

New CMDL International Programs

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The Climate Monitoring and Diagnostics Laboratory (CMDL) has conducted global monitoring for decades at four Atmospheric Baseline Observatories (Barrow, Alaska (1974); Mauna Loa, Hawaii (1957); Samoa (1974); South Pole (1957); and since 2001, at Trinidad Head, California). These observatories are complemented by about 100 global sites at which CMDL conducts the primary measurements or is in a cooperative program. Within the past 2 years, the number and scope of the international measurements has grown substantially as more countries become involved in climate-related measurements and funding for global carbon cycle research has grown. A list of some new programs follows. The WMO Baseline Surface Radiation Network (BSRN), coordinated by CMDL and for which the United States maintains 11 of the 35 stations, was designated the Global Climate Observing System (GCOS) global baseline surface radiation network in March 2004. In April CMDL scientists conducted trace gas, aerosol, and related measurements from a specially constructed railway observatory carriage attached to a scheduled passenger train traveling from Moscow to Khabarovsk, Russia (and return) during the TRAns-siberian Observations Into Chemistry of the Atmosphere (TROICA) program. Similar measurements are planned for rail transects crossing China. The CMDL aerosol measurement system has become the global baseline observatory standard and in March 2004 CMDL installed a system at the Canadian baseline station in Alert, Canada, and has been contracted by WMO to also install similar instrumentation at the Mt. Waliguan, China, and Cape Point, South Africa, baseline stations. CMDL balloonborne stratospheric water vapor measurements over Colorado, the only record of its kind in existence (24 years), have exhibited an as yet unexplained increase in stratospheric water vapor. A second site for such measurements is being established in New Zealand in June 2004. The carbon cycle program has recently established surface measurement sites in Kenya, Indonesia, and Russia and in May 2004 inaugurated shipborne sampling transects in the Atlantic Ocean (Virginia to South Africa) and in the western Pacific (New Zealand to Japan). Under the U.S. Climate Bilateral program, new cooperative carbon cycle sampling sites are being established in China, Korea, Mexico, India, South Africa, and Brazil. An aircraft profiling program was established in Mongolia, March 27, 2004 (Figures 1 and 2).



Figure 1. Mongolian sampling aircraft.

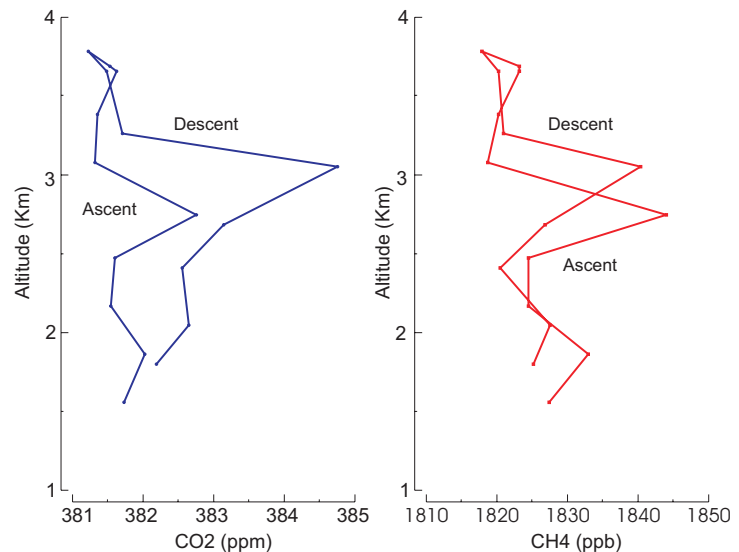


Figure 2. Profiles of CO₂ and CH₄ showing a layer of elevated concentrations that probably originated 6,000 km upwind in Russia.