NOAA GMD's Global Greenhouse Gas Reference Network Management, Logistics, and Importance

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Beginning in 1967, the NOAA Carbon Cycle Greenhouse Gases (CCGG) group's Greenhouse Gas Reference Network (Figure 1) has provided spatially- and temporally-consistent data for use by scientists, modelers, and organizations around the world. The network focuses on the collection and analysis of background air samples for carbon dioxide (CO_2), methane (CH_4), nitrous oxide, sulfur hexaflouride, carbon monoxide, stable isotopes of CO_2 and CH_4, and volatile organic compounds. Air samples are collected in 2.5 L glass flasks at surface sites and in 0.7 L glass flasks contained in Programmable Flask Packages at aircraft and tall tower network locations.

This extensive global network requires meticulous group oversight including daily preparation and logistical planning, equipment management, quality control, and ongoing international communication. The majority of these daily operations occur in the Flask Logistics Lab. It is here that equipment is prepared for the field and where all of the ~16,000 yearly flask-air samples are received, cataloged, and routed to various analysis laboratories. This presentation will discuss the importance of the network, daily management operations, and logistics.

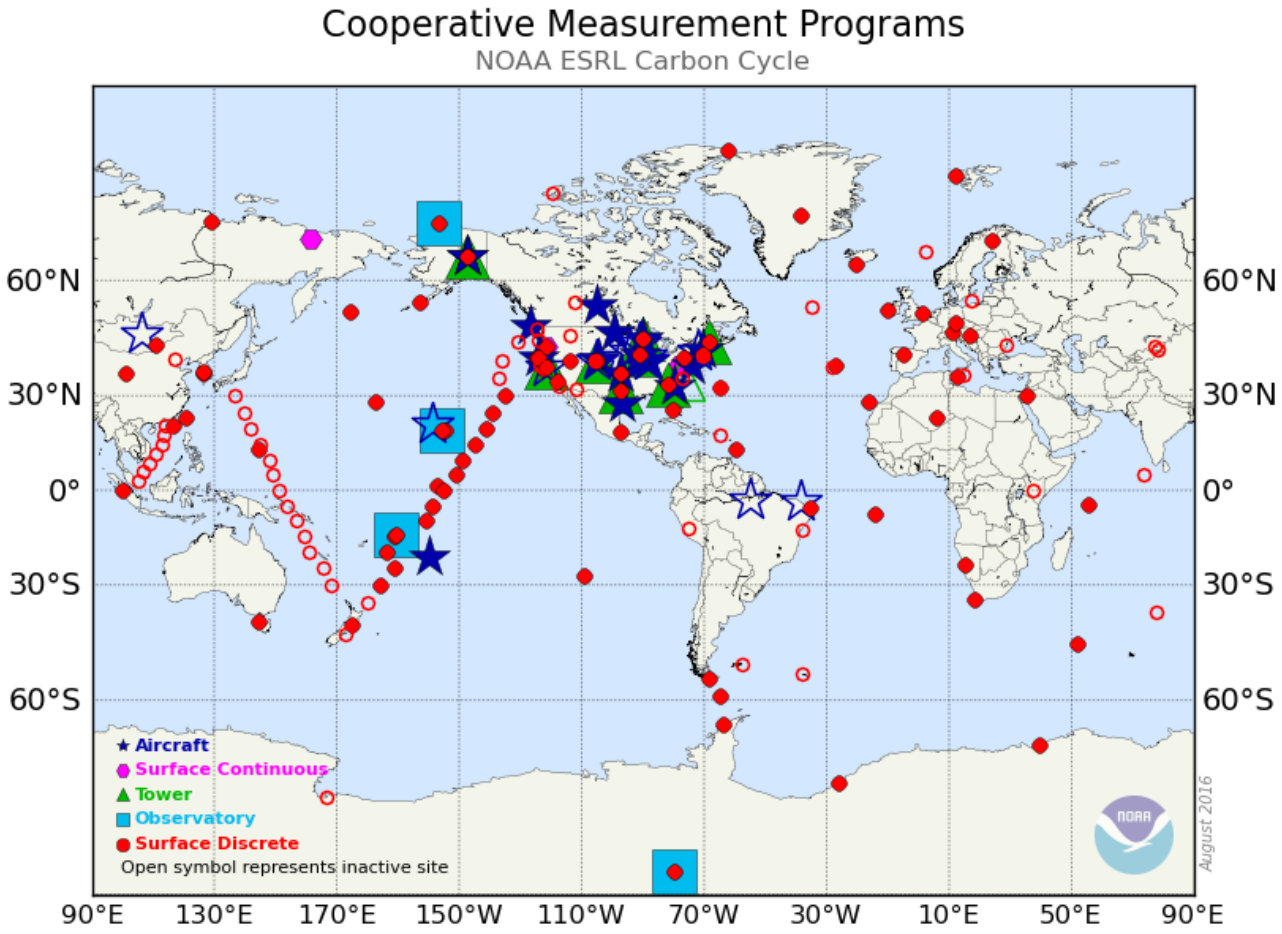

Figure 1. NOAA/ESRL/GMD Global Greenhouse Gas Reference Network site locations including discrete surface network, aircraft network, tall tower network, and observatory sites.