

 Content archived on 2023-04-13

EU Particle Physics & Astronomy commit to the Research Data Revolution making the European Open Science Cloud a reality

2019 sees the exciting launch of 1 out of the five successfully retained INFRA-EOSC-04-2018 Cluster projects, which the European Commission supports with €16 million to boost the implementation of the European Open Science Cloud (EOSC). ESCAPE «The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures» answers the EOSC goal in bringing People, Data, Services, Training, Publications, Projects & Organisations, all together in an integrated & federated environment.



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Dr. Giovanni LAMANNA, Director of the IN2P3 laboratory LAPP - Laboratoire d'Annecy de Physique des Particules and Principal Investigator of the ESCAPE project, highlights that:

"To address the critical questions of open science and long-term reuse of data for science and for innovation, it is important to put together a cluster of ESFRI projects and pan-European international research organisations that share aligned challenges of data-driven research, have demonstrated

capabilities in addressing various stages of data workflow and conduct fundamental research through complementary approaches. It is the first time that many of the greatest European scientific facilities in physics and astronomy have combined forces to make their data and software interoperable and open, committing to make the European Science Cloud a reality. This is an important milestone for European scientific research.

Multi-messenger astronomy and accelerator-driven particle physics are two pillars of the ESCAPE project. Through the combination of the experimental investigations of the two extremes, from the largest-scale structures in the observable Universe to the most fundamental particles, the astronomy-related projects and the accelerator-based particle physics facilities will open together new paths towards the understanding of the Universe. A deluge of data is expected in the next years by the next generation facilities prioritised in the European Strategy Forum on Research Infrastructures (ESFRI1), and other world-class projects. This €16 million funding boost will help Europe's world-leading research infrastructures work together to find common solutions to their data challenges, their data interoperability, their data access and to accentuate the openness of Fundamental Science research to the full international community, from professionals to the public.

People: EU astronomers and particle physicists are celebrating the €16 million boost for Open Science today, through ESCAPE. ESCAPE is not just about providing tools for the expert European science community. Members of the public will be able to access world-class data and participate in science discovery, through citizen science mass participation experiments.

Data: Many of Europe's greatest laboratories and research infrastructures are combining forces to make all their data findable, accessible, interoperable and reusable, through the European Open Science Cloud (EOSC). Users are invited to contribute to define the main common functionalities of EOSC and the needs of their own community. European astronomers and particle physicists are committing to build EOSC through ESCAPE.

Training: ESCAPE's work-plan emphasises a strong component of training – the aim is to attract and educate young scientists towards Open Science and data stewardship, in using the newly developed tools and methodologies. The EOSC will be developed to serve the needs of scientists and to respond to the global cultural change recognising research data as a significant output of research that needs appropriately curated throughout and after the period conducting the research.

Services: ESCAPE will extend the concepts of the astronomical Virtual Observatory seamlessly into the domains of solar physics, particle physics and astroparticle physics. ESCAPE will leverage the long-standing expertise of the particle physics community in large-scale distributed computing and data resources, building new tools to deal with the data avalanche from the next generation of facilities to create a giant "data lake" of up to multi-Exabytes federating national and regional data centres. A new science analysis platform will be built, so users of the EOSC can tap into existing software and bring their own. ESCAPE will create a new open source software repository, to maximise software re-use, co-development, to identify open

source software repository, to maximise software reuse & co-development, to investigate new analysis techniques.

Keywords

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ESCAPE

2 February 2024

PROJECT

Last update: 12 August 2019

Permalink: <https://cordis.europa.eu/article/id/125233-eu-particle-physics-astronomy-commit-to-the-research-data-revolution-making-the-european-open>

