Interactive comment on “Air mass origins influencing TTL chemical composition over West Africa during 2006 summer monsoon” by K. S. Law et al.

Anonymous Referee #1

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REVIEW OF LAW ET AL: AIR MASS ORIGINS INFLUENCING TTL CHEMICAL COMPOSITION OVER WEST AFRICA DURING 2006 SUMMER MONSOON

Overall Synopsis and Summary -

Air mass origins over west Africa in the upper troposphere, TTL (tropical tropopause layer) and lower stratosphere are examined using satellite data, back trajectories and measurements from the M55 (Geophysica aircraft) that sampled water vapor, particle concentrations and constituent abundances (ozone, CO, NO, Noy, etc). Flows are complex in several ways. As expected, overall flows are westerly, but influences are local over west Africa, from lower and mid-troposphere, and flows from the Asian mon-
soon are appreciable. Cross-hemispheric influences are also detected. Ratios of these various influences are determined and ozone photochemical rates are supplied.

Recommendation - Publish with minor changes as suggested.

Page 3, Line 23... after lightning NOx (add refs Pickering et al., 1996; Thompson et al., 1996)


Page 4, Line 9. Note the TC4 and TCSP campaigns over central America in 2007 and 2005, respectively. Goals are similar to AMMA and sampling by WB-57 and DC-8 covered some of the same region. Soundings also encompassed TTL. Refer to papers in press:


Interactive comment on Atmos. Chem. Phys. Discuss., 10, 15485, 2010.