

Flight Report – SEAC4RS ER-2, September 23, 2013

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Purpose of flight: On the transit back to Palmdale, the science goals for this flight were to: 1) acquire in situ data during four dips along the MLS track for comparisons of airborne and satellite water vapor and aerosol measurements, 2) acquire in situ measurements from convective outflow from an MCS over the north central states, 3) study aging of stratospheric air and carbon species at high potential vorticity, 4) acquire remote sensing data under very clean conditions over the Bozeman supersite and the Railroad Valley AERONET site, 5) obtain in situ measurements of carbon dioxide at low altitude over/near the TCON site at Edwards AFB.

Pilot: Stu Broce

Takeoff: 10:35 CDT

Duration: 7.8 hours

Notes:

The ER2 flew NW toward central Texas to get on the MLS track. The ER-2 then flew NNW along the MLS track and executed four dips along this track. These dips were successfully executed down to 41 kft. No obvious injections of water were noted from the large system that was in the vicinity. The ER-2 then proceeded to the far northern point in southern Manitoba to reach high potential vorticity values before turning southwest to head to Palmdale. After turning southwest, the ER-2 flew at constant altitude and flew a 150 km AirMSPI leg over the Bozeman supersite. Skies were mostly clear over the site and the aerosol optical thickness (AOT) was low (~ 0.04 at 500 nm). The ER-2 then proceeded southwest and flew over the AERONET site in Railroad Valley, Nevada where skies were cloud-free and the AOT was very low (~ 0.02 at 500 nm). Before landing in Palmdale, the ER-2 performed a slow descent allowing measurements of carbon dioxide to be acquired as low as 5000 ft in the vicinity of the TCON site.

Aircraft and instruments: All instruments appear to have worked nominally as far as limited in-flight and quick-look analyses showed.

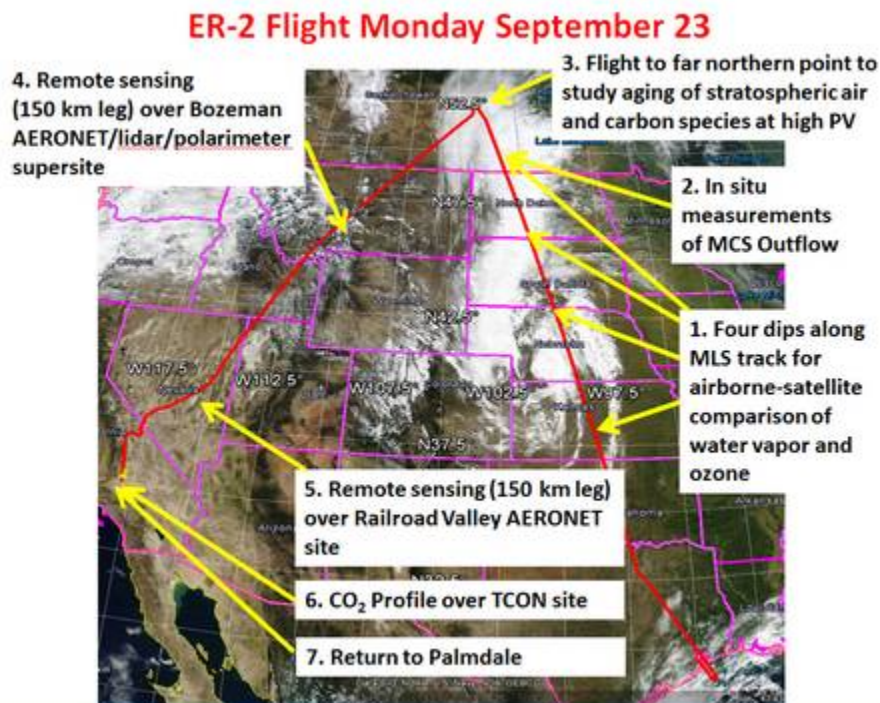


Figure 1. Flight track of the ER-2 from September 23 on Aqua MODIS image.