



# NOAA ESRL Global Monitoring Division

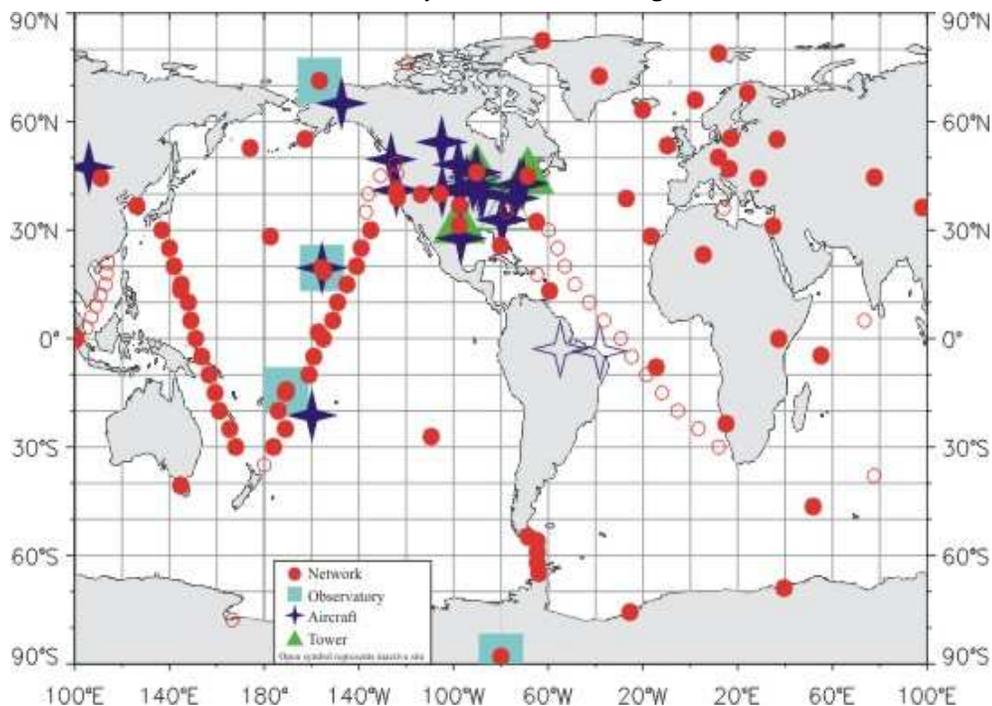
MAY 2006

## THE CARBON CYCLE GROUP'S COOPERATIVE GLOBAL AIR SAMPLING NETWORK NEWSLETTER

Greetings samplers and network affiliates! Thank you for your diligent work in collecting air samples for us. With the help of people like you all over the world, the Carbon Cycle Greenhouse Gases (CCGG) group has been making air sample measurements from land and sea surface sites since 1967, and from aircraft beginning in 1992. Continuous measurements of gases affecting the carbon cycle have been made at remote baseline observatories since the 1970s and from tall towers since 1992.

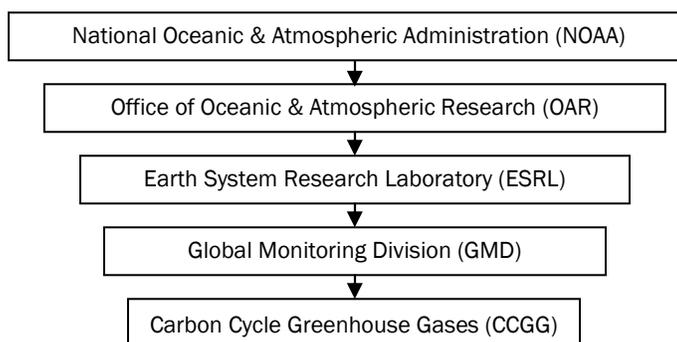
Samples are analyzed in Boulder by CCGG for carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), carbon monoxide (CO), hydrogen (H<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), and sulfur hexafluoride (SF<sub>6</sub>); and by the Institute of Arctic and Alpine Research (INSTAAR) for the stable isotopes of CO<sub>2</sub> and CH<sub>4</sub>, <sup>14</sup>CO<sub>2</sub> and for volatile organic compounds (VOCs). Results are used to identify long-term trends, seasonal variability, and spatial distribution of carbon cycle gases and to aid in our understanding of the global carbon cycle.

NOAA ESRL Carbon Cycle Measurement Program Locations



## ORGANIZATIONAL CHANGES AND CHART

Numerous changes have taken place over the past months at NOAA, including a new name. What was formerly known as the Climate Monitoring & Diagnostics Laboratory (CMDL) is now the Global Monitoring Division (GMD) of the Earth System Research Laboratory (ESRL). The organizational structure is as follows:



**New Mailing Address:** (Under 1 lb)  
NOAA/GMD-1  
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USA

**Shipping Address:**  
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USA

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## WEBSITE ADDRESSES:

If you have Internet access and are interested in learning more about GMD's projects, below are several web links:

GMD home page: [www.cmdl.noaa.gov](http://www.cmdl.noaa.gov)

CCGG home page: [www.cmdl.noaa.gov/ccgg/index.html](http://www.cmdl.noaa.gov/ccgg/index.html)

Cooperative Air Sampling Network home page: [www.cmdl.noaa.gov/ccgg/flask.html](http://www.cmdl.noaa.gov/ccgg/flask.html)

Interactive Data Visualization home page: [www.cmdl.noaa.gov/ccgg/iadv](http://www.cmdl.noaa.gov/ccgg/iadv)

**BROKEN FLASKS**

Please help us try to reduce the number of broken flasks!

The glass threads on the flask valves are very susceptible to breakage when knobs are over-tightened. The Teflon O-rings used on the pistons are designed to seal tightly with very little force. The front O-ring will form to the valve seat and appear thicker when properly sealed. Please help us avoid expensive repairs by tightening the knobs only as much as necessary.

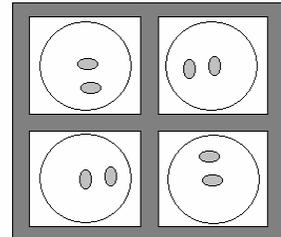
Open Valve



Closed Valve



Flask valves also occasionally break during shipping. For best results, we suggest positioning the flasks, as shown in the figure, with all of the knobs and valves toward the interior of the box.

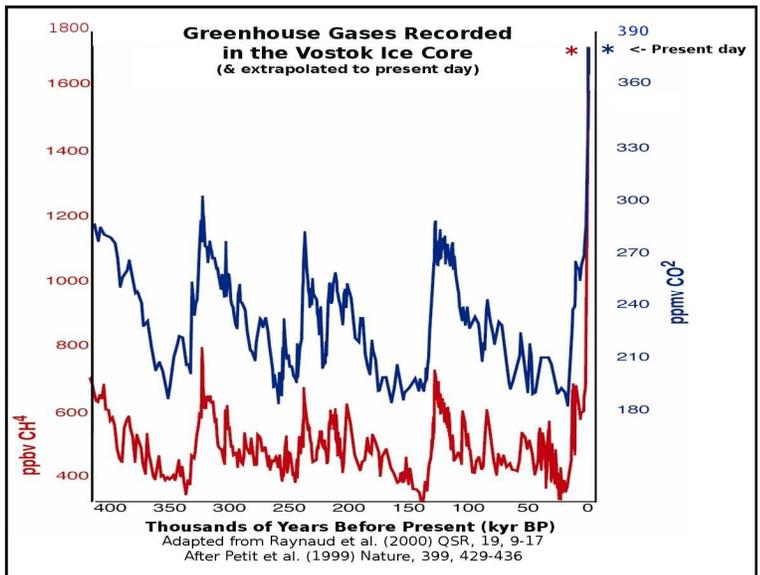


**DATA ANALYSIS & RESULTS**

**Site Data Plot:** With this newsletter, we are including a plot showing CO<sub>2</sub> data from the air samples collected at your site. For trend comparison, we have included a red line showing the CO<sub>2</sub> global average. These data and much more are also freely available on the World Wide Web at GMD's Interactive Data Visualization (IADV) website. If you would like to view your data as it is updated or view results from other sites, please visit the website at: <http://www.cmdl.noaa.gov/ccgg/iadv/> There are many options for plotting data-time series, examining seasonal variability, and viewing photos and other information for the individual sites. Additionally, one may view plots and animations of data for global averages or for specific bands of latitudes.

**Global CO<sub>2</sub> Trends:** Ice cores collected from Antarctica and Greenland contain information that can be used to reconstruct past climates. As snow accumulates on ice caps and sheets where temperatures usually remain below freezing year round, it lays down a record of the environmental conditions at the time of its formation. Over time the snow, buried under further accumulations, is compacted to ice, preserving the climatic information. Air bubbles trapped in the ice can be analyzed to reconstruct the atmospheric composition at the time when the ice formed.

Measurements of the amount of greenhouse gases in these bubbles show that the "pre-industrial" amount of CO<sub>2</sub> in the atmosphere was about 280 parts per million (ppm), approximately 100 ppm below today's value. CO<sub>2</sub> amounts have increased about 35% in the last 200 years, and mixing ratios are now higher than any seen in at least the past 650,000 years.

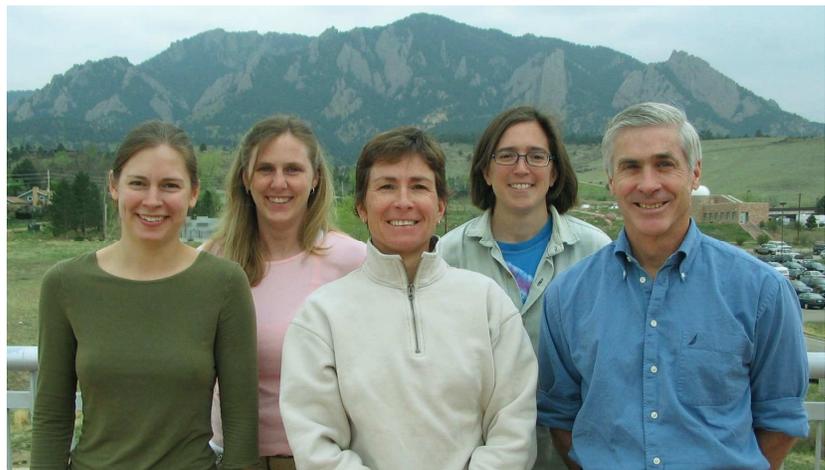


**CCGG FLASK GROUP**

**Faces of the Cooperative Global Air Sampling Network at NOAA in Boulder, Colorado**

From Left to Right

- Molly Heller**, Flask Logistics Coordinator
- Kelly Bransby**, Analysis Technician
- Patricia Lang**, Physical Scientist
- Sonja Wolter**, Operations Coordinator
- Thomas Conway**, Project Leader



**Thank you sample collectors and network affiliates for your continuing efforts!**