1. PUBLISHABLE SUMMARY

Summary of the context and overall objectives of the project (For the final period, include the conclusions of the action)

EPOS, the European Plate Observing System, is the research infrastructure aimed at ensuring sustainable and universal use and re-use of solid Earth science data and products fostering state-of-the-art research and innovation. Understanding how the Earth works as an interconnected system is crucial for the modern society that needs natural resources to support home life, industry, and business and security in the face of natural hazards. Solid Earth science offers answers on how to maintain safe, prosperous, and habitable the Planet Earth. EPOS integrates diverse European Research Infrastructures under a common federated framework, bringing together scientists, national research infrastructures, ICT experts and decision makers. The sustainability of such a complex system is the main issue to be addressed by the EPOS research infrastructure and it is the scope of the EPOS SP project. EPOS governed by an ERIC participated by 14 European countries, is now in the stage when sustainability must be built by enhancing support from all identified stakeholders. This means to increase the number of countries supporting EPOS at a national level and the number of scientists that use the EPOS services and to strengthen the service robustness and user friendliness, to create ties with the private sector, and to engage society. The EPOS SP project has been structured to fit in the EPOS RI lifecycle and its main goal is to provide EPOS with tools (e.g., Sustainability Plan to be exploited by the EPOS ERIC) to move from financial viability to long-term sustainability.

Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far (For the final period please include an overview of the results and their exploitation and dissemination)

The overall objective of the EPOS SP project is to perform activities ensuring the long-term sustainability of the EPOS Research Infrastructure. During the first reporting period significant results have been achieved according to the specific objectives. To enlarge the number of countries joining EPOS ERIC, the National Authorities Consultation Board (NACB) has been established and already in 2020 Romania, member of the NACB, joined EPOS ERIC. Strengthening financial viability through the harmonisation of in-kind contributions from national projects and funding is crucial to long-term financial sustainability of data and services and a mapping on how countries are supporting EPOS at national level has been performed. In this framework a pivotal result has been the finalization of Collaboration Agreements between EPOS ERIC and the organizations in charge of the governance of the scientific communities (TCS). Activities focused on enhancing the technical sustainably of the TCS-ICS System concerned the improvement of the Integrated Core Service (ICS) in terms of robustness and metadata ingestion while testing the TCS-ICS system. The work carried out within the project is fully aligned with the testing of the ICS-TCS system planned in the EPOS ERIC Strategic Plan. The project succeeded in engaging new communities as the Tsunami Community obtained the official status of EPOS “Candidate-TCS” in July 2021. To foster EPOS readiness with EOSC and FAIR Data, an on-line survey, build on similar questionnaires conducted by other initiatives (Open AIRE and FOSTER), has been performed and it allowed to identify the current level of awareness and adoption of good practices to support open science within the EPOS. The online survey has been complemented by face-to-face interviews with selected TCS to obtain a detailed understanding of the on-line responses. An initial evaluation of tools and metrics for evaluating the FAIRness of EPOS services has been started in consultation with other initiatives including the FAIRsFAIR project

that is contributing in developing the Rules of Participation for the EOSC. Strategies to strengthen cooperation with the private sector has been outlined, although the COVID19 fundamentally changed the original action plan. The modified action plan resulted in a set of strategic documents identifying key partners and alternative engagement strategies through virtual communication tools and activities have been performed accordingly. COVID19 also severely impacted activities for promoting data science innovation and developing the global dimension of EPOS. During the reporting period a strategy for collaborating with pan–European research infrastructures and international initiatives and organisations has been developed and a number of key partners have been identified. Due to the COVID19, all meetings, planned in presence, have been performed remotely. Nevertheless, the project succeeded in undertake specific collaboration for data science and e-science innovation within ENVRI (and ENVRIFAIR) and Research Data Alliance (RDA). In addition, collaboration activities have been undertaken to strengthen already established relationships with key European (e.g. EUREF, ESA) and global (e.g Auscope, IRIS, UNAVCO, GEO) initiatives. Relevant ethical implications of existing and future EPOS services were explored by collecting information and perceptions concerning the ethical implications associated with data, data products, and service provision through the EPOS Research Infrastructure. Results obtained through the questionnaire will serve as input and knowledge base to elaborate the Ethics Principles and Guidelines for the EPOS ERIC. Notwithstanding the COVID19 training and outreach initiatives on the EPOS contents and usage have been developed to be available on YouTube. This includes an introduction of EPOS and a demonstration on how to search for data using the EPOS Data Portal.

Progress beyond the state of the art, expected results until the end of the project and potential impacts (including the socio-economic impact and the wider societal implications of the project so far)

EPOS SP project is committed to developing a plan which will provide tools for the long-term sustainability of the EPOS RI. The driving concept of the EPOS SP project reflects the assumption that "sustainability" is not simply related to funds available. It requires a broader view, including governance, financial viability, technical capability, cooperation with other research infrastructures and industry, and interactions with all potential user categories. The EPOS SP project is structured (i) to create synergies among diverse actions dedicated to (i) ensuring governance and financial sustainability through the entire research infrastructure lifecycle, (ii) guarantee technical sustainability and develop innovation to fully exploit data and service provision, (iii) establish and maintain excellence by preserving and reinforcing the trust and awareness of users and (iv) exploit economic and societal benefits to keep stakeholders engaged. Moreover, this project will allow the EPOS RI to advance beyond the current status by ensuring further progress in terms of innovation in the use of multidisciplinary FAIR data from solid Earth science. In the last year of the project, the EPOS Long-term Sustainability Plan will be delivered for discussion and adoption to the EPOS ERIC. The challenge of the EPOS SP project is to achieve the final goal of identifying the path to move the EPOS RI from financial viability to long-term sustainability. Ensuring the effectiveness of the specific impacts should allow the EPOS SP project to deliver information and achievements to EPOS ERIC that, in turn, is in charge of undertaking the Socio-Economic Impact assessment of EPOS. EPOS ERIC, coordinator of the EPOS SP project, will ensure the exploitation of the project results and the cooperative framework's follow up of activities both from a financial and governance point of view.

Address (URL) of the project's public website

https://www.epos-eu.org/epos-sp-project