NewsRelease

National Aeronautics and
Space Administration

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May 30, 2003

RELEASE: 03-036

NASA THROWS DICE FOR BETTER UNDERSTANDING OF ATMOSPHERE

Care to sample the sea salt, dust and other contaminants over California until mid-June?

These aerosols fill the air and provide an ideal environment for a new NASA field experiment starting May 28. As wind blows along the California coast, across dry deserts, and through urban areas, NASA scientists and their university partners will test the accuracy of instruments that measure aerosols -- particles in the atmosphere -- using NASA's DC-8 aircraft and ground stations.

NASA's Langley Research Center, Hampton, Va., is leading the DC-8 Inlet/Instrument Characterization Experiment -- or DICE -- based at NASA's Dryden Flight Research Center, Edwards, Calif.

"We plan to fly up the up the central valley of California and sample pollution. We'll also fly offshore of San Francisco and Los Angeles to sample sea salt and dust," said Bruce Anderson, the atmospheric scientist from Langley that is leading the experiment. "For DICE, we needed a range of aerosol types, and they are available along the West Coast."

Everyday natural and industrial processes produce aerosols, including pollution in the lower atmosphere, that significantly alter the global climate. Depending on their size, chemical composition and altitude, aerosols either warm the Earth by absorbing energy or cool the planet by reflecting sunlight. Knowing how they affect the amount of energy in the Earth's system is one of the largest uncertainties in determining how climate will change in the future.

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Scientists from Langley, the University of Hawaii, the University of New Hampshire and the Georgia Institute of Technology are contributing instruments to the DC-8 payload for the DICE campaign. They will compare aircraft instrument measurements among each other and to observations from aerosol-monitoring ground stations located in California, including ones at Dryden, Rogers Dry Lake and Trinidad Head.

DICE will enable the scientists to better understand data from past field experiments and prepare for activities in NASA's Intercontinental Chemical Transport Experiment-North America or INTEX-NA. Scheduled for summer 2004, INTEX-NA will study the exchange of chemicals and aerosols between the land and lower atmosphere over the U.S. East Coast.

"For INTEX-NA, scientists will look at the quantity of pollution over North America and how that pollution is transported across the Atlantic Ocean to Europe," Anderson said.

INTEX-NA will be the latest in a series of NASA field campaigns to better understand the worldwide chemistry of the troposphere or the lower atmosphere. Over the past twenty years, NASA has conducted missions in the Amazon, the Arctic, the tropical Atlantic and the Pacific to study both natural and human-made processes that determine the troposphere's chemical makeup.

The second phase of INTEX-NA is scheduled for spring 2006. This international research effort is part of NASA's Earth Science Enterprise, dedicated to understanding and protecting our home planet.

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