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To cut or not to cut: Data-quality evaluation for the ASTRI Mini-Array

The ASTRI Mini-Array will be an array of nine Imaging Atmospheric Cherenkov Telescopes located at the Observatorio del Teide, in the Canary Islands. Out of them, one telescope (ASTRI-1) has been taking data since November 2024, with the rest of the telescopes expected to become operational during the next months. Given the complexity of the analysis of gamma-ray data acquired with Cherenkov telescopes, a proper evaluation of the quality of these data is very important to avoid a negative impact on the high-level scientific products. There are several factors that can contribute to reducing the quality of the data, such as clouds, high humidity or a high dust concentration in the air, among others. In order to take all these factors into account and evaluate their impact on the data, a data quality check (DQC) pipeline has been developed for ASTRI. In this contribution, we will describe the different steps that comprise the ASTRI DQC pipeline, including the necessary inputs at different data levels, the extraction and handling of relevant information, the criteria to define the quality cuts and their application to the data, and the production of diagnostic plots. We will also show how setting quality cuts based on the single-telescope data taken with ASTRI-1 can improve the high-level scientific results.

Collaboration(s)

ASTRI

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