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Calibration and Performance of the precision chambers of the ATLAS muon spectrometer.

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The ATLAS muon spectrometer consists of a system of precision tracking and trigger chambers embedded in a 2T magnetic field generated by three large air-core superconducting toroids. The precision Monitored Drift Tube (MDT) chambers measure the track sagitta up to a pseudo-rapidity of 2.7 with a 50 μm uncertainty yielding a design muon transverse momentum resolution of 10% at 1 TeV. Muon tracking is augmented in the very forward region by Cathode Strip Chambers (CSC).

The calibration program, essential to achieve the spectrometer design performance and physics reach, is conducted at three worldwide computing centers. These centers each receive a dedicated High Level Trigger data stream that enables high statistics based determination of T_0 's and drift-time to drift-space relations. During the first year of data taking a system of periodic calibration updates has been established. The calibration algorithms, methods and tools and performance results for this first year of LHC collision data collected by the muon spectrometer will be presented.

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