Progress of the NASA ACE Mission Polarimeter Working Group instrument inter-comparison

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The NASA Aerosol-Cloud-Ecosystem (ACE) mission is a National Research Council Decadal Survey recommended mission that will contain an imaging polarimeter for remote sensing of aerosols and clouds. A variety of airborne polarimeter prototypes exist, so the ACE Polarimeter Working Group (ACEPWG) was formed to share information between groups and collectively work for improved measurement techniques, uncertainty characterization, and algorithm development. The initial focus has been on observations made during the Polarimeter Definition Experiment (PODEX), conducted in early 2013 in Southern California. Three ACE mission supported polarimeters were deployed on the high altitude ER-2 aircraft as it flew over a variety of targets. Two of those instruments to date have successfully produced Level 1 (geolocated radiance and polarization) data. Initial matched scene inter-comparisons found little radiometric, but significant polarimetric, bias. After improvement to geolocation in one instrument, and calibration in the other, polarimetric comparisons have improved significantly. We will describe these results, remaining unresolved issues, and future plans.