

From AENEAS to the SKA Regional Centres. Spanish contribution

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SKA is an international project, qualified as ESFRI Landmark Project, to build the largest and most sensitive radio telescope ever conceived, with the potential to achieve fundamental advances in Astrophysics, Physics and Astrobiology. Since 2011 the IAA-CSIC coordinates the Spanish participation in the SKA, closely collaborating with Portugal in SKA related activities during this time. Spain has recently become the eleventh Member of the SKA Organisation thus ensuring the participation of Spanish groups in the scientific exploitation of SKA data and in the construction of the telescope.

The SKA will also be the greatest data research public project, once complete. It will be composed of thousands of antennas distributed over distances of up to 3000 km, on both Africa and Australia and it will generate a copious data flux (around 1TB/s) that will turn the task of extracting scientifically relevant information into a scientific and technological Big Data challenge. The SKA Science Data Processor (SDP), will transform this flux of raw data into calibrated data products that will be delivered, at an average rate of about 150PB/year, to worldwide distributed data centres –called SKA Regional Centres (SRCs)- that not only will provide access to the SKA data but also to the analysis tools and processing power. The SRCs will have hence a key role in the exploitation of SKA data and the achievement of the SKA scientific goals.

An Alliance of SKA Regional Centres (SRCs) is being designed to address the challenge of scientifically exploiting the SKA data deluge. IAA-CSIC participates in different initiatives addressing this task, highlighting AENEAS, an H2020 on-going project. Its objective is to design a distributed and federated European SRC considering the existing services offered by European e-Infrastructures. AENEAS consortium includes a Portuguese partner, the Instituto de Telecomunicações, thus being a framework to promote the Iberian collaboration in the context of the SRCs.

In addition, IAA-CSIC coordinates SKA-Link, a project that complements AENEAS efforts by studying how SRCs will face the challenge of supporting Open and Reproducible Science.

In this talk, we will present the contribution of IAA-CSIC to the AENEAS project and other activities related to the SRCs, including SKA-Link as well as our work studying how Distributed Computing Infrastructures (Ibercloud, EGI Federated Cloud and Amazon Web Services among others) fulfil requirements of a pipeline for calibrating data from LOFAR, one of the SKA pathfinders.

Presenter: SÁNCHEZ EXPÓSITO, Susana (IAA-CSIC)

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