

A Web-Based Interactive Atmospheric Data Visualization Tool: Near Real-Time Access to Data from the NOAA ESRL Carbon Cycle Observing Network

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The Carbon Cycle and Greenhouse Gases (CCGG) Group of NOAA ESRL GMD operates an extensive observational network for monitoring atmospheric trace gases important to the understanding of the global carbon cycle. CCGG continuous and discrete measurements of atmospheric CO₂, CH₄, CO, H₂, N₂O, SF₆, the stable isotopes of CO₂ and CH₄ made from surface sites, towers, aircraft, and merchant ships constitute the most extensive set of atmospheric greenhouse gas observations that are consistent with respect to calibration and methodology.

CCGG's open data policy ensures that measurements are made freely available once they have been screened for sampling, analytical, and calibration errors. Screened data through December of the preceding year are electronically available in tabular form by August of the current year from data archive centers and ESRL. Still, there is considerable interest in access to our most up-to-date measurements.

In 2002, CCGG developed a web-based Interactive Atmospheric Data Visualization (IADV) tool to provide near real-time data from the ESRL Carbon Cycle Observing Network. The application is a first-of-its-kind within the international carbon cycle measurement community and a proof-of-concept to test the feasibility of and interest in such a service. IADV is simple, fast, and utilizes web, graphic, and database tools that are readily and freely available. A unique feature of IADV is its direct access to CCGG's operational database so that preliminary data become available as soon as they are measured.

IADV is designed to encourage scientists, educators, students, business and government policymakers to visually explore NOAA's carbon cycle measurements. From anywhere in the world, visitors can 1) view ESRL carbon cycle data including near real-time observations; 2) obtain details about each sampling location; 3) manipulate and compare data sets; 4) create custom graphs; and 5) save output in a variety of formats.

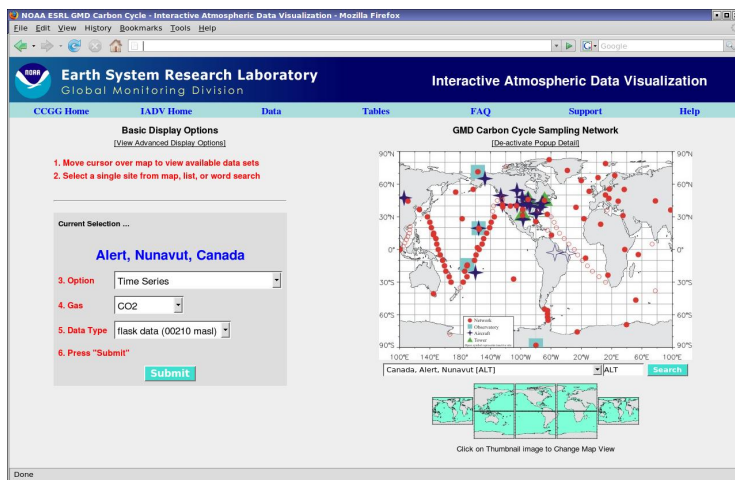


Figure 1. Screen view of the IADV web access page.