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ARM Facilities Newsletter

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ARM Science Team Meeting Scheduled

The 11th Annual ARM Science Team meeting is scheduled for March 19-23, 2001, in Atlanta, Georgia. Members of the science team will exchange research results achieved by using ARM data. The science team is composed of working groups that investigate four topics: instantaneous radiative flux, cloud parameterizations and modeling, cloud properties, and aerosols. The annual meeting brings together the science team's 150 members to discuss issues related to ARM and its research. The members represent universities, government laboratories and research facilities, and independent research companies.

Communications to Extended Facilities Upgraded

New communications equipment has been installed at all of the

SGP extended facilities. Shelters were installed to house the new equipment used to transfer data from instruments via the Internet to the site data system at the central facility. This upgrade has improved data availability from the extended facilities to 100% and reduced telephone costs greatly.

SGP Goes "Buggy"

Steve Sekelsky, a researcher from the University of Massachusetts, is planning to bring a 95-GHz radar to the SGP central facility for deployment in March-October 2001. The radar will help to identify signals due to insects flying in the air. The ARM millimeter cloud radar, which operates at 35 GHz, is sensitive to such insect interference. Testing will also be performed by using a second 35-GHz radar with a polarized radar beam, which can differentiate signals from insects versus cloud droplets.

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Winter Fog

Fog can add to hazards already associated with winter weather. Common types of fog formation include advection, radiation, and steam.

Advection fog: An advection fog is a dense fog that forms when a warm, moist air mass moves into an area with cooler ground below. For example, fog can form in winter when warmer, water-saturated air from the south (associated with a warm front) moves over the cold, snow-covered ground. The cold ground cools the warmer air, and the water vapor condenses into small water droplets, producing a thick fog.

Radiation fog: Sometimes referred to as ground fog, a radiation fog typically forms at night when skies are clear and winds are calm. At night, the ground radiates

heat away from the surface, cooling the ground and the layer of air directly above it. If this lower layer of air is moist, the cooling will condense the water vapor in it, and fog will form. Radiation fog can be very patchy.

Steam fog: Steam fog forms over water when cooler air blows in over a warmer water surface. The warmer water evaporates from the water surface and rises into the cooler air. The cooler air then condenses water vapor into fog.

Fog can usually be prevented if a wind is present. The wind mixes the air, bringing warmer air from aloft to the ground and reducing the condensing ability of the cold air near the ground. Fog "burns off" in the daytime as the morning sun warms the air and evaporates the fog droplets back into the vapor form.



Figure 1. Steam fog forms over a lake (National Oceanic and Atmospheric Administration photo).