Flight Report – SEAC4RS ER-2, September 22, 2013

Prepared by: Richard Ferrare (richard.a.ferrare@nasa.gov)
Purpose of flight: The science goals for this flight were to: 1) acquire remote sensing data over shallow marine convection coordinated with the Lear Jet, 2) acquire remote sensing data over cirrus coordinated with the Lear Jet, 3) acquire polarimeter data over the AERONET network in the Houston, 4) examine convective outflow associated with a cold front over the Gulf Coast states during two dips to 41 kft, 5) perform MMS maneuvers at 40 kft over EFW.
Pilot: Denis Steele
Takeoff: 7:30 CDT
Duration: 8.0 hours
Notes:
The ER2 flew SE over the Gulf and did a small circle to reach altitude before heading to the first racetrack pattern just offshore. The ER-2 performed this racetrack with 150 km legs above the marine stratocumulus. In order to optimize coordination time with the Lear Jet, the ER-2 performed three circuits around this racetrack. The ER-2 and Lear Jet were well coordinated as they flew this pattern. The ER-2 then flew southeast and to the east performing a dip to 41 kft to look at convective outflow south of the cold front that was located near the Gulf coast. The ER-2 then flew northward and performed another dip to 41 kft en route to the northeastern point. During this transit, the Lear Jet reported that they were unable to make the second rendezvous with the ER-2 to study cirrus. The ER-2 then performed two circuits around another 150 leg racetrack pattern over cirrus above the Louisiana Gulf coast. CPL images showed that the cirrus had variable maximum altitudes behind this cold front. The ER-2 then flew to the northwest before turning southwestward toward Houston. The ER-2 then flew a 300 km leg toward and over Houston. The last portion of this leg was over the AERONET network over Houston. There were some mid-level clouds over Houston when the ER-2 flew over. Before landing, the ER-2 performed MMS maneuvers at 40 kft.
Aircraft and instruments: All instruments appear to have worked nominally as far as limited in-flight and quick-look analyses showed. All instruments are ready for the next flight.

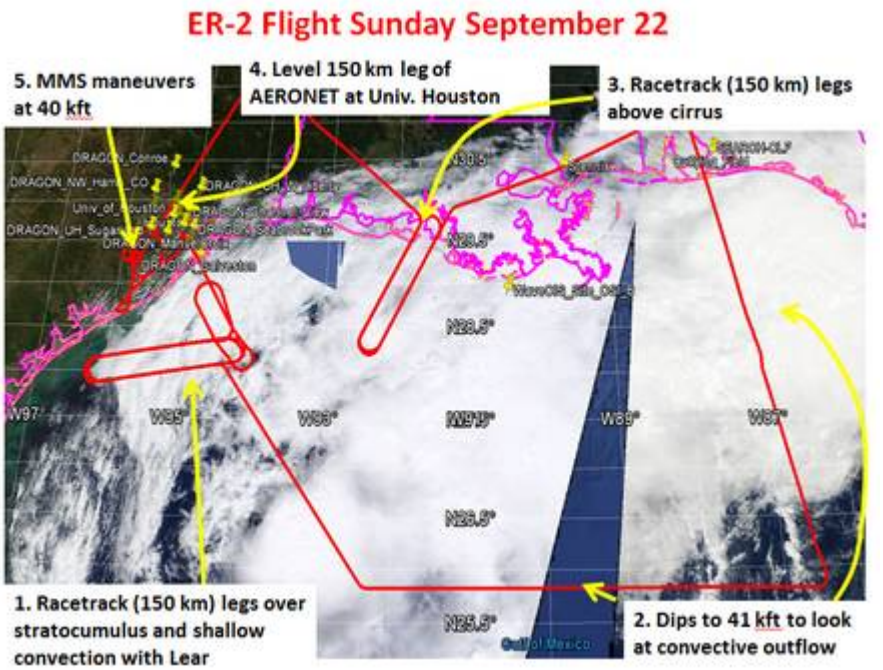

Figure 1. Flight track of the ER-2 from September 22 on Terra MODIS image.