

## FLEX-EPOS SEISMIC INSTRUMENT POOL PRINCIPLES OF OPERATION

This document does not overrule the FLEX-EPOS Consortium Agreement or its Appendices. These principles of operation are meant for practical purposes to aid the application procedures and operations of the FLEX-EPOS Seismic instrument pool. The principles of operation are based on the FLEX-EPOS Consortium Agreement and its Appendix 6 User's Agreement. The principles have been drafted using as a reference the Terms of Use<sup>1</sup> of the Geophysical Instrument Pool Potsdam (GIPP) of the Helmholtz-Zentrum Potsdam, Deutsches GeoForschungsZentrum (GFZ).

### 1. Objective of FLEX-EPOS and FLEX-EPOS Seismic Instrument Pool

The objective of FLEX-EPOS – *Flexible instrument network for enhanced geophysical observations and multi-disciplinary research* – is to create a Finnish, national research infrastructure of geophysical instruments and multi-disciplinary geophysical superstations to be utilized in research projects aiming at solving fundamental scientific questions in seismology, geomagnetism and geodesy. The FLEX-EPOS Seismic Instrument Pool is a sub-component of the overall FLEX-EPOS.

Via an application process, the FLEX-EPOS Seismic Instrument Pool provides instruments for seismological experiments of the FLEX-EPOS consortium parties (University of Helsinki; University of Oulu; Geological Survey of Finland; National Land Survey, Finnish Geospatial Research Institute; Aalto University; VTT Technical Research Center of Finland; University of Turku). Instrument types and numbers are listed on the wiki pages of the seismic instrument pool:

<https://wiki.helsinki.fi/display/FLEX/FLEX-EPOS+Seismic+Instrument+Pool>

The seismic instruments are owned by the University of Helsinki, Geological Survey of Finland, University of Turku, Aalto University and University of Oulu. The University of Helsinki hosts the pool.

### 3. Management of FLEX-EPOS Seismic Instrument Pool

#### 3.1 FLEX-EPOS Steering Group

The FLEX-EPOS Steering Group (<https://wiki.helsinki.fi/display/FLEX/FLEX-EPOS+Steering+Group>) consists of one representative and one substitute representative from each of the FLEX-EPOS Consortium parties: University of Helsinki, Geological Survey of Finland, University of Oulu, University of Turku, Aalto University, National Land Survey (Finnish Geospatial Research Institute) and VTT Technical Research Center of Finland. Each consortium party has one vote.

The FLEX-EPOS Steering Group takes decisions on the buildup, storage and maintenance of the seismic instrument pool, sets the operational rules of the seismic instrument pool, allocates access to the seismic instrument pool, and monitors the use of the seismic instrument pool and delivery of the data to the FIN-EPOS, EPOS ERIC and other databases.

The usage of seismic instrument pool is allocated via an application process described below. The Steering Group evaluates the applications for instruments and makes decisions on the time allocations.

#### 3.2 FLEX-EPOS Seismic Pool Coordinator (University of Helsinki, UH)

The FLEX-EPOS Seismic Pool Coordinator (UH) coordinates the practicalities of the buildup and operation of the seismic instrument pool in collaboration and under the guidance of the owners of the instruments and the FLEX-EPOS Steering Group. The FLEX-EPOS Seismic Pool Coordinator is responsible for communicating and implementing the decisions of the FLEX-EPOS Steering Group about the progress of the buildup and

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<sup>1</sup> [https://www.gfz-potsdam.de/fileadmin/gfz/sec22/pdf\\_doc/GIPP/rules\\_GIPP\\_10\\_2019.pdf](https://www.gfz-potsdam.de/fileadmin/gfz/sec22/pdf_doc/GIPP/rules_GIPP_10_2019.pdf)

usage of the instrument pool, and informing the Steering Group about any issues related to the pool operations or the instruments. The FLEX-EPOS Seismic Pool Coordinator is the contact concerning technical and administrative issues related to the overall pool operations.

The FLEX-EPOS Seismic Pool Coordinator can be reached at [flex-epos@helsinki.fi](mailto:flex-epos@helsinki.fi) or via the direct contact information listed on the wiki pages of the Seismic Instrument Pool (<https://wiki.helsinki.fi/display/FLEX/FLEX-EPOS+Seismic+Instrument+Pool>).

The UH FLEX-EPOS storage personnel can be reached at + 358 50 436 1686. This phone number is the contact point for urgent practicalities related to the departure and return of the instruments.

## **4. Application procedure**

### **4.1 Eligibility to file an application**

The FLEX-EPOS consortium parties are the users of the FLEX-EPOS instruments. Only projects involving at least one of the FLEX-EPOS consortium parties are considered, and the main applicant is always a FLEX-EPOS consortium party. Applications with industry involvement and commercial usage, i.e., economic projects, are possible. The Academy of Finland has set the limit of the economic usage of the instruments to maximum 20% annually. Applications for economic projects are set at lower priority.

### **4.2 Submission of application**

The FLEX-EPOS Steering Group will have a pre-scheduled meeting to evaluate the applications tentatively in January and in August. The exact dates of these meetings are announced on the wiki pages and via sending an email to [flex-epos-grp@helsinki.fi](mailto:flex-epos-grp@helsinki.fi) (to which anyone can subscribe). Calls for the applications are opened two (2) months prior to the Steering Group meetings where the decisions are to be made. The deadline for receiving applications is one week prior to the meetings.

Applications are submitted via the following web form:

<https://elomake.helsinki.fi/lomakkeet/110180/lomake.html>.

In between the main calls, short term instrument provision might be possible (decision is made in an email meeting of the FLEX-EPOS Steering Group).

These quick applications are submitted via the following web form:

<https://elomake.helsinki.fi/lomakkeet/112262/lomake.html>

In case of the quick applications, the Steering Group will make a decision as quickly as possible, and at latest within two (2) weeks from receiving the application.

Large projects or projects expected to take place in 6 months' time or later are recommended to send an application for the usage to the pre-scheduled meetings of the Steering Group at latest 6 months prior to the expected use of the instruments.

- A large project will utilize, for instance, i) more than 75% of the monthly capacity of the Instruments concerned OR ii) at least 50% of the monthly capacity of the Instrument concerned for a period longer than one month.

Small projects can send an application to the Steering Group at any time. Steering Group will make a decision as quickly as possible, and at latest within two (2) weeks from receiving the application.

- A small project will utilize, for instance, i) less than 50% of the monthly capacity of the instruments concerned OR ii) less than 75% of the Instruments for a period not exceeding one month.

A Party can make a preliminary reservation for the utilization of the infrastructure by sending an application to the pre-scheduled meetings of the Steering Group. A party making a preliminary reservation is responsible for informing the Steering Group immediately if the project is cancelled and so that reserved instruments can be freed to other users.

The Steering Group can approve reservations for the usage of the Research infrastructure maximum two (2) years in advance. The reservation may be extended up to four (4) years due to a justified reason, such as prolongation of the project or pending funding decision.

### **4.3 Prioritization of project applications**

The FLEX-EPOS Steering Group discusses and evaluates the project applications. The projects are prioritized in the following order:

1. non-economic research projects,
2. economic projects.

The FLEX-EPOS Steering Group oversees that the use of the Research infrastructure for economic projects do not exceed 20% annually.

If necessary to guarantee a fair handling of the requests to use the FLEX-EPOS instruments, the Steering Group may use outside experts to help prioritizing the projects.

The Steering Group will aim to enable all the project requests from the Parties of this Agreement.

The Parties aim that during the period 2021-2024, each FLEX-EPOS party shall have the possibility to use the infrastructure in proportion to their ownership share of the instruments (University of Helsinki 51%; Geological Survey of Finland 24%; University of Turku 10%; University of Oulu 8%; Aalto University 7%).

### **4.4 The project decisions and User Agreement**

Based on the Steering Group decisions, the reservations of the instruments are published on the following online calendar at latest one week after the Steering Group meetings in which the decisions are made:

<https://wiki.helsinki.fi/display/FLEX/Reservation+calendar>

The FLEX-EPOS Seismic Pool Coordinator also separately informs all the applicants about the decisions.

After a positive decision of the Steering Group - at latest one (1) month prior to the start date of the project - the user(s) and the owners of the instruments conclude a User's Agreement to agree on the liabilities, rights, risk allocation, user fees and other responsibilities resulting from the usage of the instruments:

<https://wiki.helsinki.fi/display/FLEX/General+information>

In case of the quick applications, the User Agreement may be signed later than one (1) month prior to the start date of the project. However, enough time need to be reserved for getting the instruments ready for the project, and in case of the quick applications the start dates etc. details of the projects are negotiated on a case-by-case basis.

Except for the mobilization cost, the instruments are provided free of charge in case of non-economic (academic and non-profit) research projects. The mobilization cost only covers the actual costs related to the departure and arrival preparation of the instrument(s) to and from the field operation, raw data download, and preparation and clean-up of the instrument(s). Economic projects pay the mobilization fee according to the market price. In addition to the mobilization cost, economic projects are charged for instrument rental fee the amount of which is decided by the owner(s) of the respective Instrument(s). The rental fees shall be agreed upon in a separate rental agreement(s) between the user(s) and the owner(s) of the instruments, in addition to the User Agreement.

## **5. Services of FLEX-EPOS and the hosting organization (UH)**

### **5.1 Basic services**

According to the start date of the project (date when the instruments leave the UH storage facility) and other details agreed upon in the User Agreement, the hosting organization (UH) hands the instruments over or delivers them to given address. The delivery terms are either FCA or DPU in Finland, and FCA for international projects (Incoterms 2020<sup>2</sup>). Instrument lists (packing list, pro forma invoice) are made available as agreed. In case of DPU delivery terms, the shipping of the instruments will be arranged via the courier services used by the hosting organization and costs will be charged separately from the user(s).

The requested Instrument configuration(s), data delivery format(s) and schedule will be agreed between the hosting organization and the user(s) typically at latest two (2) weeks prior to the start date of the project. The final date of agreeing on these is negotiated on a case-by-case basis. User representative has the responsibility to verify the instrument configuration and setup prior to the hosting organization handing the instruments over to the project.

As needed and agreed, the hosting organization advises the users concerning operation, transportation, payment of duty and adequacy for special usage of the instruments. The work instructions and manuals of the instruments are made available on the wiki pages of the Seismic Instrument Pool.

The hosting organization is also running an archive for raw data and offers assistance by archiving and temporarily storing the project data for a period of one (1) year after the delivery of the data.

### **5.2 Disclaimer of the hosting organization (UH)**

In case of unpredictable circumstances (such as theft or technical defects) the availability of the instruments cannot be guaranteed. Nevertheless, the hosting organization will – in collaboration with the owner(s) of the instruments - take all reasonable steps to ensure a proper functioning and availability of the instruments.

The hosting organization confirms the functioning of the instruments and the set instrument configurations when handing the instruments over. However, the use of the instruments is at users own risk. The hosting organization or the owner(s) of the instruments assume no liability of the general suitability of the instruments for the intended purposes. The hosting organization or the owner(s) are not responsible for any kind of damages resulting from the use of the instruments. Furthermore, the hosting organization or the owner(s) of the instruments are not responsible for the accuracy and correctness of the data, except for that the hosting organization is responsible for delivering the data in the agreed data format.

The hosting organization will produce and make general work instructions available, and can on request provide short tutorials on how to operate instruments. However, the hosting organization has no obligation

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<sup>2</sup> <https://www.logistiikanmaailma.fi/en/contracts/terms-of-delivery/incoterms-2020/>

to provide training. It is the responsibility of the FLEX-EPOS consortium party that made the request for the instruments to ensure that all the project personnel using the instruments is trained.

### **5.3 Special services**

Special services need to be separately agreed on, come with costs and will be invoiced.

## **6. Users responsibilities**

### **6.1 Information and cooperation responsibilities**

Reservations may be cancelled free of charge prior to signing of the User Agreement due to justified reasons, such as failure to receive the funding or failure of negotiations with a third party. If the cancellation is done after the signing of the User Agreement, mobilization costs may be charged. The FLEX-EPOS Steering Group must be informed immediately if instruments will not be needed.

In case of changes in the schedule (i.e., date of pick-up and return) and numbers of the instruments, the FLEX-EPOS Steering Group and the hosting organization should be immediately contacted.

The project update requests should be sent to the following email address: [flex-epos-sg@helsinki.fi](mailto:flex-epos-sg@helsinki.fi)

The User Agreement needs to be signed at latest one (1) month before the start date of the project. At the time of signing the User Agreement, the applicant and the staff of the hosting organization ([flex-epos@helsinki.fi](mailto:flex-epos@helsinki.fi)) arrange a meeting in Kumpula or remotely to agree on the instrument configuration, shipping and data delivery details.

### **6.2 Handling of the instruments**

The user is responsible for the instruments during the project use. All instruments must be cleaned before returning them and they need to be packed according to instructions given by hosting organization when handing out the instruments.

In case of defect of the Instrument, the hosting organization ([flex-epos@helsinki.fi](mailto:flex-epos@helsinki.fi)) and the owner(s) of the instruments need to be informed. The defected instruments are marked and kept separate. The hosting organization, respective owner(s) and the user separately agree on repair schedule, shipping of broken instrument and/or replacement of the Instrument, if needed.

A complete list of all instrument failures should be handed over to the staff of the hosting organization at instrument return. The hosting organization maintains a register/maintenance log where the defects and taken repair actions are registered.

### **6.3 Liability of the user**

The user is liable for any damages and loss of the instruments.

The user is responsible to maintain insurances (property and liability insurance or self-insurance mechanism for governmental bodies) to cover possible damages occurred to Instruments or as a result of use of Instrument(s).

The compensation price for each instrument is calculated using the following formula:

*original prize x remaining life / usual expected lifetime.*

Further liabilities are detailed in the FLEX-EPOS consortium agreement and the User Agreement.

### **6.4 Data**

The data produced within FLEX-EPOS will be part of the national FIN-EPOS and international EPOS, and thus the long-term storage and sharing procedures approved by FIN-EPOS will be applied.

Each user is responsible for the primary and long-term storage of its data, unless otherwise agreed. The data acquired with FLEX-EPOS Research infrastructure should be processed to be compatible with the EPOS data formats and metadata stored in databases following the FIN-EPOS and EPOS procedures. The quality checked experimental data will be made available after embargo moratorium period, the duration of which can be no more than three (3) years. After this the data can be open or restricted. Restricted data, e.g. data with commercial interest, may have a fee. According to the EPOS data policy, the fees should be no higher than the actual cost of making the data available. All projects utilizing the FIN-EPOS infrastructure need to produce metadata licensed with CC0 1.0 (public domain) license regarding project outcomes. Metadata is always open and need to be published in a catalogue relevant to the field of study and reported to FIN-EPOS.

The FLEX-EPOS Steering Group monitors the use of the Research infrastructure and delivery of the data to the FIN-EPOS, EPOS ERIC and other databases. The FLEX-EPOS Steering Group reserves the right to request reports on the data handling.

### **6.5 Publications**

Publications related to experiments with the FLEX-EPOS Seismic Pool instruments have to acknowledge the FLEX-EPOS Research infrastructure. The user sends electronic copies of these publications to the FLEX-EPOS Steering Group. FLEX-EPOS and Academy of Finland support Open Access Publications.