CONTRAST Broader Impacts

Summary of activities

1. School Visits
2. Public Engagement
3. Undergraduate & Graduate Student Involvement
4. Internet-based Outreach
5. Printed Material
6. Collaborations

Alison Rockwell
EOL Public Engagement Coordinator

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School Visits

- 24 Presentations 9 schools reaching 3921 Students
- 14 project staff participated

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Public Engagement

- Research Aircraft Open House :: 300 Visitors
- Media Event :: 4 crews
- Radio Talk Show & TV Clip

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Undergraduate & Graduate Student Involvement

Undergraduate Students	
1	NCAR Earth Observing Laboratory
1	**Sub-Total**
Graduate Students	
2	University of Maryland
1	University of Colorado at Boulder
1	Georgia Institute of Technology
1	University of California-Irvine
1	NASA/GESTAR
7	**Sub-Total**
Postdoctoral Students	
1	University of Miami
1	**Sub-Total**
9	**TOTAL**

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Internet-based Outreach

- 7 CONTRAST Outreach Webpages
- 906 views of all EO pages in a 106 day period
- *Quick Questions for CONTRAST PIs* most popular, 204 Views
- 24 Facebook Posts
- One YouTube Video, played at UCAR Mesa Lab Visitor Center during summer 2014

Page Name	Page Views 1 DEC - 17 MAR 2014
Quick Questions for CONTRAST PIs	204
CONTRAST Science Team	154
CONTRAST HIAPER Payload	148
CONTRAST PI Relevant Publications	44
Follow the NSF/NCAR HIAPER in Real Time	108
CONTRAST Educational Resources	154
CONTRAST in the News	94
Total Page Views (106 days)	**906**

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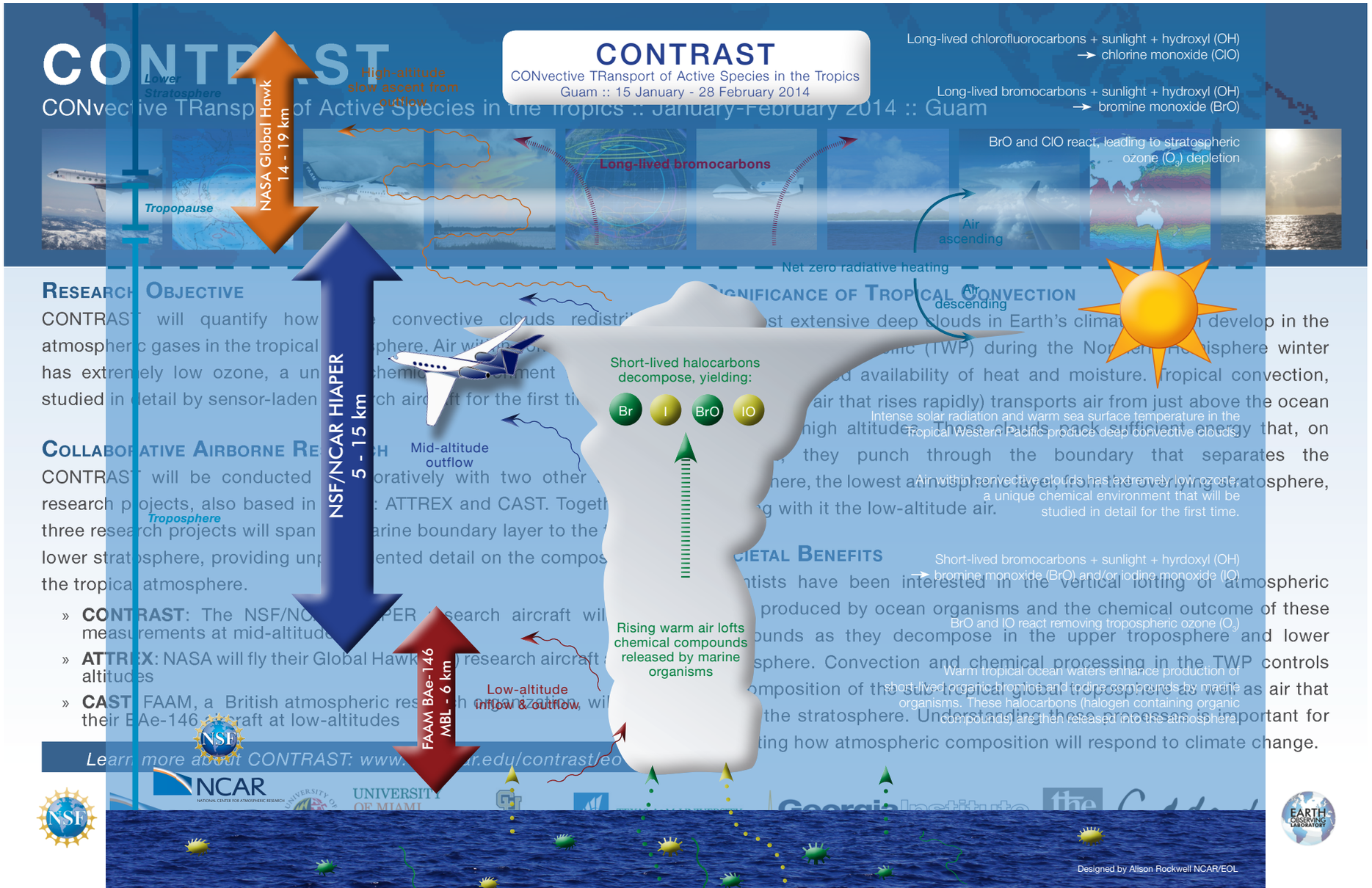
Printed Material

- CONTRAST postcard
- CONTRAST infographic



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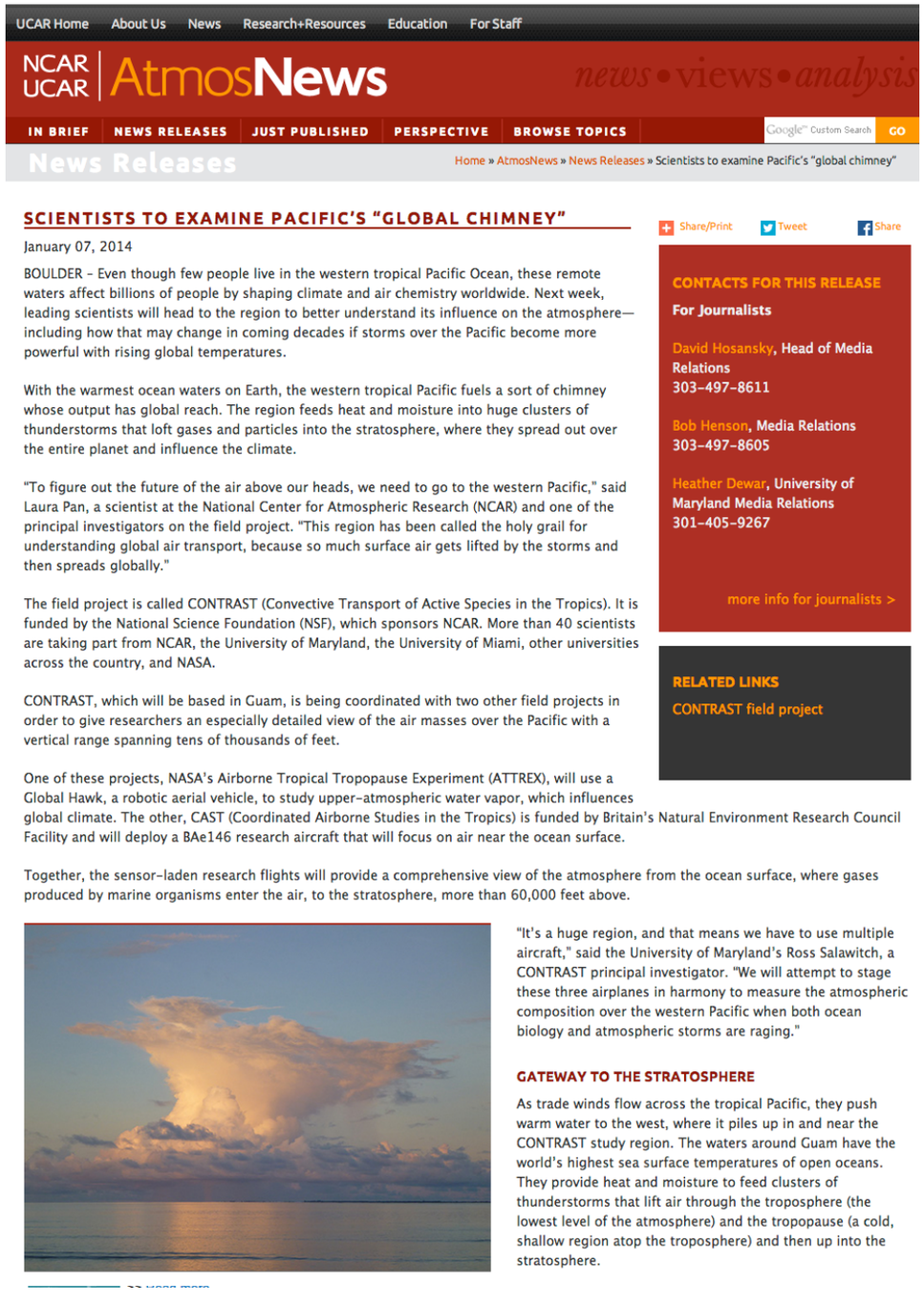
Collaborations

- UCAR Communications: *Scientists to Examine Pacific's Global Chimney*, generated 30+ other media pieces
  - Can be found on *CONTRAST in the News* webpage
- UCAR Center for Science Education and COMET activities on the *CONTRAST Educational Resources* page



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SCIENTISTS TO EXAMINE PACIFIC'S "GLOBAL CHIMNEY"

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January 07, 2014

BOULDER – Even though few people live in the western tropical Pacific Ocean, these remote waters affect billions of people by shaping climate and air chemistry worldwide. Next week, leading scientists will head to the region to better understand its influence on the atmosphere—including how that may change in coming decades if storms over the Pacific become more powerful with rising global temperatures.

With the warmest ocean waters on Earth, the western tropical Pacific fuels a sort of chimney whose output has global reach. The region feeds heat and moisture into huge clusters of thunderstorms that loft gases and particles into the stratosphere, where they spread out over the entire planet and influence the climate.

"To figure out the future of the air above our heads, we need to go to the western Pacific," said Laura Pan, a scientist at the National Center for Atmospheric Research (NCAR) and one of the principal investigators on the field project. "This region has been called the holy grail for understanding global air transport, because so much surface air gets lifted by the storms and then spreads globally."

The field project is called CONTRAST (Convective Transport of Active Species in the Tropics). It is funded by the National Science Foundation (NSF), which sponsors NCAR. More than 40 scientists are taking part from NCAR, the University of Maryland, the University of Miami, other universities across the country, and NASA.

CONTRAST, which will be based in Guam, is being coordinated with two other field projects in order to give researchers an especially detailed view of the air masses over the Pacific with a vertical range spanning tens of thousands of feet.

One of these projects, NASA's Airborne Tropical Tropopause Experiment (ATTREX), will use a Global Hawk, a robotic aerial vehicle, to study upper-atmospheric water vapor, which influences global climate. The other, CAST (Coordinated Airborne Studies in the Tropics) is funded by Britain's Natural Environment Research Council Facility and will deploy a BAe146 research aircraft that will focus on air near the ocean surface.

Together, the sensor-laden research flights will provide a comprehensive view of the atmosphere from the ocean surface, where gases produced by marine organisms enter the air, to the stratosphere, more than 60,000 feet above.

CONTACTS FOR THIS RELEASE

For Journalists

David Hosansky, Head of Media Relations
303-497-8611

Bob Henson, Media Relations
303-497-8605

Heather Dewar, University of Maryland Media Relations
301-405-9267

more info for journalists >

RELATED LINKS

CONTRAST field project

"It's a huge region, and that means we have to use multiple aircraft," said the University of Maryland's Ross Salawitch, a CONTRAST principal investigator. "We will attempt to stage these three airplanes in harmony to measure the atmospheric composition over the western Pacific when both ocean biology and atmospheric storms are raging."

GATEWAY TO THE STRATOSPHERE

As trade winds flow across the tropical Pacific, they push warm water to the west, where it piles up in and near the CONTRAST study region. The waters around Guam have the world's highest sea surface temperatures of open oceans. They provide heat and moisture to feed clusters of thunderstorms that lift air through the troposphere (the lowest level of the atmosphere) and the tropopause (a cold, shallow region atop the troposphere) and then up into the stratosphere.

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THANK YOU TO ALL WHO PARTICIPATED IN THE EDUCATION & PUBLIC ENGAGEMENT EFFORTS!

It was so successful because of your input and participation.