



Long range transport of intense biomass plumes from forest fires in Australia during the 2002/2003 summer: measurements and 3-D chemical transport modeling of the emission plumes

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The Australian forest fires near Canberra in the summer of 2002/2003 produced large quantities of smoke and various emission products. These fires were very intense to the point where smoke was injected in to the lower stratosphere, as well as being transported many thousands of kilometers zonally. These fire emissions were recorded in both Wollongong, (34.4S, 150.5E, 0.03 asl), Australia, some hundreds of kilometers to the north east, as well as Lauder (45.0S, 169.7E, 0.37km asl), New Zealand, nearly 2000 km to the south east of the fire sources. Both of these locations (Wollongong and Lauder), are instrumented sites as part of the Network for the Detection of Atmospheric Composition Change (NDACC). Wollongong has a high resolution FTIR spectrometer with a collocated UV/Visible spectrometer. Lauder is a fully instrumented primary NDAAC site that includes FTIR and UV/Visible spectrometers as well as various ozone measuring capabilities (lidar, balloons, Dobson). Several smoke events were captured at both sites, with enhanced levels of a number of key biomass burning gases recorded by the remote sensing instruments. Included in this suite of scientific data are model studies of the fire events using the 3-D chemical transport model GEOSCHEM, which uses emission data from GFED2 (biomass burning) and EDGAR (global NO_x, CO). GEOSCHEM is driven by assimilated meteorological fields from the Goddard Earth Observing System of the NASA Global Modeling and Assimilation Office (GMAO). This presentation will describe the instrumentation in-

involved, the relevant emission gases retrieved and subsequent interpretation in terms of the 3-D model output from GEOSCHEM.