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Gas Chromatograph Installed and Operating at Summit, Greenland Observatory

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Global Monitoring Division - ESRL-GMD

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Brian Vasel and Don Neff, scientists from NOAA/ESRL, installed a gas chromatograph at the Summit, Greenland atmospheric observatory to measure climate forcing gases from the extreme, high altitude polar environment of continental Greenland. The instrument measures important non-carbon dioxide greenhouse gases including nitrous oxide, methane, sulfur hexafluoride, chlorofluorocarbon-11, -12, -113, methyl chloroform, carbon tetrachloride, chloroform, and halon-1211 in real time. Carbon monoxide, an indicator of combustion, and hydrogen are also measured. The gas chromatograph became fully operational on July 14 and the data are automatically sent to Boulder via the internet.

Background:

The Summit, Greenland station is operated by the National Science Foundation (NSF). NOAA provided instrumentation and supports a range of atmospheric measurements in addition to providing staff for the winter 9-months of the year during the most intense period of the NOAA measurement program. The Summit gas chromatograph is similar to existing gas chromatographs operated at the NOAA baseline observatories, including Pt. Barrow, Alaska; Mauna Loa, Hawaii, Point Matatula, American Samoa, and South Pole, and the cooperative station at Niwot Ridge, CO.

Significance:

The Summit measurements will provide valuable information on the concentrations and seasonality of climatically important trace gases entering and exiting the Arctic from Europe and North America in relation to the Atlantic Ocean basin. Up until this time, the majority of similar monitoring was concentrated on the Pacific Ocean basin. This work supports the Climate Goal of NOAA.

More information:

<http://www.esrl.noaa.gov/gmd/dv/hats/cats/stations/index.html>

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