
Deep Convective Clouds and Chemistry
CU - DLR - NMIMT
NCAR - CSU - PSU
OU - TTU - UAH - UMd
Cal - CalTech - GaTech - NRL - Princeton - SPEC - UA - UCI - UH - UInnsbruck - UMBC - UMiami - UNH - URI - USNA - UND
DC3
2012
NSF - NASA - NOAA

DC3

Education & Outreach

Alison Rockwell
EOL Outreach & Communications
rockwell@ucar.edu

DC3 Science Team Meeting | 21-22 February 2012

Goals & Objectives

Goal 1: To increase the understanding of and public appreciation for observational research in the atmospheric sciences and its relevance to society

Goals & Objectives

Goal 1: To increase the understanding of and public appreciation for observational research in the atmospheric sciences and its relevance to society

Goal 2: To use of DC3 data and products by a wide audience of educational and research users

Goals & Objectives

Goal 1: To increase the understanding of and public appreciation for observational research in the atmospheric sciences and its relevance to society

Goal 2: To use of DC3 data and products by a wide audience of educational and research users

Goal 3: To establish NCAR/EOL as a trusted source of education and outreach by offering relevant opportunities for graduate and undergraduate students

Goals & Objectives

Goal 1: To increase the understanding of and public appreciation for observational research in the atmospheric sciences and its relevance to society

Goal 2: To use of DC3 data and products by a wide audience of educational and research users

Goal 3: To establish NCAR/EOL as a trusted source of education and outreach by offering relevant opportunities for graduate and undergraduate students

Goal 4: To increase diversity and broader participation in geoscience

Goals & Objectives

Goal 1: To increase the understanding of and public appreciation for observational research in the atmospheric sciences and its relevance to society

Goal 2: To use of DC3 data and products by a wide audience of educational and research users

Goal 3: To establish NCAR/EOL as a trusted source of education and outreach by offering relevant opportunities for graduate and undergraduate students

Goal 4: To increase diversity and broader participation in geoscience

Goal 5: To train & entrain new users of LAOF facilities

Program Overview

Program Overview

1. Online Resources

Program Overview

1. Online Resources
2. UCAR Collaboration

Program Overview

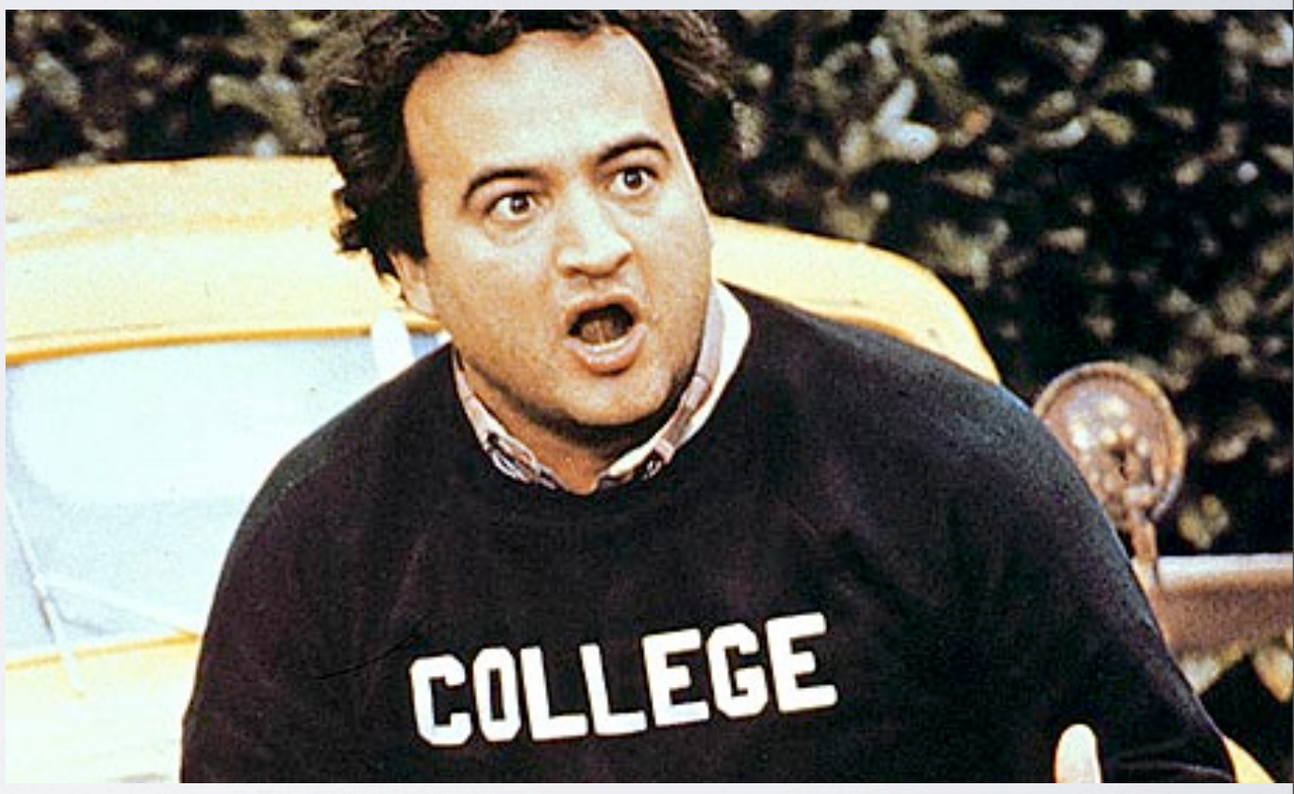
1. Online Resources
2. UCAR Collaboration
3. Outreach Events

Program Overview

1. Online Resources
2. UCAR Collaboration
3. Outreach Events
4. Printed Material

Program Overview

1. Online Resources
2. UCAR Collaboration
3. Outreach Events
4. Printed Material
5. PI & University Activities



Online Resources

Online Resources

/ncareol

Online Resources

Online Resources

DYNAMO 2011-2012
PREDICT 2010
HIPPO 2009-2011
ISPA 2010
VOCALS 2008
BuFEx 2005 & 2007
DC3 2012
- 6 Quick Questions
- Platforms & Instruments
- Science Team
- Outreach Calendar
- Educational Resources
- In the News

Deep Convective Clouds & Chemistry :: DC3

Investigating Chemical Transformation & Transportation in the Atmosphere

The Deep Convective Clouds and Chemistry (DC3) field campaign is investigating the impact of large, convective clouds on upper tropospheric composition and chemical make-up. The DC3 field campaign will make use of extensively instrumented aircraft platforms and ground-based observations.

Salina, Kansas will serve as the base location for the three research aircraft, while a network of ground-based radar and instrumentation in Colorado, Oklahoma and Alabama will be used to support DC3 during the project from 15 May - 30 June 2012.

Gaining a better understanding of how chemical compounds such as NO (nitric oxide) and NO_2 (nitrogen dioxide) are transported to different altitudes in the atmosphere is necessary to identify sources and sinks of upper tropospheric ozone

The DC3 Science Team is comprised of a group of researchers from universities and National Labs and Centers, interested in studying different aspects of this common topic. Deploying 3 aircraft, several ground facilities in many locations across the United States, and orchestrating consistant data collection over many platforms is truly a collaborative effort. The DC3 Project Office is facilitated and organized by the Earth Observing Laboratory (EOL).

Follow DC3

Like us on Facebook

Watch us on YouTube

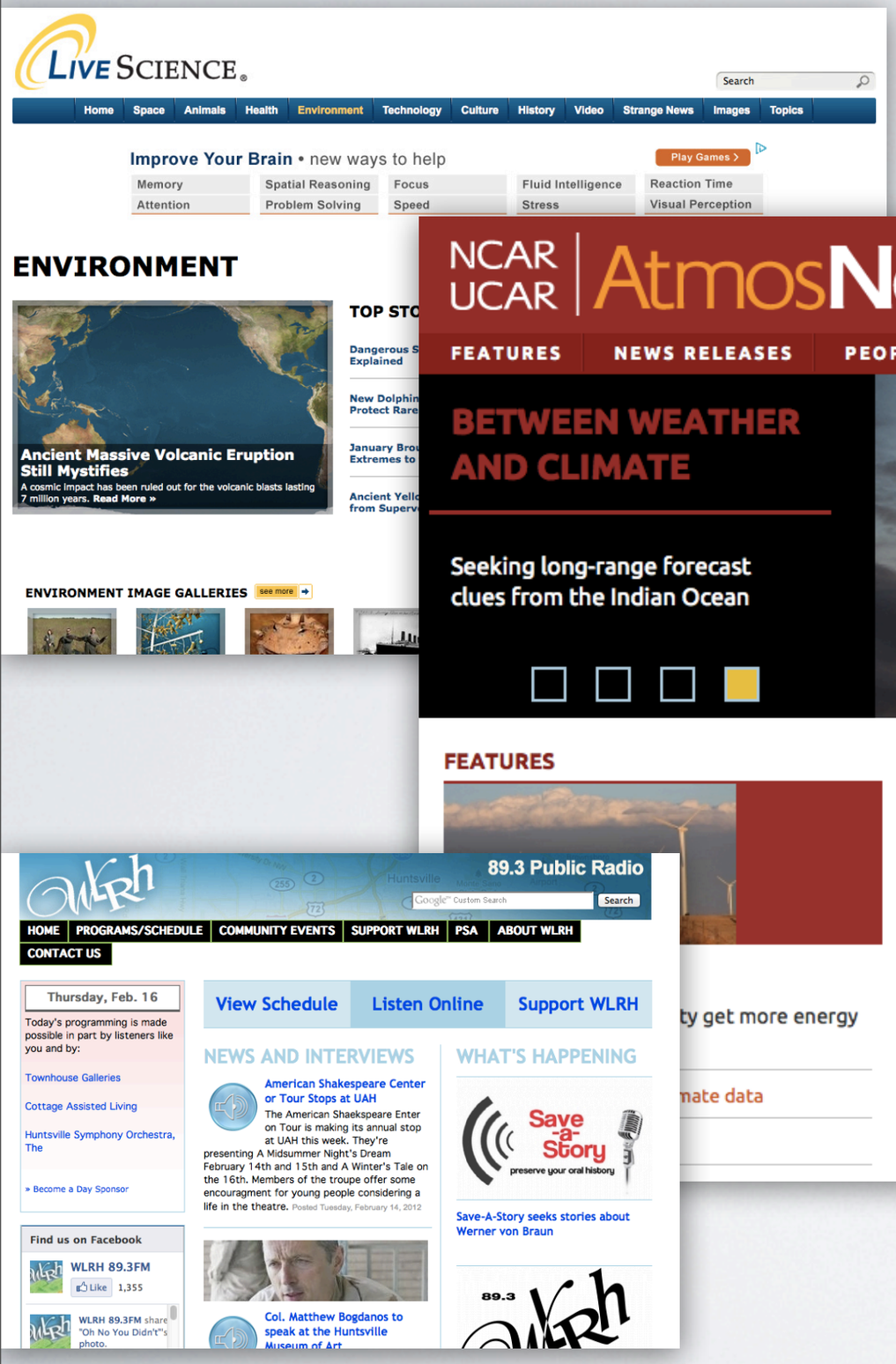
Follow us onTwitter

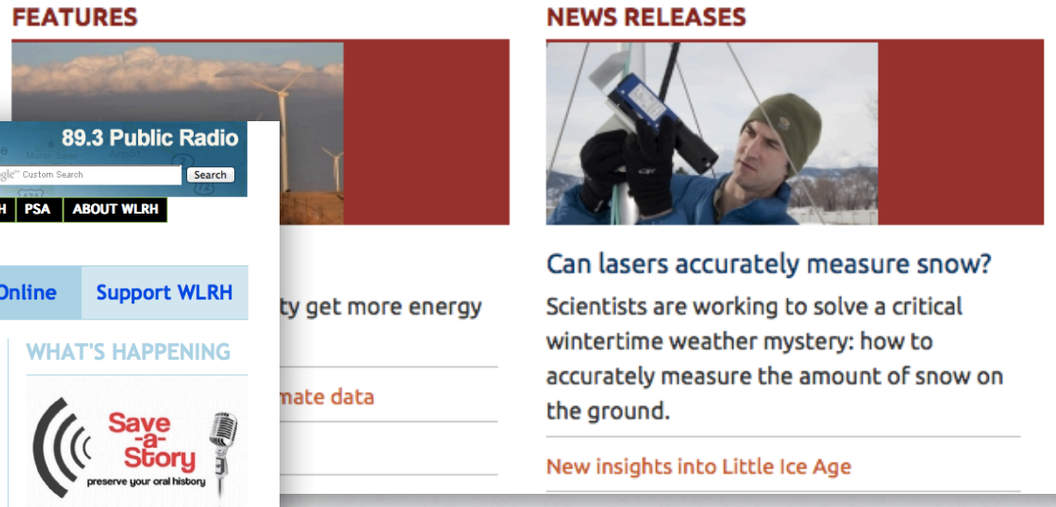
Range of Instrumentation

DC3 makes use of three instrumented aircraft platforms and a range of equipment from radars to balloon-borne instruments at three ground-based observation locations -- in order to gather data on different types of storms with

Online Media

Online Media





UCAR Collaboration

UCAR Collaboration

NCAR UCAR | AtmosNews

research | mentoring | community SOARS®

spark UCAR science education

COMET

Outreach Events

Outreach Events

Outreach Events

Outreach Events

Outreach Events

Outreach Events

Outreach Events

Outreach Events

Outreach Events

Printed Material

DC3 Deep Convective Clouds & Chemistry

"It's a study of transportation and transformation of greenhouse gases in the atmosphere that affect our climate."
- Joe PI, DC3 Principal Investigator

About DC3

The Deep Convective Clouds and Chemistry (DC3) field campaign is investigating the impact of large, convective clouds on upper tropospheric composition and chemical make-up. The DC3 field campaign will make use of extensively instrumented aircraft platforms and ground-based observations.

Science Team

- NCAR | National Center for Atmospheric Research
- NASA | National Aeronautics and Space Administration
- NOAA | National Oceanic and Atmospheric Administration
- DLR | German Aerospace Center
- Colorado State University
- Georgia Institute of Technology
- New Mexico Institute of Mining and Technology
- Pennsylvania State University
- Princeton University
- US Naval Academy
- University of Alabama - Huntsville
- University of Colorado
- University of Maryland
- University of Miami
- University of North Dakota
- University of Oklahoma
- University of Rhode Island

Decoding a Piece of the Climate Puzzle

The upper troposphere and lower stratosphere (UTLS) is an important region for Earth's climate because water vapor, ozone, cirrus clouds and particles in this region strongly contribute to the amount of radiation that is allowed into and out of the Earth's atmosphere and have direct impact on the climate system.

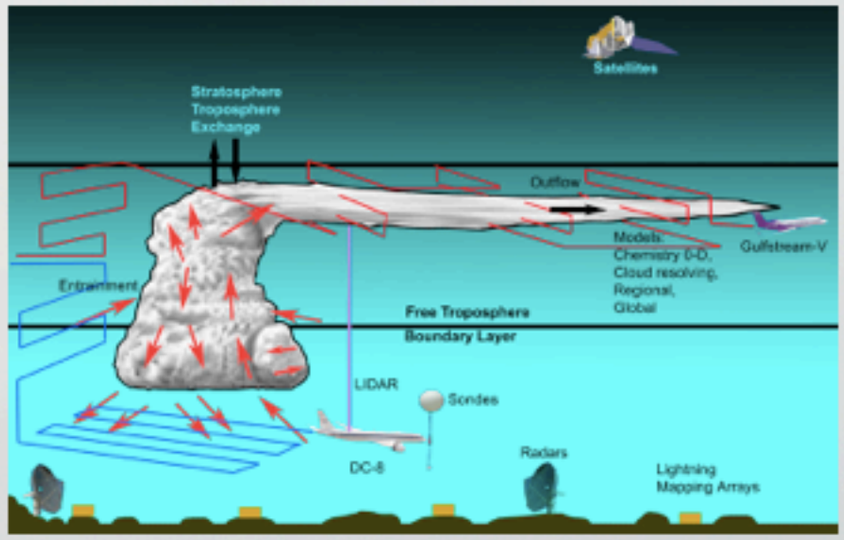
Upward movement of atmospheric chemicals, water and gases by means of convection is one of their main methods of traveling from near the Earth's surface to the upper troposphere, and in some cases to the lower stratosphere. Yet the impact of convective transport on the structure and chemistry of the UTLS region has not been fully studied on either the global or continental scale.

Knowing how much ozone is in the UTLS region is important for understanding climate change, as ozone plays a role in how much ultraviolet (UV) radiation reaches the Earth's surface. Ozone is produced from NOx (mono-nitrogen oxides) and HOx (hydrogen oxides) radicals. For that reason, quantifying the sources of NOx and HOx in the upper troposphere is key to understanding the impacts of upper tropospheric O_3 (ozone) on our climate system.

Aircraft Operations

The three aircraft will be based in Salina, Kansas while conducting coordinated and complimentary research flights.

- NSF/NCAR Gulfstream-V
- NASA DC-8
- DLR Falcon-20



Land-based Operations

An array of ground-based facilities from radars to mobile profiling systems to balloon-borne instrumentation will be based in three locations across the central United States in order to collect data over the largest range possible.

- Northeastern Colorado
- Central Oklahoma
- Northern Alabama

Printed Material

PI & University Activities

PI & University Activities