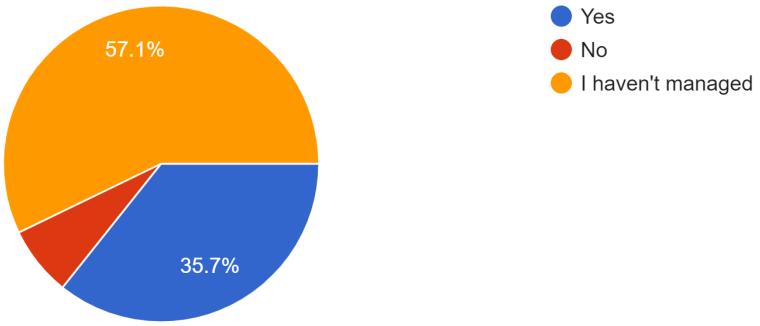
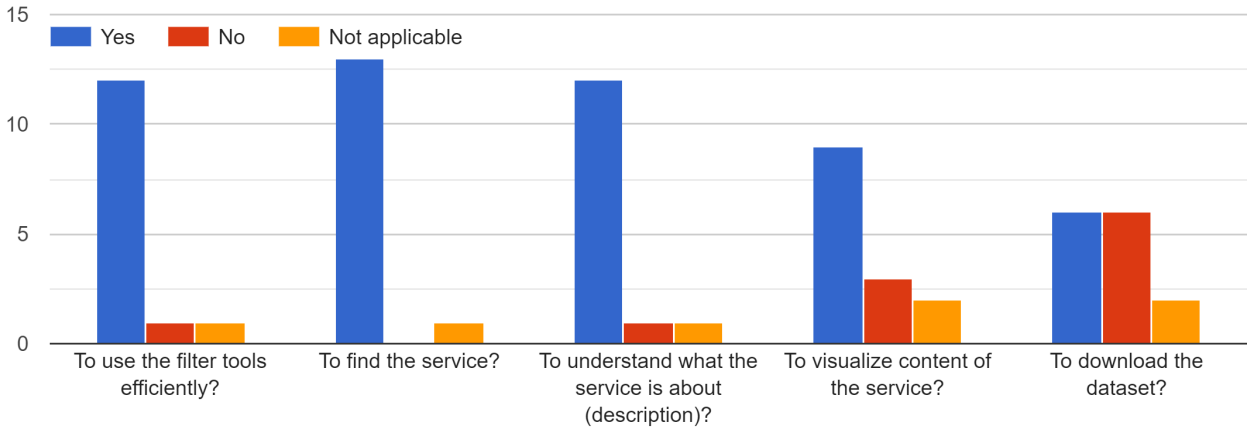
Task 6: Geomagnetic data. Visualize timeseries of total intensity in May 2016.

Was there geomagnetic storm on 8 May 2016 which could influence sensitive campain measurements?

14 responses



Did you manage:



Comments on task 6

- INFO17:11:06Details API Call - id: https://www.epos-eu.org/epos-dcat-ap/GeoElectroMagnetism/WP13-DDSS-001/INTERMAGNET/Distribution - SUCCESS But data was not displayed.
- I did everything, also after the hint, but no data appeared....I saw now it worked for Jan but...
- The plot was displayed only from 30-Apr-2016 to 06-May 2016 even if in Configuration i fill interval: 2016-04-30 - 2016-06-01
- managed to display data for 8 May 2016. But to see whether it's a storm need to display at least a few days and it's still stuck on 'updating'.
- I put the time window from 1st May 2016 to 20th May 2016, but it only visualize it until 8th of May. So I couldn`t understand if there was a magnetic storm on 8th of May. I downloaded the data in .pdf but it visualize it again from 1st to 8th of May only.

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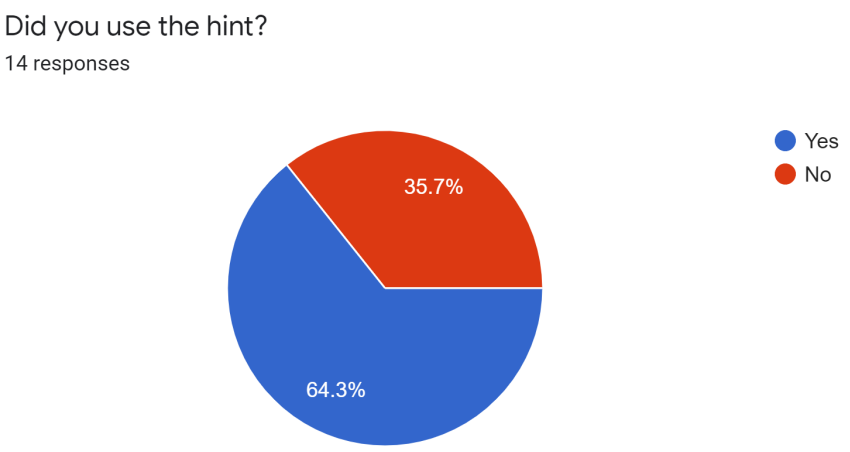
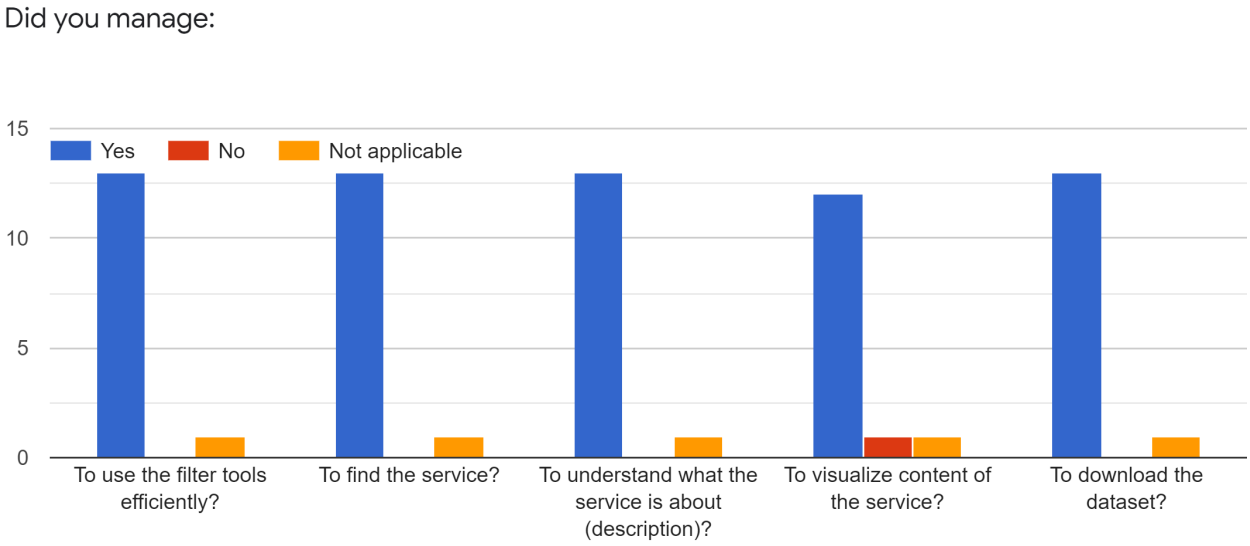
- I'm not expert in geomagnetism, but I can see some anomalies around May 8.

Hint to task 6

Navigate to 'Geoelectromagnetism -> Geomagnetic data -> INTERMAGNET Geomagnetic Observatory Data'. Switch to 'Graph' view in the visualization area. Adjust date in 'Configuration' pane and 'Apply' changes.



Task 7. Look for service that provides radon monitoring data. Download list of stations.



Task 8. Vizualize GNSS stations in the map and explore them.

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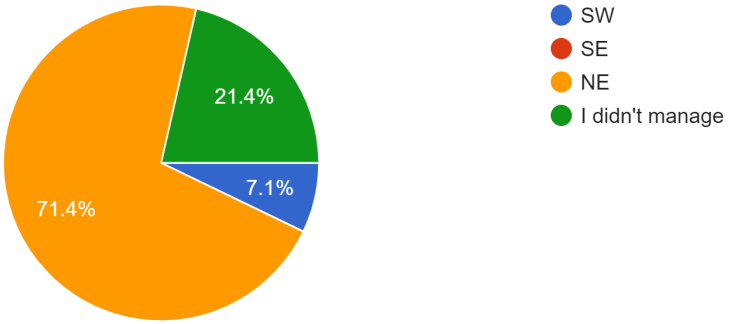
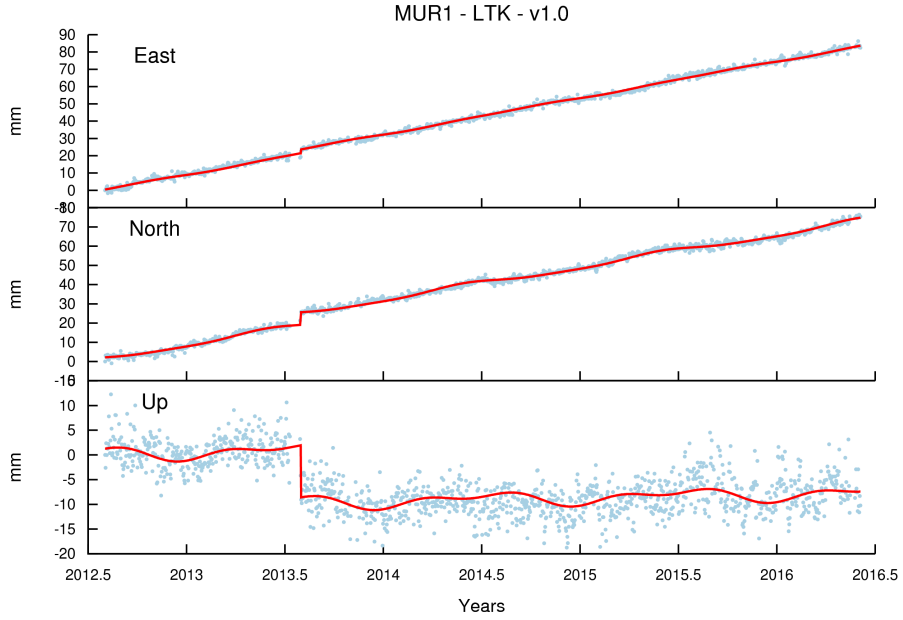
What is the general horizontal movement of GNSS stations in TABOO region? (not all stations provide plots, so please try several stations)

14 responses



Example of GNSS data product from station MUR1:



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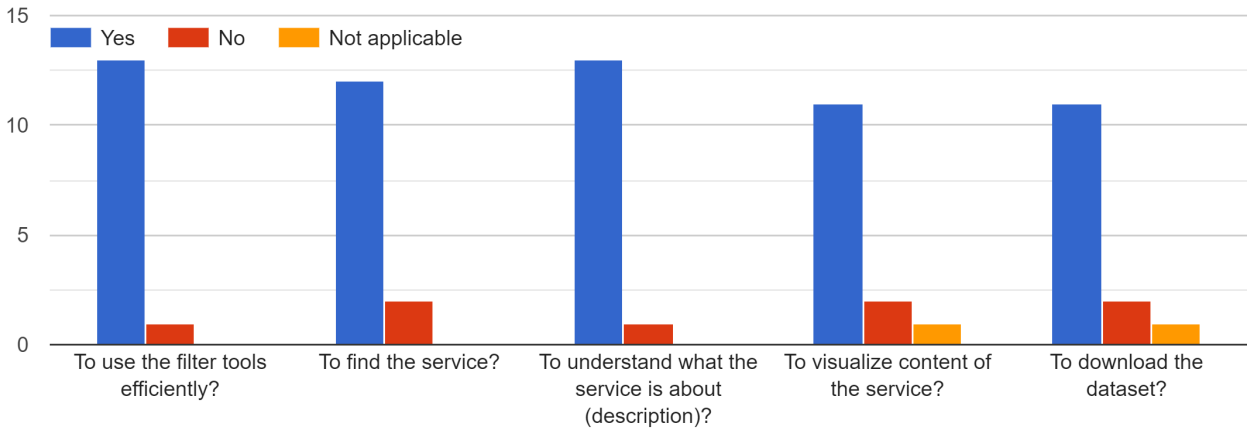
Did you manage:



Comments on task 8

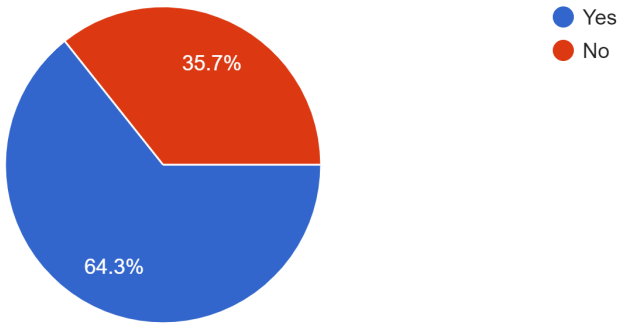
- only because I followed the hint. Otherwise I would have failed...
- I could not open the figures

Hint to task 8

Navigate to 'Geodesy -> Products -> Station information -> GNSS Stations with Products'. Zoom to TABOO region. Click on station marker in map and open link to timeseries image in pop-up marker label.

Did you use hint?

14 responses



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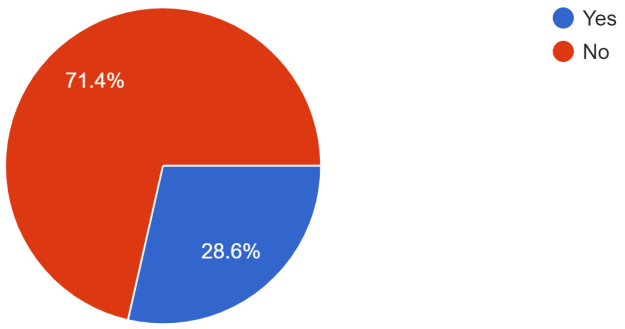
General questions about the training

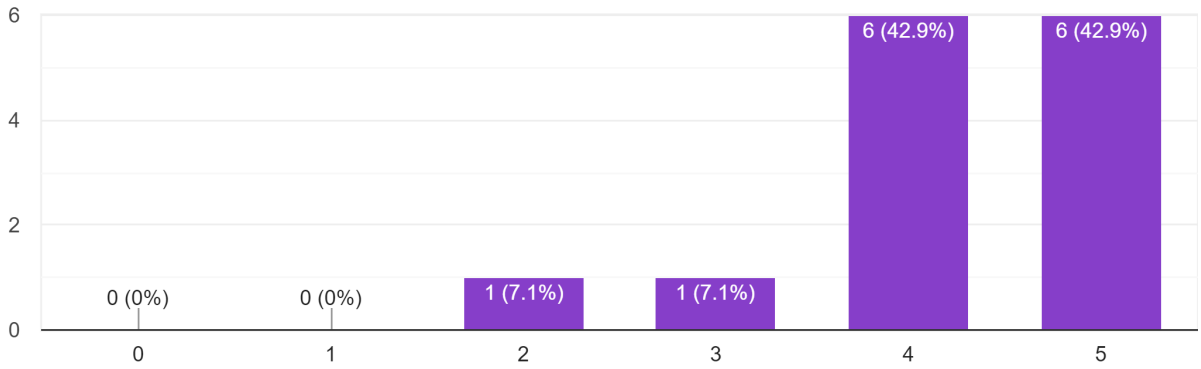
Did you rewatch parts of the SEARCH video at any point in assignment two?

14 responses



Did you consider this training useful?

14 responses



Scale is: 0...Nope -> 5...Excellent

Do you have any comments to this training session?

- maybe it should have tested before with a more limited number of people. I found it frustrating
- following Jan helped a lot
- It might be better to show solutions after and not during the session.
- Where can we send some screenshots while doing the tasks, since it is not possible in Zoom. Sometimes is useful to see the mistakes during the exercises.

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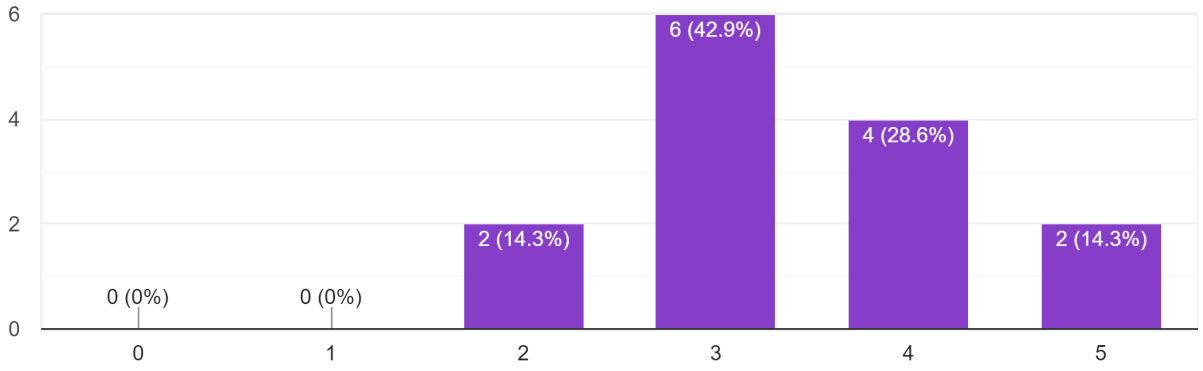
Is the EPOS DAta Portal easy to understand and navigate through?

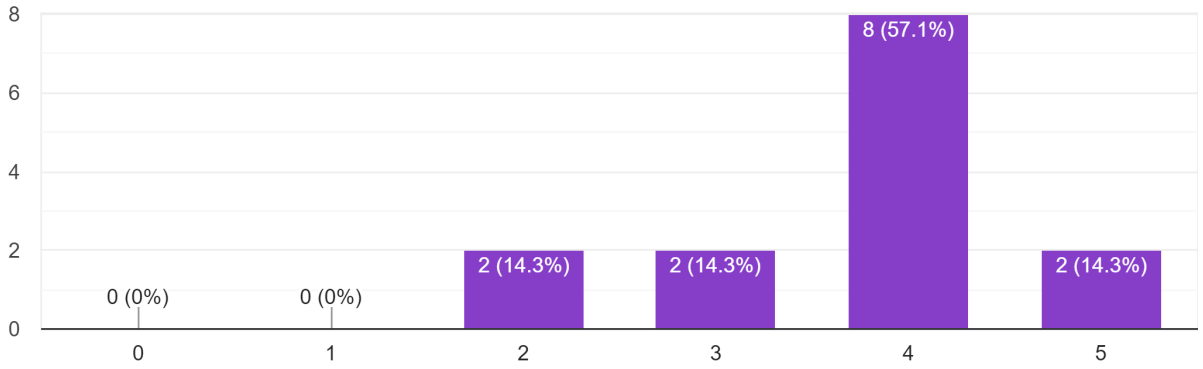
14 responses



Scale is: 0... Very difficult -> 5... Super easy

How do you rate the general functionalities in the EPOS Data Portal?

14 responses



Scale is: 0... Useless -> 5... Excellent

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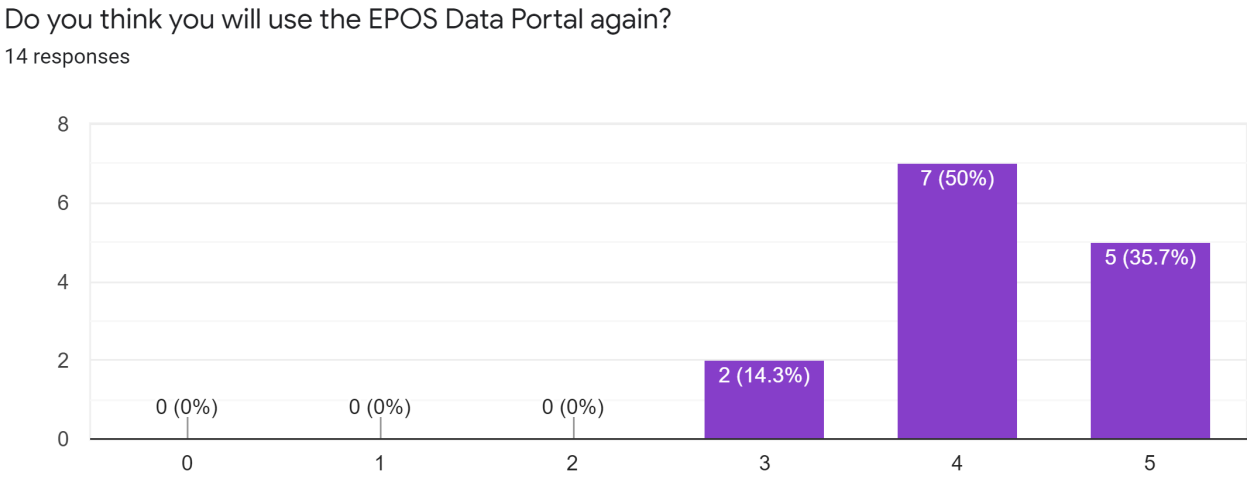

Scale is: 0... No -> 5... Yes, definitelly

Questions and comments from meeting chat

From Navid Kheirdast to Everyone: 03:47 PM
On GNSS data product service (https://gnssproducts.epos.ubi.pt/) for centeral Italy (Near Amatrice) I've just seen data from the RING network.
Actually there are several other networks working in that region.
Is that any problem in my case or other data are not available yet?
From Roberto Davoli to Everyone: 04:17 PM
i am getting erros on plotting events and stations of the Taboo NFO
From Vasilis Kapetanidis to Everyone: 04:20 PM
I'm getting these errors trying to display seismogenic faults
From Maria Infantino to Everyone: 04:20 PM
me too
From Martin Möllhoff to Everyone: 04:20 PM
showing maps and faults works but plotting epicenters doesn't.
From Dejan Valcic to Everyone: 04:22 PM
I also have a problem with plotting epicenters
From Roberto Davoli to Everyone: 04:23 PM
before i was able to see the historical earthquakes, now i can't
From Giuliana Rossi to Everyone: 04:26 PM
It worked at the beginning, then, after loading active faults - or after so many of us worked - it does not work any more...
From Vasilis Kapetanidis to Everyone: 04:27 PM
now the faults show up for me
From Hana Kampfova to Everyone: 04:30 PM
unfortunately the faults are crushing as well
From Vasilis Kapetanidis to Everyone: 04:31 PM
I had pinned the faults service but then I searched for earthquakes around TABOO and the faults disappeared from the map
also earthquakes don't show up (getting errors)
From Cristian Neagoe to Everyone: 04:36 PM

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unfortunately Task 4 with the station is not working
Task 4 is online and working now
From Roberto Davoli to Everyone: 04:43 PM
stations worked for me but not the events
From Lyuba Dimova to Everyone: 04:53 PM
In the menu Geology, there is no Geology map... Only the Borehole menu, any suggestions
From Roberto Davoli to Everyone: 04:56 PM
when i set the time window for the events of the second task i get an error
From Cristian Neagoe to Everyone: 04:59 PM
On task 6 when I adjust the time and date it get stuck on "updating"
From Me to Everyone: 05:00 PM
@Lyuba: Geological maps are just under the list of boreholes.
From Lyuba Dimova to Everyone: 05:07 PM
Yes, before were there, now I`m trying to clear the search. If not I`ll open another tab
After clearing the time span, the geological map work for me.
From Didem Cambaz to Everyone: 05:07 PM
Can I find Vs30 information of stations in this database?
From Martin Möllhoff to Everyone: 05:07 PM
intermagnet dataselection works if you use date selection at the top.
From Giuliana Rossi to Everyone: 05:08 PM
it does not work for me...
From Roberto Davoli to Everyone: 05:08 PM
i managed to do all the tasks except the second one, but i cannot send the form because i have to answer the questions of the task 2
From Giuliana Rossi to Everyone: 05:20 PM
how can you load different items? apparently every time I clicked on one, it was impossible to have more as you has on your screen...
From Roberto Davoli to Everyone: 05:21 PM
I think that you have to pin them, not only click them
From Lyuba Dimova to Everyone: 05:30 PM
I have two more tasks and send it
From Roberto Davoli to Everyone: 05:31 PM
I have a question, can you also download the waveforms of the earthquakes with the p and s pickings?

Conclusions

Important and critical points learned and obtained from the participants are captured here:

- Most of the participants were academic researchers (84%) and PhD students (12%).
- Age categories from 25 to 69 years were represented, slight majority in category 41-50 years.
- Most of the participants were seismologist (87%), but also geodesy, geology, geohazards, earthquake engineering, tsunami research and near-fault observatories were represented.

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- Majority of the participants classified themselves as experienced users with programming skills (53%).
- From the first assignment where the basic search functionality of the ICS Data Portal was tested 97% acknowledged that the portal provides new approach for searching of data for research and 65% consider content of the services useful.
- Most of them also appreciated seing the two training videos (introduction and search functionality).
- The seconnd assignement contained 8 various scientific tasks. Most of them were completed succesfully but some partial steps were difficult to complete due to technical problems at ICS side:
    - Despite all the tasks were sucessfully tested the day before the training session, having multiple users accessing the portal at the same time caused problems.
    - There was 408 error (= Request Timeout; an HTTP status code that is returned to the client when a request to the server takes longer than the server's allocated timeout window) shown in console log which was probably caused by the converter component which couldn't manage to process quickly enough multiple simultaneous requests. This problem was first observed already at Task 1 but mostly at Task 2 when users were trying to access catalog of earthquakes.
    - This issue was recorded into the public ICS issue tracker and is being followed.
    - Trying to resolve the error during the session caused delays and frustration among participants. It also changed the course of the training and there were more interventions from the side of organizers then planned.
    - Testing of the system by dedicated group of people (large enough) should be done before other training arrangements.
- 86% of participants considered the training very useful
- The participants consider the portal mostly easy to understand (84%), are satisfied with the general functionalities (70%) and most of them think to use the portal again in the future (86%). See chapter General questions about the training for more details.

Leaflet

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EPOS ICS-C Data Portal

Training Workshop

Dear participants of the AdriaArray Virtual Workshop,

We are inviting you to **EPOS-SP ICS-C Data Portal training workshop**, where tutorial videos will be introduced followed by interactive online sessions where participants get to work on scientific use cases using the **EPOS ICS-C Data Portal.**

AdriaArray Virtual Workshop
Monday 2nd November 2020
13:30 – 17:30 CET

A vast collection of European solid Earth science datasets is now available through the EPOS ICS-C Data Portal (https://www.ics-c.epos-eu.org/) for download and pre-visualization. Are you interested to see what this portal currently has to offer and how to use it? Join the training!

EPOS UiB Team

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Annex 2 – Nordic-EPOS Seminar

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Report on DMP and FAIR Training

provided during

The joint 2020 Nordic Seismology and Nordic EPOS Seminar

30 September - 2 October 2020

Project: Nordic EPOS

Task II, Activity 1
Virtual training sessions in data quality, archiving and curation, and DMP

Task II, Activity 2
Training sessions in implementation of FAIR principles and metadata standardization and harmonization

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Table of content

Summary

Two training sessions related to Data Management Plan (DMP) and FAIRness of infrastructures were arranged during the "The joint 2020 Nordic Seismology and Nordic EPOS Seminar" held from 30 September to 2 October 2020. The meeting was arranged as virtual due to COVID-19 travel restrictions. The purpose of the sessions was to share best practices about DMPs and FAIRness of infrastructures across Nordic countries. Due to the nature of the event the participants were mostly seismologist (merged with Nordic Seismology Seminar).

The training sessions and discussions were arranged in two 1h30min blocks on Thursday 1 Oct 2020. The first block was focused on Data Management and sharing of best practices gained by UIB during implementing EPOS-Norway and European EPOS activities followed by round-table discussion. The second block was dedicated to FAIRness of infrastructures where two invited speakers (Keith Jeffery and Daniele Bailo) shared their experiences on FAIRness implementations from the European level.

Short survey among participants was done at the end of the session to collect feedback and capture the status of DMPs and FAIRness across institutions in Nordic countries. Main outcome of the meeting was establishing a working group, which will follow the aspects and coordinate further activities related to Task II within Nordic countries (not only Nordic EPOS partners).

Introduction

Nordic EPOS - A FAIR Nordic EPOS Data Hub – is a consortium of the Nordic geophysical observatories delivering on-line data to EPOS Thematic Core Services. Nordic EPOS consortium comprises the Universities of Helsinki (UH), Bergen (UiB), Uppsala (UU), Oulu (UOULU) and Geological Survey of Denmark and Greenland (GEUS) and Icelandic Meteorological Office (IMO).
The main objectives of the project are to: a) increase awareness and usage of multi-disciplinary Nordic EPOS data, data products, software and service for scientific and societal problem solving, b) increase the amount of, and access to, Nordic FAIR data, and c) support data management of new data types and

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scientific expertise needed for safe and sustainable societies in Nordic countries and especially in the Arctic region.
Some aspects of these objectives are common also for EPOS-SP project which is focused on long term sustainability of EPOS infrastructure. Sharing knowledge and best practices related to data management and scientific expertise as well as providing training for them are the examples.

There are two activities in Task II of Nordic EPOS project where UIB has responsibility for carrying them out (see Table 1). These activities are recurrent activities repeating each year between 2020-2022 (i.e. three times). The objective is not to give the same training each year but to share the best practices from other projects.

Table 1: Extract of activities from Nordic EPOS project

Task II	**Activity 1:** Virtual training sessions in data quality, archiving and curation, and DMP	Virtual training sessions for data managers, IT specialists, Earth scientists in data quality, archiving and curation, including also development of data management plans (UiB). Three virtual training sessions (webinars) are planned in 2020, 2021 and 2022.
	Activity 2: Training sessions in implementation of FAIR principles and metadata standardization and harmonization	Training sessions for data managers, IT specialists, Earth scientists in implementation of FAIR principles and metadata standardization and harmonization (UiB). Three dedicated training sessions are planned in 2020, 2021 and 2022, in conjunction with already existing meetings of the Nordic solid Earth science communities, such as the Nordic Geological Winter Meetings, Nordic Seismology Seminars, Nordic Volcanological Meetings.

Training

There were two training sessions related to Data Management Plan (DMP) and FAIRness of infrastructures were arranged during the “The joint 2020 Nordic Seismology and Nordic EPOS Seminar” held from 30 September to 2 October 2020. The meeting was arranged as virtual due to COVID-19 travel restrictions. Due to the nature of the event the participants were mostly seismologist (event merged with Nordic Seismology Seminar).
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Short survey among participants was done at the end of the session to collect feedback and capture the status of DMPs and FAIRness across institutions in Nordic countries. Main outcome of the meeting was establishing “Nordic DMP Working Group”, which will follow the aspects and coordinate further activities related to Task II within Nordic countries (not only Nordic EPOS partners). UIB will coordinate the first steps within the working group.

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Participants

There were 64 registered participants to the seminar itself (full list in WS program below). Participation in the DMP and FAIR training session was smaller, 37 and 38, respectively.

Discussion

There were round-table discussions on both of the topics (DMP and FAIRness) where all participants could express their status and some comments are captured below.

DMP

- Universities usually do not have full mandate to store data at national level
- Having a DMP is a requirement for project proposals
- Maintenance of the data repository might be an issue in long term
- Many institutions are responsible for monitoring, network maintenance and quality control of the data.
- Metadata quality is not always handled properly. All participants agreed that sharing knowledge about tools for metadata management (preparation and maintenance) is of interest and should be in focus in next training event. Detailed survey could be carried out to map the landscape.
- Working group between Nordic countries will be established to share knowledge and experience on DMP topics (Table 2)

Table 2: Members of "Nordic DMP Working Group"

Name Surname	Affiliation	Country
Peter Voss	GEUS	DK
Annakaisa Korja	University of Helsinki	FI
Michael Roth	Uppsala University	SE
Kristín Vogfjörd	Icelandic Meteorological Office	IS
Tommi Vuorinen	University of Helsinki	FI
Bergrún Arna Óladóttir	Icelandic Meteorological Office	IS
Jan Michalek	University of Bergen	NO

FAIRness

- Having persistent identifiers (PIDs) for data is not fully implemented at any institution
- Certification of a data repository (or the process towards certification) might help to learn about the requirements and tools. But getting involved in such process might create unwanted (unmanageable) overhead.
- Some institutions can deal with basic data management only. Implementing additional systems (and their maintenance) is simply not possible for them.
- There are several PID systems. Which PID resolver the institutions should opt for?

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Survey

Short survey among participants was done at the end of the session to collect feedback and capture the status of DMPs and FAIRness across institutions in Nordic countries. The point was to have at least one representative from each Nordic country and this was fulfilled. There were nine respondents finishing the survey. Below are the results. Only persons interested to be involved in the working group are listed in Table 2 (above).

Question 1

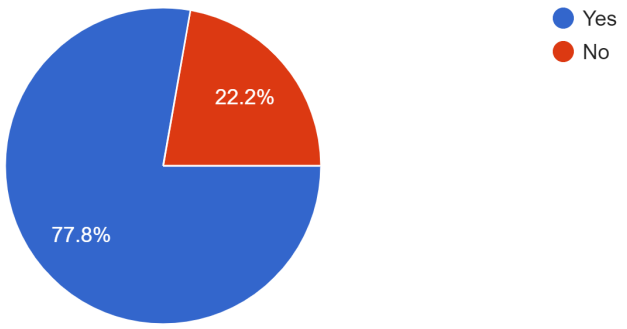
Which organization are you affiliated to?

Organization	Number of responses
GEUS	1
University of Helsinki	2
Uppsala University	1
Icelandic Meteorological Office	3
University of Bergen	1
Tallinn University of Technology	1

Question 2

Are you interested to be member of the Nordic EPOS DMP Working Group? (relevant data management topics, e.g. harmonization of tools, ...)

9 responses



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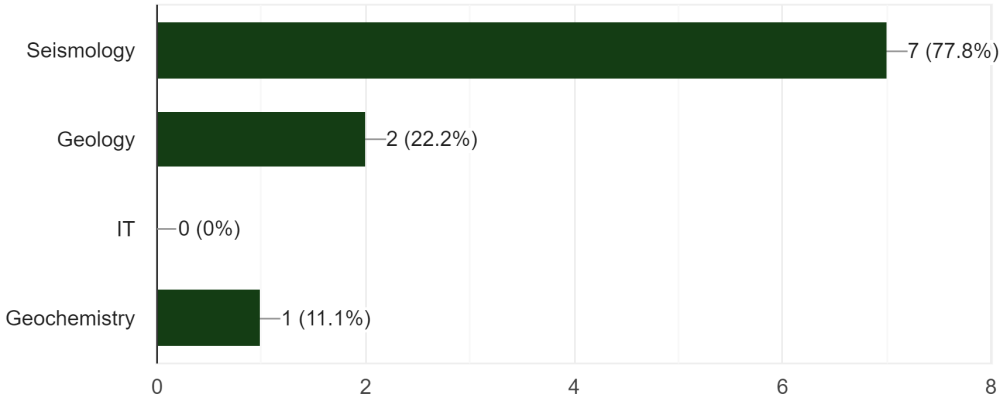
Question 3

Personal scientific background

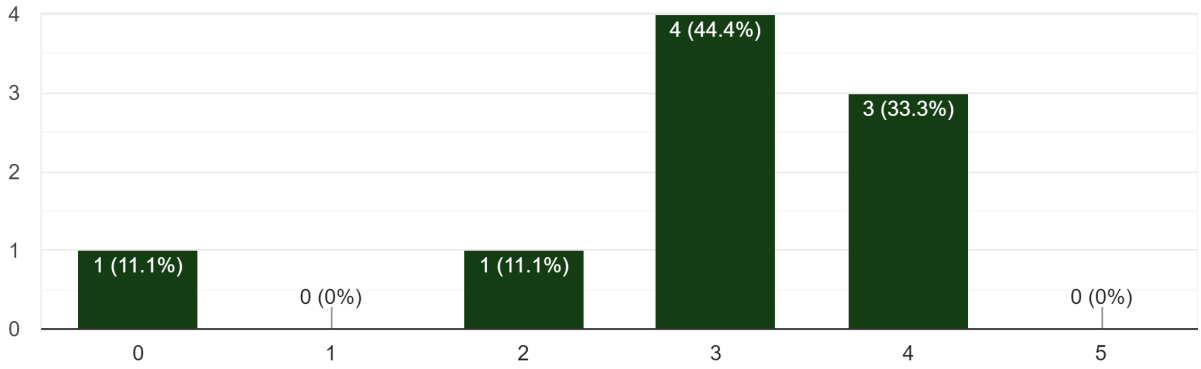
9 responses



Question 4

How complete is Data Management Plan at your research infrastructure/institution?

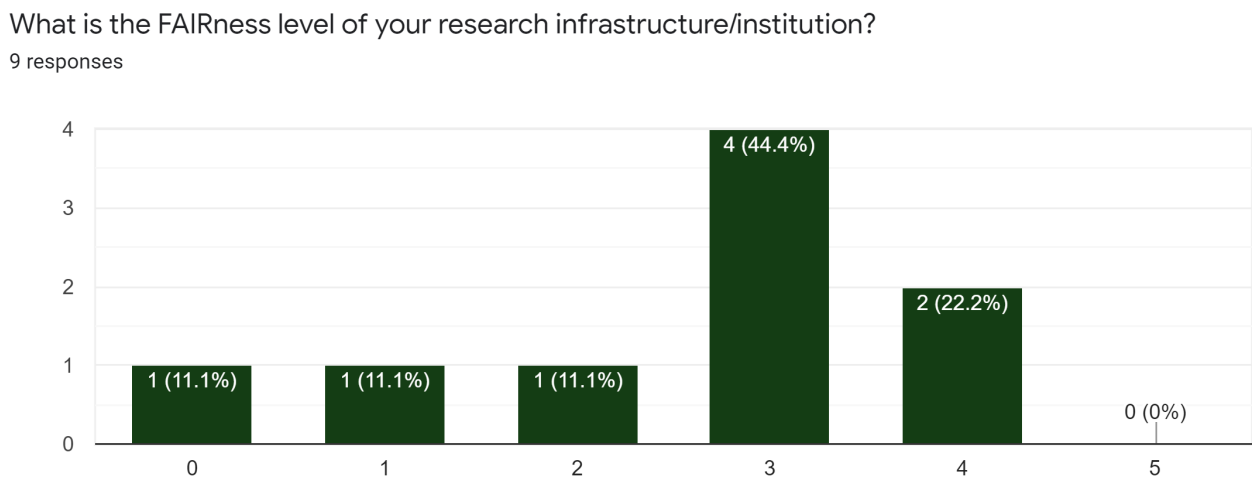
9 responses



0 … Does not exist
5 … Fully implemented

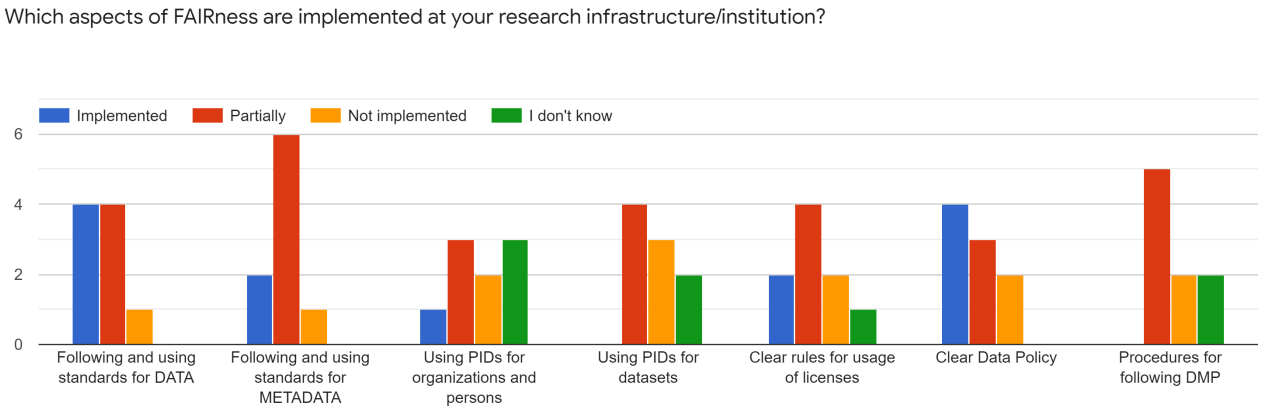
The EPOS SP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 871121

Question 5



0 … I have no idea
5 … Completely FAIR

Question 6



Survey conclusions

Even from the few responses the level of implementation of DMP and FAIRness can be obtained for each country since these institutions represent each country within its geoscientific domain.
The DMP exist at almost each institution but it is obvious that improvement can be done (Question 4).
Similarly the level of FAIRness can be improved and sharing the knowledge can help for that (Question 5).
Responses to question 6 show that the best covered FAIR areas are related to management of data and metadata as well as data policy. Usage of PIDs for organizations, persons or datasets can be improved.

Conclusions

Arrangement of this DMP and FAIRness training session was an activity done for the first time by the UIB group within this scope. UIB focused on providing basic information on related topics rather than providing proper training. The aim was also to collect information about the level of DMP and FAIRness across Nordic

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countries (participants). In addition, experts from other project with experiences on those topics from European level were invited and gave talks.

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Program of the workshop

The joint 2020 Nordic Seismology and Nordic EPOS Seminar

Program

Time slots are given in CEST (see e.g.: https://time.is/CEST)

Wednesday, September 30:

Nordic Seismology Seminar
13.00-13.05 Peter Voss: Welcome

EPOS and the Nordic region
Chair: Peter Voss

13.05-13.20 Annakaisa Korja: Nordic EPOS
13.20-13.35 Kuvvet Atakan: EPOS-N Project

Seismological networks and monitoring
Chair: Trine Dahl-Jensen

13.35-13.50 Michael Roth: The Swedish National Seismic Network - Status 2020
13.50-14.05 Andreas Köhler: NORSAR's new array deployments in 2019 and 2020
14.05-14.20 Christian Weidle: Overview of recent network developments in northernmost Germany
14.20-14:35 Lars Ottemöller: Updates from the Norwegian National Seismic Network
14.35-14:50 Dmitry A. Storchak, James Harris, Domenico Di Giacomo and Kathrin Lieser: Rebuild of the Bulletin of the International Seismological Centre (ISC)

14.50-15:05 Morten Sickel: State of Health monitoring at NORSAR
15.05-15:20 Tuija Luhta and Toni Veikkolainen: Status of the FNSN network
15.20-15:35 Peter Voss: News from the seismological network in the Kingdom of Denmark

POSTERS

15.35-15.40 Trine Dahl-Jensen: Earthquakes Greenland

15.40-15.42 Peter Voss: See you tomorrow

Thursday, October 1:

09.00-09.05 Peter Voss: Welcome

Best practice discussions on Data Management

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Chair: Jan Michalek

09:05 - 09:10 Opening/welcome - Nordic-EPOS Training session - Sharing best practices on Data Management - K. Atakan and Jan Michalek
09:10 - 09:25 Data Management: Introduction
09:25 - 09:30 Open discussion - Questions
09:30 - 10:00 Round-table short presentations on current status of Data Management practices in Nordic countries
10:00 - 10:20 Kuvvet Atakan: Data Management: The EPOS example
10:20 - 10:35 Open discussion - wrapping up

Break

Best practice discussions on FAIRness of the infrastructures
Chair: Kuvvet Atakan

11:00-11:20 Kuvvet Atakan and Jan Michalek: Best practice discussions on FAIRness of the infrastructures
11:20-11:40 Keith Jeffery: FAIR principles
11:40-12:00 Daniele Bailo: Technical requirements of FAIR
12:00-12:30 Discussion of current status in Nordic countries

Break

EIDA knowledge transfer
Chair: Tommi Vuorinen

13:00-13:15 Jan Michalek: EIDA knowledge transfer
13:15-13:45 Discussion EIDA knowledge transfer

QuakeML service/tools
Chair: Tommi Vuorinen

13:45-13:55 Christian Rønnevik: QuakeML service/tools
13:55-14:05 Discussion QuakeML service/tools

Presentations/discussions related to the Nordic cooperation, CTBTO, etc.
Chair: Tine B. Larsen

14:05-14:20 Björn Lund: The upcoming European Seismic Hazard Model
14:20-14:35 Discussion on the upcoming European Seismic Hazard Model

Presentations on research results.
Chair: Tine B. Larsen

14:35-14:50 Jan Michalek: Demo of the EPOS-N Portal
14:50-15:05 Helga Sandve: Demo of the EPOS ICS Data Portal

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15:05-15:20 Kostas Lentas, Dmitry A. Storchak and James Harris: The CTBTO link to the ISC database

15.20-15.25 Peter Voss: See you tomorrow

Friday, October 2:

09.00-09.05 Peter Voss: Welcome

Presentations on research results.
Chair: Päivi Mäntyniemi

09:05-09:20 Trine Dahl-Jensen: Monitoring at Stenlille Gas Storage
09:20-09:35 Ann-Sophie G. Sølund: Glacial and tectonic Earthquakes in Disko Bay, Greenland – a comparison

09:35-09:50 Päivi Mäntyniemi, Mathilde B. Sørensen, Ruben E. Tatevossian: Earthquake environmental effects and pre-1905 earthquakes in northern Europe

09:50-10:05 M.B. Sørensen, P. Mäntyniemi, T. S. Haga, T.N. Tatevossian, R.E. Tatevossian and B. Lund: Earthquake-triggered landslides in Norway, and a reassessment of the 1819 Lurøy earthquake

10:05-10:20 Peter Schmidt: (M)SIL – recent updates and operation at the Swedish National Seismic Network, SNSN

Break

10:45-11:00 Zaher Hossein Shomali: Real-time global/local seismicity monitoring done in SNSN using SC3, SC4
11:00-11:15 Kristín Jónsdóttir and colleagues at IMO: Unrest on the Reykjanes Peninsula 2020
11:15-11:30 Hanna Blanck: Using seismicity to map fractures i Hengill, SW-Iceland

11:30-11:45 Annukka Rintamäki: Monitoring induced seismicity related to geothermal energy in Finland.

11:45-12:00 Tine B. Larsen, Peter Voss, Trine Dahl-Jensen, Sigridur Kristjansdottir, Joana Esteves Martins: Advanced epicenter determination using NonLinLoc. Preliminary results from the GeoERA HIKE project

12:00-12:03 Peter Voss: Closing remarks
12:03-12:06 Kristín S. Vogfjörð: Important announcement

Nordic EPOS Council Meeting
13:00-15:00
Chair: Annakaisa Korja

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List of participants

Annakaisa Korja, University of Helsinki
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Kati Oinonen, University of Helsinki
Marja Uski, University of Helsinki
Tuija Luhta, University of Helsinki
Tommi Vuorinen, University of Helsinki
Katriina Arhe, University of Helsinki
Toni Veikkolainen , University of Helsinki
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Jennifer Hällsten, University of Helsinki
Tahvo Oksanen, University of Helsinki
Annukka Rintamäki, University of Helsinki
Jari Kortstrom, University of Helsinki

Ari Lukkarinen, CSC - IT Center for Science Ltd.

Björn Lund, University of Uppsala
Michael Roth, University of Uppsala
Zaher Hossein Shomali, University of Uppsala
Peter Schmidt, University of Uppsala
Niranjan Joshi, University of Uppsala
Karin Berglund, University of Uppsala

Berit Paulsen, NORSAR
Andreas Köhler, NORSAR
Jon Magnus Christensen, NORSAR
Morten Sickel, NORSAR
Tormod Kvaerna, NORSAR

Kristín S. Vogfjörð, IMO
Tryggvi Hjörvar, IMO
Davíð Steinar Guðjónsson, IMO
Benedikt Halldórsson, IMO
Tim Sonnemann, IMO
Gunnar Gudmundsson, IMO
Sigurlaug Hjaltadóttir, IMO
Hanna Blanck, IMO
Kristín Jónsdóttir, IMO
Claudia Abril López, IMO

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Mathilde B. Sørensen, University of Bergen
Lars Ottemøller, University of Bergen
Helga Kristine Sandve Indrøy, University of Bergen
Jan Michalek, University of Bergen
Christian Rønnevik, University of Bergen
Berit Marie Storheim, University of Bergen

Keith Jeffery, EPOS-ERIC IT-team
Daniele Bailo, EPOS-ERIC IT-team

Dmitry Storchak, International Seismological Centre (ISC)
Konstantinos Lentask, International Seismological Centre (ISC)

Christian Weidle, Christian-Albrecht University of Kiel

Zoya Zarifi, Equinor

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Þorbjörg Ágústsdóttir, ISOR Iceland GeoSurvey

Esteves Martins, J.C. (Joana), TNO

Aochi Hideo, BRGM

Ruben Tatevosyan, The Schmidt Institute of Physics of the Earth of the Russian Academy of Sciences, Russia

Heidi Soosalu, Tallinn University of Technology

Tine B. Larsen, GEUS
Trine Dahl-Jensen, GEUS
Nicolai Rinds, GEUS
Malene Bryde-Auken, GEUS
Thomas Funck, GEUS
Søren Gregersen, GEUS
Ann-Sophie Soelund, GEUS
Marie Keiding, GEUS
Peter Voss, GEUS

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Annex 3 - List of training and outreach activities

EPOS-SP Project Work Package 7 (WP7) - List of Training and Outreach Activities											
Event start time (suggested)	**Action/Event**	**Relevant Projects**	**EPOS-ERIC**	**EPOS-SP**	**EPOS-N**	**Nordic-EPOS**	**ENVRI-FAIR**	**Year**	**Month**	**Day**	**Other information/description**
20200601	Development of **tutorial**s on DMP and FAIR principles	Nordic-EPOS; ENVRI-FAIR				Task II, Activity No.3	WP10	2020	June-Dec		Tutorials on data management plans and FAIR principles are developed for the virtual training sessions planned in 2020, 2021 and 2022.
20200301	Development of **tutorials, user guidelines and manuals** on EPOS- ICS-C Portal	EPOS-ERIC; EPOS-SP; ENVRI-FAIR	ICS-TCS Interaction	Task 7.1			WP10				Tutorials, user guideline and manual on EPOS- ICS-C Portal are developed for virtual training seissions.
20200301	Development of **user guidelines and manuals** on EPOS-N Portal	EPOS-N			WP2						Online user guidelines and user manual on EPOS-N Portal for interactive use and for training sessions.
20200301	Development of **trainning courses** for EPOS ICS-C	EPOS-ERIC; EPOS-SP	ICS-TCS Interaction	Task 7.1							Three level training courses are developed and will be used in various training sessions for ICS-C Portal.
20200301	Development of **training videos** for EPOS ICS-C	EPOS-ERIC; EPOS-SP	ICS-TCS Interaction	Task 7.1							Training videos for the three-level training courses for ICS-C Portal are developed and will be used in various training sessions for the EPOS ICS-C Portal
20200301	Development of a **video-database** for EPOS	EPOS-ERIC; EPOS-SP	ICS-TCS Interaction	Task 7.2 and Task 7.3							A dedicated video-database for EPOS is established and is available online: https://docs.google.com/spreadsheets/d/1esmqG2a5nf9STBsZmhl0VeqkTSYfokQOszAOgAnN-JU/edit#gid=0 - Currently there are 26 videos included in the database.
20200504	**Dissemination** activities at EGU-2020	EPOS-SP; EPOS-N		Task 7.3				2020	May	04.aug	Several EPOS related presentations were given in relevant sessions. Event was arranged as a virtual conference due to COVID-19 restrictions.
20200930	**Virtual training session**s in data quality, archiving and curation, and DMP	Nordic-EPOS; ENVRI-FAIR				Task-II, No.1	WP10	2020	Oct	1	Virtual training sessions for data managers, IT specialists, Earth scientists in data quality, archiving and curation, including also development of data management plans (UiB). Three virtual training sessions (webinars) are planned in 2020, 2021 and 2022.
20200930	**Training session**s in implementation of FAIR principles and metadata standardization and harmonization	Nordic-EPOS; ENVRI-FAIR				Task-II, No.2	WP10	2020	Oct	1	Training sessions for data managers, IT specialists, Earth scientists in implementation of FAIR principles and metadata standardization and harmonization (UiB). Three dedicated training sessions are planned in 2020, 2021 and 2022, in conjunction with already existing meetings of the Nordic solid Earth science communities, such as the Nordic Geological Winter Meetings, Nordic Seismology Seminars, Nordic Volcanological Meetings.
20200930	Development of **guidelines** for seismic waveform distribution node (EIDA-node) within EPOS Seismology	EPOS-N; Nordic-EPOS			WP2	Task-III, No.1		2020	Sept-Oct	pt 30 - Oc	The University of Bergen with NORSAR has recently established the Norwegian EIDA Node and will share its experiences. Includes data and metadata standards, and the conversion to these from varying Nordic formats. In collaboration with ORFEUS.
20201102	AdriaArray International **Workshop**	EPOS-ERIC; EPOS-SP	ICS-TCS Interaction	Task 7.1 and Task 7.2				2020	Nov	02.sep	Training (T7.1) and Outreach (T7.2) session in a 6-day workshop - EPOS-ICS portal demo. Sponsored with in-kind contributions by the EPOS-Sustainability Phase Project. This activity will be arranged during the second half of 2020.
20210125	EPOS-Norway Project Final **Workshop**	EPOS-N; Nordic-EPOS			WP1, WP2, WP3 and WP4			2021	Jan	25-27	EPOS-N portal demo and training – show case using Arctic data. Sponsored with in-kind contributions by the EPOS-Norway Project
20210301	**Workshop**: EPOS-RI for the countries around Baltic	EPOS-ERIC; EPOS-SP; Nordic-EPOS	ICS-TCS Interaction	Task 7.1 and Task 7.2		Task-I, No.2		2021			4-day workshop - EPOS-ICS and EPOS-N portal demo and training – show case using Arctic data. Sponsored with in-kind contributions by the EPOS-Sustainability Phase Project. This activity will be arranged during the first half of 2021.
20210901	ICS-Portal Training **Workshop**	EPOS-ERIC; EPOS-SP	ICS-TCS Interaction	Task 7.1				2021			ICS Data Portal trainning workshop possibly co-located with the Nordic Seismology Seminar in the fall of 2021. Duration is 2-days.
20210901	**Virtual training session**s in data quality, archiving and curation, and DMP	Nordic-EPOS; ENVRI-FAIR				Task-II, No.1	WP10	2021			Virtual training sessions for data managers, IT specialists, Earth scientists in data quality, archiving and curation, including also development of data management plans (UiB). Three virtual training sessions (webinars) are planned in 2020, 2021 and 2022.
20210901	**Training session**s in implementation of FAIR principles and metadata standardization and harmonization	Nordic-EPOS; ENVRI-FAIR				Task-II, No.2	WP10	2021			Training sessions for data managers, IT specialists, Earth scientists in implementation of FAIR principles and metadata standardization and harmonization (UiB). Three dedicated training sessions are planned in 2020, 2021 and 2022, in conjunction with already existing meetings of the Nordic solid Earth science communities, such as the Nordic Geological Winter Meetings, Nordic Seismology Seminars, Nordic Volcanological Meetings.
20210901	Parametric earthquake **data** and the **delivery** of such data to EPOS Seismology	EPOS-N; Nordic-EPOS			WP2	Task-III, No.2		2021			This includes both real-time parameter data and later manually revised parameter data. In collaboration with EMSC.
20220301	**Training and Outreach** Session for Tsunami Research Community	EPOS-ERIC; EPOS-SP	ICS-TCS Interaction	Task 7.1 and Task 7.2							Training and outreach session co-located (possibly virtual?) for ICS-Portal training and engaging Tsunami Research communities
20220901	**Training and Outreach** Session for Earthquake Engineering Community	EPOS-ERIC; EPOS-SP	ICS-TCS Interaction	Task 7.1 and Task 7.3							Training and outreach session co-located (possibly virtual?) for ICS-Portal training and engaging Earthquake Engineering communities
20220901	**Virtual training session**s in data quality, archiving and curation, and DMP	Nordic-EPOS				Task-II, No.1		2022			Virtual training sessions for data managers, IT specialists, Earth scientists in data quality, archiving and curation, including also development of data management plans (UiB). Three virtual training sessions (webinars) are planned in 2020, 2021 and 2022.
20220901	**Training session**s in implementation of FAIR principles and metadata standardization and harmonization	Nordic-EPOS				Task-II, No.2		2022			Training sessions for data managers, IT specialists, Earth scientists in implementation of FAIR principles and metadata standardization and harmonization (UiB). Three dedicated training sessions are planned in 2020, 2021 and 2022, in conjunction with already existing meetings of the Nordic
20220901	**Interactions** with the European Facilities for Earthquake Hazard and Risk (EFEHR)	EPOS-SP; EPOS-N; Nordic-EPOS		Task 7.1 and Task 7.2	WP2	Task-III, No.3		2022			How the Nordic countries shall participate in EFEHR and how the assessment of seismic hazard in the low seismicity intraplate region such as the Fennoscandian Shield should be performed are questions currently under discussion. These will require close Nordic collaboration, both on technical and methodological issues. In collaboration with EFEHR.

Annex 4 - EPOS POP Statistics on the dissemination and communication activities

Please see the document in the following link:

https://docs.google.com/document/d/16fwurYKQMPiS_iGwEo5CZ6UqazW3ZY29/edit#

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