

ANNEX 2 – WORK PLAN 2025

TCS GOVERNANCE AND SERVICES UNDER THE EPOS DELIVERY FRAMEWORK MULTI-YEAR COLLABORATION AGREEMENT (MYCA) BETWEEN EPOS ERIC AND TCS GNSS

THE TCS GOVERNANCE AND SERVICES UNDER THE EPOS DELIVERY FRAMEWORK MULTI-YEAR COLLABORATION AGREEMENT BETWEEN EPOS ERIC AND TCS GNSS 2024 – 2028 WAS ENTERED INTO 2024 BETWEEN:

Parties of the Agreement:

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- (1) **EUROPEAN PLATE OBSERVING SYSTEM EUROPEAN RESEARCH INFRASTRUCTURE CONSORTIUM** established by Commission Implementing Decision (EU) 2018/1732 of 30 October 2018, having its headquarters and statutory seat at Via di Vigna Murata, 605 - 00143 Rome, Italy, (hereinafter "**EPOS ERIC**");
 - (2) **UNIVERSIDADE DA BEIRA INTERIOR – UBI**, established in Convento de Santo António, 6201-001 Covilhã, Portugal, (hereinafter "**TCS Signatory**");
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The TCS Signatory is supported by the following Participants for implementing the tasks described in the 2025 work plan:

Participants:

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- (1) **KONINKLIJKE STERRENWACHT VAN BELGIE – ORB**, established in Avenue Circulaire 3, BRUXELLES 1180, Belgium, (hereinafter "**Participant 1**");
 - (2) **CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE – CNRS**, a public establishment for scientific and technological research having its registered office located at 3 rue Michel Ange 75794 Paris Cedex 16, France, (hereinafter "**Participant 2**");
 - (3) **OBSERVATOIRE DE LA CÔTE D’AZUR – OCA**, established in Boulevard de l’Observatoire CS 34229 - F 06304, NICE Cedex 4, France, (hereinafter "**Participant 3**");
 - (4) **UNIVERSITE GRENOBLE ALPES – UGA**, established in the office at 621, AVENUE CENTRALE Domaine Universitaire de Saint Martin d’Hères, CS 40700, 38058 Grenoble Cedex 9 France, (hereinafter "**Participant 4**");
 - (5) **SATELLITE GEODETIC OBSERVATORY – SGO**, established in H-1111 Budapest, Budafoki ut 59, Hungary, (hereinafter "**Participant 5**");
 - (6) **ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA – INGV**, established in Via di Vigna Murata 605 00143, Rome, Italy, (hereinafter "**Participant 6**");
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Starting date: 01/01/2025

Closure date: 31/12/2025

This 2025 Work Plan shall come into force on 1 January 2025 (Effective Date) and shall run until 31 December 2025. If this Work Plan is entered into after the Effective Date, it will apply retrospectively to work carried out and contributions made in relation to the Work Plan on or after the Effective Date.

The 2025 Work Plan is an integral part of the TCS Governance and Services under the EPOS Delivery Framework Multi-Year Collaboration Agreement between EPOS ERIC and TCS GNSS 2024 – 2028.

The tasks shall be performed under the responsibility of the TCS Signatory and each concerned Participant. However, the overall responsibility for monitoring the Work Plan tasks lies with the TCS Signatory.

The tasks to be undertaken during this 2025 Work Plan period are set out in further detail in Table 1 below. The TCS Signatory and the Participants agree to commit additional resources needed to carry out the Work Plan.

Amendments to or changes of this Work Plan shall, in order to be valid:

- clearly be stated as amendments to, or changes of this Work Plan;
- be made in writing and signed by authorized representatives of both Parties not later than the 15th of September of the calendar year.

All other terms of the Agreement shall remain in full force and effect.

Table 1. List of tasks, expected outcomes and organizations involved

TCS GOVERNANCE AND COORDINATION			
	Tasks	Expected outcomes	Organization involved
1.	Management of the MYCA	<ul style="list-style-type: none"> - Technical and financial reporting collected by the TCS Coordinator and sent to the ECO (in one single delivery) no later than 60 days after the end of the financial year. - Internal control on MYCA progress within the consortium 	UBI, ROB, CNRS-OCA, CNRS-UGA, INGV, SGO, EPOS ERIC
2.	TCS governance including activities of the TCS Consortium Board and its additional boards, committees and working groups	<ul style="list-style-type: none"> - Meetings of the TCS Consortium Board, other boards and committees (e.g. user feedback group, data providers committee), working groups, organized and attended by all concerned partners. - Effective circulation of EPOS ERIC communications to the TCS Consortium members. - TCS secure the availability of specialized skills to address the TCS roles and responsibilities. 	UBI, ROB
3.	Guaranteeing qualified participation of the TCS in all relevant EPOS committees, boards, working groups, workshops that involve TCS	<ul style="list-style-type: none"> - Consortium representatives participate to committees, boards, working groups, workshops, EPOS days. 	UBI, ROB, CNRS-OCA, CNRS-UGA
4.	Scientific and technical coordination at TCS level aiming at the provision of harmonised quality-checked DDSS to EPOS, including new types of DDSS.	<ul style="list-style-type: none"> - Assessment and reporting of data and services (quantity, quality, reliability, FAIRness). - Roadmap for the improvement of data and services on the EPOS Platform. - Roadmap for the integration of new types of DDSS into the EPOS Platform. 	UBI, ROB, CNRS-OCA, CNRS-UGA

5.	Building strategic partnerships and attracting new partners to increase participation to the TCS, in collaboration with EPOS ERIC	<ul style="list-style-type: none"> - Report on activities focused on this task, including e.g. efforts to include National Research Organizations from new countries joining the ERIC in the TCS Consortium, participation in joint projects. 	UBI, ROB
6.	Engaging in monitoring the TCS sustainability, in coordination with ECO and SCC	<ul style="list-style-type: none"> - Participation in TCS cost-book update when agreed by SCC and ECO. - Report on activities seeking the improvement of the TCS sustainability, such as through project proposals, networking activities, assessment of national resources, etc 	UBI, ROB, CNRS-OCA, CNRS-UGA, INGV, SGO
7.	Monitoring and evaluation of data access policies in EPOS	<ul style="list-style-type: none"> - Reporting of progress on the adoption and harmonisation of data management policies aligned with the EPOS policies, including amongst prospective data providers identified by the TCS. - Evaluation/feedback on data policies in EPOS. 	UBI, ROB
8.	Development of cross-TCS strategies	<ul style="list-style-type: none"> - Interaction with other TCS to coordinate the harmonization of DDSS of similar content. - Participation in the elaboration of guidelines to disseminate similar data and data products from different TCS. - Development and integration of cross-TCS products for e.g. multi risk/hazard assessment 	UBI, ROB, CNRS-OCA, CNRS-UGA, INGV
9.	Identification of ICS-D use cases	<ul style="list-style-type: none"> - ICS-D use cases proposed by the TCS. 	UBI, ROB, CNRS-UGA
10.	Establishing the TNA framework in EPOS	<ul style="list-style-type: none"> - Development of the concept for the integration of TNA data into the EPOS Platform; - Guidelines for policies on transnational access (e.g. physical/remote, access to physical facilities/mobile instrumentation/computational facilities); Coordination with existing and future projects that include TNA. 	N/A

TCS OUTREACH

11.	Communication and dissemination	<ul style="list-style-type: none"> - Report on TCS outreach activities including: publication of news, events, and other activities on EPOS social media and websites; - Citation of EPOS following the guide in force; Implementation of the EPOS branding for all EPOS-related communication; - Participation in the update of existing TCS-related communication materials and in the production of new ones; - Participation in communications campaigns organised by the EPOS communication office 	UBI, ROB, CNRS-OCA, CNRS-UGA; EPOS ERIC
12.	TCS training activities	<ul style="list-style-type: none"> - Participation in training activities organised by EPOS ECO, as well as organisation of specific community training activities by the TCS. - Production of training materials in collaboration with EPOS ECO 	UBI, ROB, CNRS-OCA, CNRS-UGA
SERVICE INTEGRATION ON THE EPOS PLATFORM			
13.	Provision, maintenance and improvement of the access to data and metadata through web-services, aligned with FAIR data principles, allowing to search, access and download data through the EPOS Platform	<ul style="list-style-type: none"> - Web-services operational on the EPOS Data Platform, complying with the FAIR principles - DDSS and associated information are described by means of EPOS-DCAT-AP - (https://github.com/epos-eu/EPOS-DCAT-AP) 	UBI, ROB, CNRS-OCA, CNRS-UGA
14.	Active participation of the nominated TCS IT representatives to activities related to the development and bug fixing of the ICS-TCS System	<ul style="list-style-type: none"> - IT representatives attend the annual face-to-face EPOS meeting (EPOS Days) and planned ICS-TCS workshop meetings (3 per year, usually remote) 	UBI, ROB, CNRS-OCA, CNRS-UGA
15.	Response to user requests received through EPOS Platform feedback section.	<ul style="list-style-type: none"> - User requests are addressed by the concerned TCS 	UBI, ROB, CNRS-OCA
16.	TCS feedback on EPOS Platform communicated to the EPOS IT team during the ICS-TCS interaction workshops	<ul style="list-style-type: none"> - EPOS Platform functionalities implemented for better serving the needs of the community 	UBI, ROB, CNRS-OCA, CNRS-UGA

DDSS STEWARDSHIP UNDER EPOS

17.	Contribution to the elaboration of guidelines for new DDSS providers	- TCS-specific guidelines for the integration of new DDSS in EPOS publicly available, developed under the coordination of the ECO	UBI, ROB, CNRS-OCA, CNRS-UGA
18.	Standardization and collection of DDSS metadata (e.g. persistent identifiers) in line with FAIR data principles	- Increased completion of DDSS metadata in a standardized format; DDSS is referenceable through a persistent identifier	ROB
19.	Provision of an authentication and authorization system at TCS level (if relevant)	- For DDSS requiring authentication and/or authorization an Authentication and Authorization system guaranteeing interoperability with OpenIDConnect and/or OAuth2 standards has to be provided.	UBI
20.	Contribution to metadata vocabularies for EPOS	- Up-to-date metadata vocabularies to be used in the context of EPOS.	UBI, ROB, CNRS-OCA, CNRS-UGA
21.	Enhancement of software to manage EPOS-specific metadata, data, and data products including alignment to FAIR data principles	- Up-to-date software implementations allowing the operations of services on the EPOS Platform.	UBI, ROB, CNRS-OCA, CNRS-UGA, INGV
22.	Maintaining the EPOS facility registry	- Population of the EPOS facility registry.	ROB
23.	Readiness of the EPOS TNA brokering system	- Updated information about TNA opportunities available on the EPOS website, linked to the EPOS facility registry in the EPOS Platform.	N/A

Table 2. List of operational services on the EPOS Platform as of December 2024

SERVICE NAME	SERVICE DESCRIPTION	DATA PROVIDER(S)	SERVICE PROVIDER
EPOS GNSS Daily Position Time Series from INGV	Download the GNSS position time series produced by the EPOS INGV processing center. The data can be filtered by a search parameter (e.g. station, etc).	INGV - Istituto Nazionale di Geofisica e Vulcanologia	UBI - Universidade da Beira Interior
EPOS GNSS Daily Position Time Series from UGA-CNRS	Download the GNSS position time series produced by the EPOS UGA-CNRS processing center. The data can be filtered by a search parameter (e.g. station, etc).	UGA - Université Grenoble Alpes	UBI - Universidade da Beira Interior
EPOS GNSS Velocities from INGV	Download the GNSS velocities produced by the INGV processing center. The data can be filtered by a search parameter (e.g., station, etc).	INGV - Istituto Nazionale di Geofisica e Vulcanologia	UBI - Universidade da Beira Interior
EPOS GNSS Velocities from UGA-CNRS	Download the GNSS velocities produced by the UGA-CNRS processing center. The data can be filtered by a search parameter (e.g. station, etc).	UGA - Université Grenoble Alpes	UBI - Universidade da Beira Interior
EUREF GNSS Daily Position Time Series from ROB-EUREF	Download the GNSS position time series produced by the ROB-EUREF processing center. The data can be filtered by a search parameter (e.g., station, etc).	ROB - Koninklijke Sterrenwacht van België	UBI - Universidade da Beira Interior
EUREF GNSS Velocities from ROB-EUREF	Download the GNSS velocities produced by the ROB-EUREF processing center. The data can be filtered by a search parameter (e.g. station, etc).	ROB - Koninklijke Sterrenwacht van België	UBI - Universidade da Beira Interior
EUREF-EPOS GNSS Velocities from SGO-EPND	Download the GNSS velocities produced by the SGO-EPND processing center. The data can be filtered by a search parameter (e.g. station, etc).	SGO – Satellite Geodetic Observatory	UBI - Universidade da Beira Interior
EUREF-EPOS GNSS Weekly Position Time Series from SGO-EPND	Download the GNSS position time series produced by the SGO-EPND processing center. The data can be filtered by a search parameter (e.g., station, etc).	SGO – Satellite Geodetic Observatory	UBI - Universidade da Beira Interior
GNSS Position Time Series Offsets	Download the GNSS time series offsets (due to either instrument changes, co-seismic	UGA - Université Grenoble Alpes	UBI - Universidade da Beira Interior

	<p>displacement, or other offset) produced by the UGA-CNRS processing center. The data can be downloaded as a json file and may be used to remove these offsets from the time series provided.</p>		
GNSS Stations with High-rate RINEX Data	<p>Displays the GNSS stations from EPOS Validated Providers on the map and returns their metadata as a geojson file for station that provide GNSS high-rate RINEX data. The thematic GNSS service (http://gnssdata-epos.oca.eu) offers more complete functionalities</p>	<p>EPOS-GNSS Data Suppliers (Up-to-date list provided at https://gnss-metadata.eu/site/datasuppliers)</p>	<p>OCA - Observatoire de la Côte d'Azur</p>
GNSS Stations with Products	<p>Displays the GNSS stations that provide GNSS Products on the map. Returns their metadata as a json, geojson, or csv file.</p>	<p>EPOS Stations: EPOS-GNSS Data Suppliers (Up-to-date list provided at https://gnss-metadata.eu/site/datasuppliers) No-EPOS Stations: info available at SGO (https://epnd.sgo-penc.hu/station-distribution/)</p>	<p>UBI - Universidade da Beira Interior</p>
GNSS Stations with RINEX Data	<p>Displays the GNSS stations from EPOS Validated Providers on the map and returns their metadata as a geojson file for station that provide GNSS RINEX data. The thematic GNSS service, the EPOS-GNSS Data Gateway (http://gnssdata-epos.oca.eu) offers more complete functionalities.</p>	<p>EPOS-GNSS Data Suppliers Up-to-date list provided at https://gnss-metadata.eu/site/datasuppliers</p>	<p>OCA - Observatoire de la Côte d'Azur</p>
List RINEX Files search parameters	<p>Returns the list of the available search parameters values that can be used to filter the results of the "Metadata and URL of RINEX files" service.</p>	<p>OCA - Observatoire de la Côte d'Azur</p>	<p>OCA - Observatoire de la Côte d'Azur</p>
GNSS Strain Rates from LM	<p>Download the horizontal strain rates produced by the EPOS LM processing center. The data can be downloaded as a txt-file and plotted for further use;</p>	<p>LM – Lantmäteriet, Sweden</p>	<p>UBI - Universidade da Beira Interior</p>
Metadata and URL of Highrate RINEX files	<p>Download the metadata (including URL) of validated High Rate (1Hz/1 hr) RINEX files for the stations available in the service GNSS Stations with High Rate data. The script output provides the URL of the High Rate RINEX files and the JSON and CSV outputs</p>	<p>OCA - Observatoire de la Côte d'Azur INGV - Istituto Nazionale di Geofisica e Vulcanologia NOA - National Observatory of Athens ROB - Koninklijke Sterrenwacht van België</p>	<p>OCA - Observatoire de la Côte d'Azur</p>

	provide more file metadata.		
Metadata and URL of RINEX files	Download the metadata (including URL) of validated RINEX files. The metadata can be filtered by a search parameter (e.g., station, country, etc) whose possible values are provided by the “List RINEX Files search parameters” service. The script output provides the URL of the RINEX files and the JSON and CSV outputs provide more file metadata. The thematic GNSS service, the EPOS-GNSS Data Gateway (http://gnssdata-epos.oca.eu) offers more complete functionalities.	<p>OCA - Observatoire de la Côte d’Azur</p> <p>UBI - Universidade da Beira Interior</p> <p>IGE – Instituto Geografico Nacional de Espana</p> <p>OGS - Istituto Nazionale di Oceanografia e di Geofisica Sperimentale</p> <p>ROB - Koninklijke Sterrenwacht van België</p> <p>IPGP- Institut de Physique du Globe de Paris</p> <p>INGV- Istituto Nazionale di Geofisica e Vulcanologia</p> <p>NOA- National Observatory of Athens</p> <p>LIENSs - La Rochelle University</p>	OCA - Observatoire de la Côte d’Azur

Table 3. Budget (total costs and Grant/In-kind)

		TOTAL COSTS						GRANT/IN-KIND		
	TASKS #	DIRECT PERSONNEL COSTS		OTHER DIRECT COSTS		INDIRECT COST (Overheads)	TOTAL COSTS	EPOS ERIC GRANT	IN-KIND contribution	
				Travel	Other goods and services				INDIRECT COST (Overheads)	Direct costs
		P/M	EUR	EUR	EUR	EUR	EUR	EUR	EUR	EUR
UBI	1-9,11-17, 19-21	10.8	€60,922.59	€4,240.00	€7,500.00	€15,230.65	€87,893.23	€72,662.59	€15,230.65	€0.00
ROB	1-9, 11-18, 20-22	6.8	€67,229.39	-	-	€16,807.35	€84,036.74	€67,229.39	€16,807.35	€0.00
CNRS-OCA	1,3,4,6,8,11-17,20,21	4.7	€37,358.15	-	-	€9,339.54	€46,697.68	€37,358.15	€9,339.54	€0.00
CNRS-UGA	1,3,4,6,8,9,11-14,16,17,20,21	2.4	€19,130.20	-	-	€4,782.55	€23,912.75	€19,130.20	€4,782.55	€0.00
INGV	1,6,8,21	2.1	€9,098.94	-	-	€2,274.73	€11,373.67	€9,098.94	€2,274.73	€0.00
SGO	1,6	2.5	€5,749.74	-	-	€1,437.44	€7,187.18	€5,749.74	€1,437.44	€0.00
TOTAL	-	29.4	€199,489.00	€4,240.00	€7,500.00	€49,872.25	€261,101.25	€211,229.00	€49,872.25	€0.00
EPOS ERIC	-	1	€6,000.00	-	-	-	€6,000.00	-	-	€6,000.00

SIGNED for and on behalf of EPOS ERIC

Name: Carmela Freda

Position: Executive Director

Date:

Signature:

SIGNED for and on behalf of the TCS Signatory

Name: Silvia Cristina da Cruz Marques Socorro

Position: Vice-Rector of UBI

Date:

Signature: