

# NASA takes to kansas skies to study nighttime thunderstorms

July 2 2015, by Alan Buis

---



NASA's DC-8 airborne laboratory. Credit: NASA

NASA has joined a multi-agency field campaign studying summer storm systems in the U.S. Great Plains to find out why they often form after the sun goes down instead of during the heat of the day.

The Plains Elevated Convection at Night, or PECAN, project began June 1 and continues through mid-July. Participants from eight research

laboratories and 14 universities are collecting storm data to find out how and why storms form. NASA's DC-8 airborne laboratory began research flights Tuesday from the Salina Regional Airport, Salina, Kansas. The DC-8 carries atmospheric science instruments and investigators from NASA's Jet Propulsion Laboratory, Pasadena, California, and other participating institutions.

"We're hoping to collect measurements that will be used to characterize the atmosphere ahead of these storms," said Richard Ferrare, senior research scientist in the Atmospheric Sciences Division at NASA's Langley Research Center, Hampton, Virginia. "If we can map the water vapor that goes into these storms, we'll be able to improve computer models that represent these conditions and better predict the storms."

The NASA DC-8 and the National Oceanic and Atmospheric Administration's (NOAA) P-3 Orion research aircraft supporting the PECAN mission will be open to the media from 3 to 5 p.m. CDT on Saturday, July 11, at the Salina Regional Airport. The airport is located at 3237 Arnold Avenue.

Unlike other parts of the United States, summer thunderstorms across the Great Plains are most common after sunset. Much of the rain comes from medium-size weather systems and resulting thunderstorms known as mesoscale convective systems. These nighttime storms can produce heavy rainfall that contributes a significant portion of the yearly precipitation in the region.

Scientists understand that thunderstorms form during the day because of vertical convective circulation, driven by rising warm air from Earth's heated surface and falling air cooled at higher latitudes in the atmosphere. Less well understood are the mechanisms that cause thunderstorms after the sun has gone down and the land surface has cooled.

The DC-8 carries atmospheric science instruments and investigators from Langley; JPL; and several universities and research labs. NASA's Goddard Space Flight Center in Greenbelt, Maryland, is providing a ground-based Doppler radar system.

PECAN is funded by the National Science Foundation with additional support from NASA; NOAA; the National Center for Atmospheric Research in Boulder, Colorado; and the Department of Energy.

In addition to the NASA and NOAA aircraft, researchers will receive data from a University of Wyoming King Air plane, ground-based instruments, weather balloons and mobile radars. Storm information will continue to be gathered from multiple agency ground and air instruments across northern Oklahoma, central Kansas and south-central Nebraska through July.

The DC-8 is based at NASA's Armstrong Flight Research Facility in Palmdale, California, and supports NASA's Airborne Science Program under the Science Mission Directorate. The extended range, prolonged flight-duration capability, large payload capacity and laboratory environment of the DC-8 make it one of the premier aircraft available for NASA Earth science investigations.

Provided by NASA

Citation: NASA takes to kansas skies to study nighttime thunderstorms (2015, July 2) retrieved 26 April 2024 from <https://phys.org/news/2015-07-nasa-kansas-nighttime-thunderstorms.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--