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NCAR Scientists Participate in Swiss Ozone Research Field Program

Scientists and a research aircraft from NCAR will join Swiss scientists July 12-30, to learn more about how and where Swiss ozone forms by defining the distribution of pollutants over high altitudes in Switzerland. They will participate in a large five-year Swiss field program termed POLLUMET, aimed at studying ozone formation to develop dispersion models that can be used for pollution reduction strategies.

Faced with ozone pollution throughout much of its countryside, Switzerland has set an air quality standard of 60 parts per billion by volume of ozone, half the concentration of 120 ppbv prescribed in the United States. The Swiss want to reduce these concentrations because the ozone levels measured at two rural sites near Bern in 1990 exceeded the standard over 50 percent of the time.

From the NCAR King Air aircraft measurements, scientists will be able to specify how much of the ozone is generated in Switzerland and how much is imported from other countries. The NCAR team will be flying over the Swiss Plateau, a strip of land sandwiched between the Alps on the south and the Jura Mountains on the north, above Zurich and Geneva, from ground level to about 14,000 feet altitude.

Operating out of an airport near Bern, Switzerland, the NCAR King Air will fly transects and profiles at altitudes ranging from ground level to about 14,000 feet. NCAR principal investigator Gregory Kok and his colleague Dick Schillawski will make airborne measurements twice a day—in the morning to examine the concentration of raw emissions before the photochemical processing, and in the afternoon to examine their transformation and the magnitude of the ozone production.

Kok and his colleagues will also make airborne measurements of carbon monoxide, formaldehyde, nitrogen oxides, and radiation measurements of photochemically active UV radiation, visible radiation, and surface radiometric temperatures, as well as basic meteorological measurements of temperature, dew point, and wind speed and direction.

A large number of Swiss universities and agencies are also participating. Kok will be working closely with Albrecht Neftel of the University of Bern, and Johannes Stahelin of the ETH in Switzerland. Two smaller aircraft motorgliders will also make chemical measurements: one from DLR, the German Aeronautics and Space Research Facility, will take measurements of ozone fluxes. The other, a motorglider from MetAir, a private Swiss company, will make cross section measurements of ozone, nitrogen dioxide and hydrogen peroxide.

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