

Tropospheric Ozone Across North America During Summer 2004

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During summer 2004 (~July 1–August 15) an intensive series of ozone vertical profile measurements were carried out at locations across the United States and Southeastern Canada. The coordinated balloon launches were done in the context of an international campaign focused on the transport of atmospheric constituents over the United States, their transformation, and eventual export over the North Atlantic. The multinational effort included several aircraft and ground-based measurement platforms as well as the ozonesonde observations. The ozonesonde campaign was carried out under the umbrella of the ICARTT/ITCT-2K4/INTEX/NEAQS Ozone Network Study (IONS). Eleven sites made ozonesonde launches with nine of the locations making intensified observations. Three of the sites made daily soundings over a ~40-day period.

A prominent feature of the 2004 summer was the relative lack of high surface ozone episodes in the Northeastern U.S (Figure 1). The summer was characterized by the passage of weak cold frontal systems and the lack of stagnant high pressure. The middle and upper troposphere often saw significant stratosphere/troposphere exchange with relatively high ozone amounts. This feature showed up in the ozone profiles from Michigan to the NOAA Ship *Ron Brown* operating in the Gulf of Maine. In the southeastern and western U.S. ozone in the troposphere was nearer average conditions.

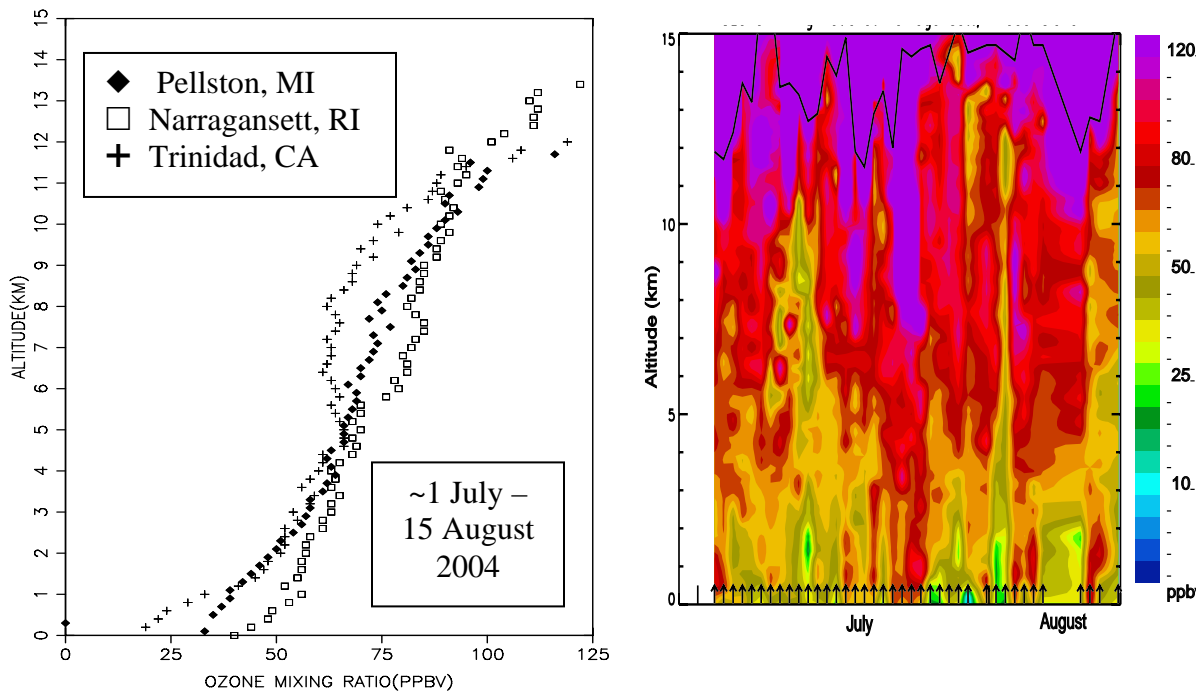


Figure 1. Average ozone mixing ratio at three stations and ozone mixing ratio cross-section at Narragansett, Rhode Island, from July 1–August 15 2004.