

The ESPSRC's approach to an ecosystem of services for science support within the SKA Regional Centres Network

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The Square Kilometre Array Observatory (SKAO) is an international collaborative effort focused on constructing and operating the world's most advanced radio telescope. SKA data (~700PB/year) will be delivered to a Global Network of SKA Regional Centres (SRCNet) that will provide the global scientific community with access to SKA Observatory data with analysis tools and services, as well as the processing and storage capacity to fully exploit its scientific potential, making the SRCs the place where SKA science will be done.

Five prototypes have been proposed within the SRCNet to be implemented in order to provide each of the building blocks that will shape the SRCNet. These prototypes cover a) the deployment of global data distribution, replication and scientific archiving platforms between SRCNet nodes, b) federated authentication, authorisation and auditing infrastructure, c) distributed data processing between SRCs, d) data visualisation, and finally e) software delivery and distribution. To tackle the work with these prototypes, different Agile teams have been established, consisting of members from several national SRCs of the SRCNet who collaborate in the development, implementation and deployment of these services for SRCNet.

The Instituto de Astrofísica de Andalucía (IAA-CSIC) is leading the development of the Spanish SKA Regional Centre (ESPSRC). The ESPSRC members are working in an Agile team called Coral Team (a Agile stream-aligned team) that also integrates other members of the United Kingdom (UKSRC), Switzerland (SRCCH) and Sweden (SWESRC). The Coral team is involved in the deployment and testing of a scaled-down version of the international SRCNet platform (mini-SRCNet), key to the evaluation of the technologies to be used in its implementation.

Under this scenario and to support the work with the prototypes, the ESPSRC provides a flexible infrastructure model governed by OpenStack where computing, resources and storage are enabled for collaboration with the development of the prototypes proposed in the team, such as deployment of data distribution platforms like Rucio and CADC Storage Inventory, orchestration of container services, science platforms, Virtual Machines (VM), on-demand clusters and software distribution among others.

The ESPSRC plays an important role in providing computing resources for research, development and training/testing projects, fostering a transparent and collaborative environment aligned with FAIR and Open Science principles. In this contribution we present the ESPSRC, detailing our work within the SRCNet collaboration on hardware infrastructure and cloud computing, data distribution and archiving, software delivery and science services, as well as our collaborations with other SRCs.

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