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Commissioning of the ATLAS offline software with cosmic rays

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The ATLAS experiment of the LHC is now taking its first data by collecting cosmic ray events. The full reconstruction chain including all sub-systems (inner detector, calorimeters and muon spectrometer) is being commissioned with this kind of data for the first time.

Specific adaptations to deal with particles not coming from the interaction point and not synchronized with the readout clock were needed. Data decoders and the infrastructure to deal with conditions data as those coming from the data acquisition configuration, detector control system, calibration and alignment corrections were developed and validated as well.

Detailed analysis are being performed in order to provide ATLAS with its first alignment and calibration constants and to study the combined muon performance. Combined monitoring tools and event displays have also been developed to ensure the good data quality.

A simulation of cosmic events according to the different detector and trigger setups has also been provided to verify it gives a good description of the data.

Submitted on behalf of Collaboration (ex, BaBar, ATLAS)

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