

ASTRI-Horn, ASTRI-Miniarray and CTA Observatory a new Archival Perspective Design

In the framework of the international Cherenkov Telescope Array gamma-ray Observatory (CTAO), the Italian National Institute for Astrophysics (INAF) has developed an end-to-end prototype of the CTA small-size class of telescopes in dual-mirror (SST-2M) Schwarzschild-Couder configuration. The prototype, named ASTRI-Horn, is located at the INAF “M.C. Fracastoro” observing station in Serra La Nave (Mt. Etna, Sicily). The ASTRI-Miniarray Project is the continuation of ASTRI-Horn and consists of a nine ASTRI telescopes currently in construction phase sited at the Teide Observatory in Tenerife Island of Canary Islands.

Off-site data archiving & handling management system for both ASTRI-Horn prototype and Miniarray are developed within INAF institutes and take care of the full data-chain produced by the different observatory scientific devices at different analysis steps. The Archive System provides the access to data at different user-levels and for different use-cases, each one with a customized data organization. The Astri Miniarray Archive System (AMAS) environment is used as technological testbed for archival, simulation, data-processing, quick look and quality check as well as scientific validation of intermediate and final data products during the workload.

In this context AMAS system applied to VHE data has to be considered as a preproduction prototype of the CTAO Archive System and may become a de-facto standard for multipurpose adaptive storage applications to be adopted by several heterogenous scientific communities as well as in European Projects and Collaborations. Under the CTAO Collaboration the INAF has the leadership of several working package, in particular the Bulk Data Management System (BDMS) that is a part of the Data Processing and Preservation System (DPPS), which directly interfaces with Science Archive hosted in Science User Support System (SUSS). Due to the huge amount of data (produced in two different sites), to be processed and for which the scientific community needs to have access, all the most important operations has been moved off-site, distributing both computing and archival in 5 different datacenters, geographically distant and separated. One of these datacenters is hosted in Frascati in synergy between INAF and INFN.

Primary author: Dr GALLOZZI, Stefano (Istituto Nazionale di Astrofisica (INAF))

Presenter: Dr GALLOZZI, Stefano (Istituto Nazionale di Astrofisica (INAF))

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