S10a ALMA Polarization Monitoring of Extragalactic Radio Sources

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ALMA (Atacama Large Millimeter/Submillimeter Array) has been monitoring full-Stokes flux densities of ~ 50 extragalactic radio sources at 100, 230, and 340 GHz with a ~ 10 -day cadence. The monitoring program mainly uses the Morita array to determine flux densities of the calibrators that are required for amplitude calibration in the ALMA science observations. In addition, the program delivers polarization properties that allows us (1) selection of an adequate polarization calibrator for a polarization observation, (2) quality assurance in polarization data reduction, and (3) astrophysical studies in active galactic nuclei. The calibrator set consists of blazars, flat-spectrum radio quasars, and radio galaxies whose polarization is ascribed to synchrotron emission from magnetized plasma in relativistic jets. Time variability of polarization degree, orientation, and Faraday rotation measure can be studied using the multi-frequency monitoring program. We will report the methodology of polarization reduction and the performance of the measurements.