

A Regional Atmospheric Continuous CO₂ Network in the Rocky Mountains (Rocky RACCOON)

NCAR

Overview: We are establishing a continuous CO₂ observing network in the Rocky Mountains to improve our understanding of regional carbon fluxes and to fill key gaps in the North American Carbon Program (NACP). The first three sites in the network were instrumented with AIRCOA units (see companion poster) at the end of August, 2005. These sites are all in Colorado: Niwot Ridge, allowing us to have an ongoing intercomparison with flask measurements made by NOAA CMDL; Storm Peak Laboratory near Steamboat Springs, allowing us to investigate comparisons between these two relatively nearby sites; and Fraser Experimental Forest, allowing us to investigate nocturnal respiration rates across a large intermountain valley. Our data will be available to the public on the internet in near real time to support quality control, local science, and larger scale synthesis efforts (http://www.eol.ucar.edu/~stephens/RACCOON).

Existing and future NACP observations, as planned in fall of 2004 (courtesy of S. Denning).







Panel 1. Regional Scale CO₂ Networks. Mountain forests highly sensitive to land-use practices and climate change. However, plans for new continuous CO₂ observing sites have previously omitted the Mountain West.

Britton Stephens (stephens@ucar.edu), Stephan De Wekker, David Schimel, and Andrew Watt

National Center for Atmospheric Research, Earth Observing Laboratory and The Institute for Integrative and Multidisciplinary Earth Studies, Boulder, Colorado, USA









Mid-afternoon concentrations are similar at the three sites with CO₂ at FEF often lower than the two high altitude sites by ~ 1 ppm. A synoptic event on September 13 appears to have lowered background CO₂ by 4 ppm, with SPL trending down approximately 10 hours before NWR.

