

# Thinking Outside the Unidata Box

Dr. Larry Oolman

Senior Research Scientist

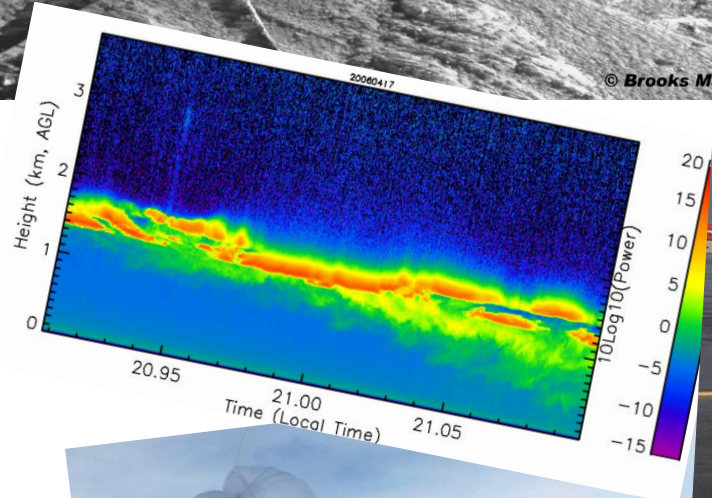
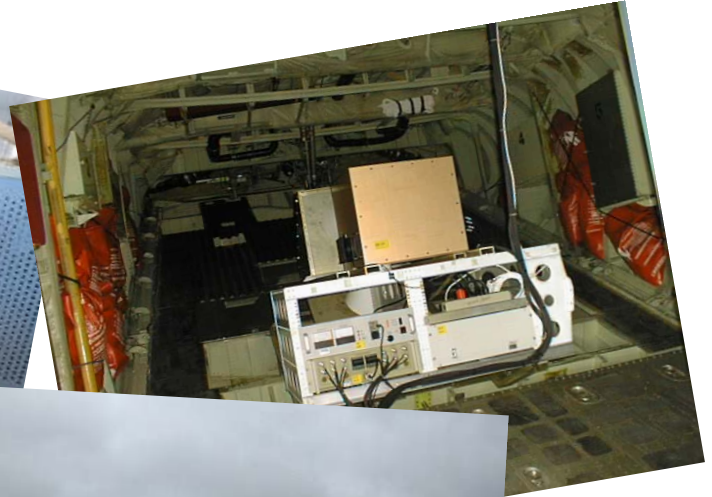
University of Wyoming

# University of Wyoming

## Department of Atmospheric Science

- Small research oriented graduate department
- Currently 10 faculty, about 20 students
- Strength is in instrumentation and measuring the atmosphere.





# Department Needs

- Graduate course work
- Short term forecasts
- Products specific to our research.
- Access to the latest fine resolution products in a nowcast mode
- Access to case study data
- Ability to integrate operational and research datasets
- Involve students



## How One School Uses Unidata

### Excerpted from the 1990 UCAR Corporate Report

by Bob Henson, NCAR Information Services

Nearly 100 universities nationwide take advantage of the tools and information available from Unidata. The flexibility of the Unidata system permits great variation in its use. One university has applied Unidata in locales ranging from a snowy Wyoming mountaintop to the Middle East.

The University of Wyoming's atmospheric science department is a small, research-intensive unit well known for field studies. Over the past two years, Wyoming faculty have taken Unidata with them to provide real-time data that can be invaluable in remote research projects. The first such use was in the summer of 1989, when a Unidata McIDAS system went to central Kansas for a NASA study of land surface climatology. Weather data fed through a commercial satellite link to the McIDAS system helped forecasters at the rural site use their array of observing equipment most efficiently.

Satellites and modems also made it possible for Unidata McIDAS to aid thunderstorm research in Saudi Arabia the following spring. The Saudi government sponsored investigations of storms that form in mountainous areas near the Red Sea. Forecasters on site "dialed up" satellite and conventional data from Wisconsin and, using Unidata McIDAS software, created displays that identified thunderstorms near the Saudi research site.

For over a year, the Saudi government has sent novice meteorologists to Wyoming's Laramie campus for training. Here, Unidata takes on the task of furnishing observations and computer-model output for the weatherpeople in training. "Until now," says assistant professor Larry Oolman, "much of the weather forecasting in Saudi Arabia has been done by visiting foreigners. The Saudi government is trying to integrate their own people into the work force." About 100 observers and 13 higher-level forecasters have returned from stints in Laramie to begin their meteorology careers in Saudi Arabia.

Oolman, the Unidata coordinator for Wyoming, keeps in touch with the Unidata Program Center in Boulder and ensures that hardware in Laramie runs smoothly with the latest versions of Unidata software. In the winter months, Unidata helps scientists at Laramie advise colleagues at Wyoming's Elk Mountain observatory, 50 miles to the west. Oolman also assists colleagues outside his discipline; as is the case at many schools, interest in Unidata has spread beyond the atmospheric science community. For instance, data captured by Unidata's LDM software were archived in fall 1990 for a Wyoming physics department study of ozone depletion over the Antarctic.

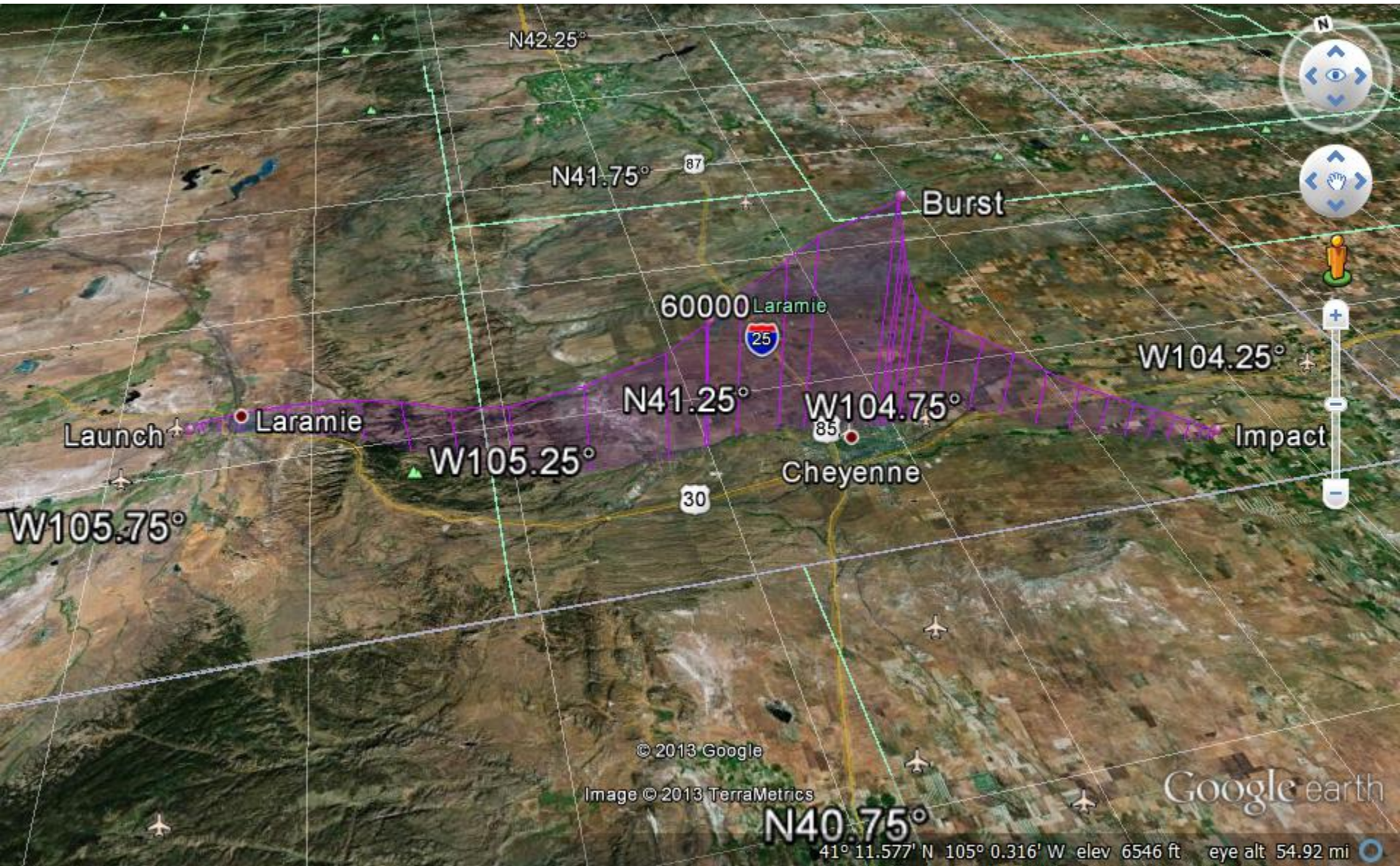
## Community Interactions

by Gabor Vali, University of Wyoming

Last year, Unidata McIDAS was put to a distant use during the University of Wyoming's field project in Saudi Arabia. The University's King Air research aircraft was involved in a cloud study in the Asir region, along the southwestern coast of the Arabian Peninsula. To support the flights, operationally as well as with archived data, METEOSAT images were downloaded from the University of Wisconsin via "smart" modems. Once the initial problems caused by a mismatch of phone systems were solved, data transfer rates at nearly the full 9600 bps were possible. The project acquired an average of six images (visible and infrared; 2.5-km and 5-km resolution) per day on an IBM PS/2-70. The images were used to plan flights, and they were saved on diskettes for further analyses. In the process, some Saudi meteorologists received training in the use of the McIDAS system. The real-time availability of the images at the operation center, without any elaborate installations, was a big benefit to the project.

Saudi Arabian meteorologists also received training in the use of Unidata McIDAS at the Laramie campus. As part of a larger program, 13 forecaster trainees sent by the Saudi government became proficient users of the Unidata McIDAS system. In support of their studies over a 17-month period, these meteorologists first used Unidata McIDAS for basic training, then practiced weather analysis and forecasting using U. S. data, and finally worked on data from Saudi Arabia (extracted from the WMO international data and from the ECMWF model output). These forecasters have now all returned to Saudi Arabia and are part of the Saudi national weather service.





Fall 2009

# 1337ART'S

## Project Icarus:

A step-by-step  
recount of the  
original \$150  
balloon launch.



## TAKING PICTURES OF SPACE

**We always wanted to see what the earth looked like from space.**

On September 2, 2009, we launched a camera attached to a balloon into near space. The capsule soared over 17 miles above ground, snapping beautiful pictures of the earth and capturing both the curvature of the earth and the blackness of space. After the balloon popped, the capsule floated back down to earth with a parachute. We retrieved the capsule with an onboard GPS phone that transmitted the landing location.

We were absolutely ecstatic about the launch success. We posted our pictures online and created a website dedicated to sharing out photos with the world. We also wanted to share the

process with the public because we believe strongly in the Do-It-Yourself movement.

All components including electronics of our launch are available commercially. The project cost did not exceed 150 dollars, making it affordable to the general population. We wanted to show people that it does not take an advanced technical education to do awesome projects.

In this guide we discuss the logistics of our balloon launch. We included information on the design decisions we made as well as the challenges we encountered.



**Caution:**  
Please contact the FAA before launch. Take steps to minimize chances of mid-air collisions.

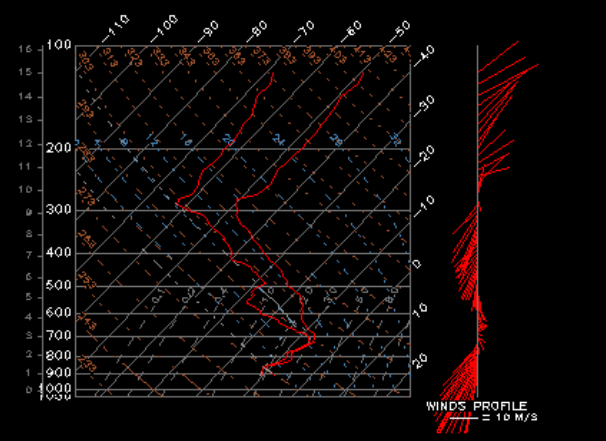
## BALLOON TRAJECTORY PREDICTION

Given the launch location, predicted maximum altitude, and time of launch, the website gives a general idea of the landing location. Visit [http://weather.uwyo.edu/polar/balloon\\_traj.html](http://weather.uwyo.edu/polar/balloon_traj.html).

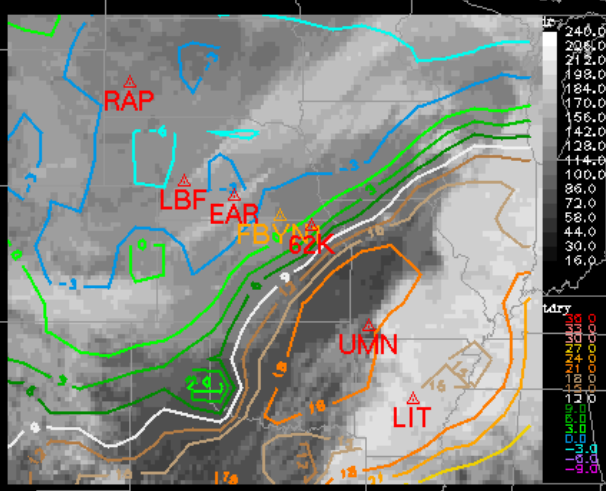




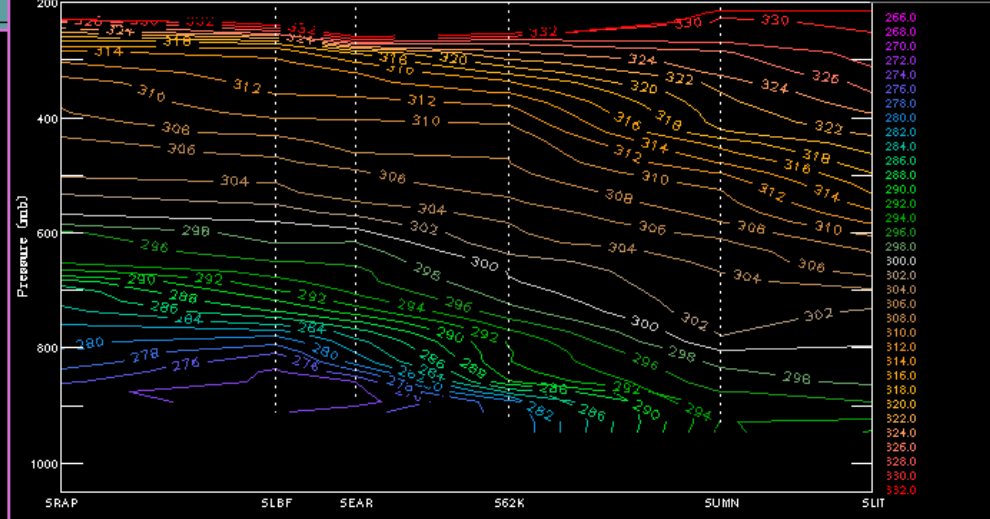
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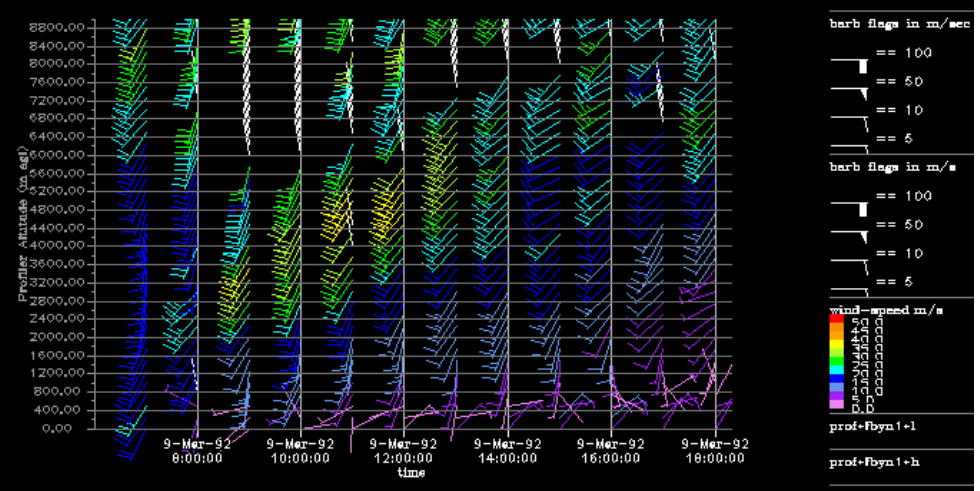
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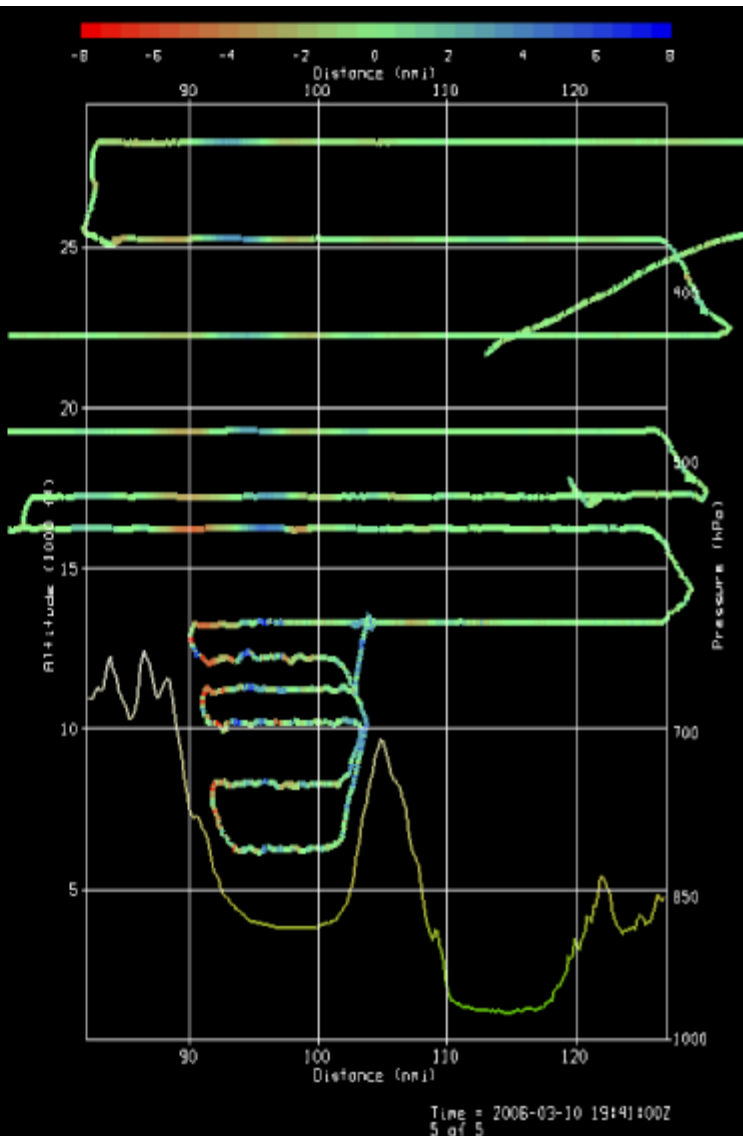
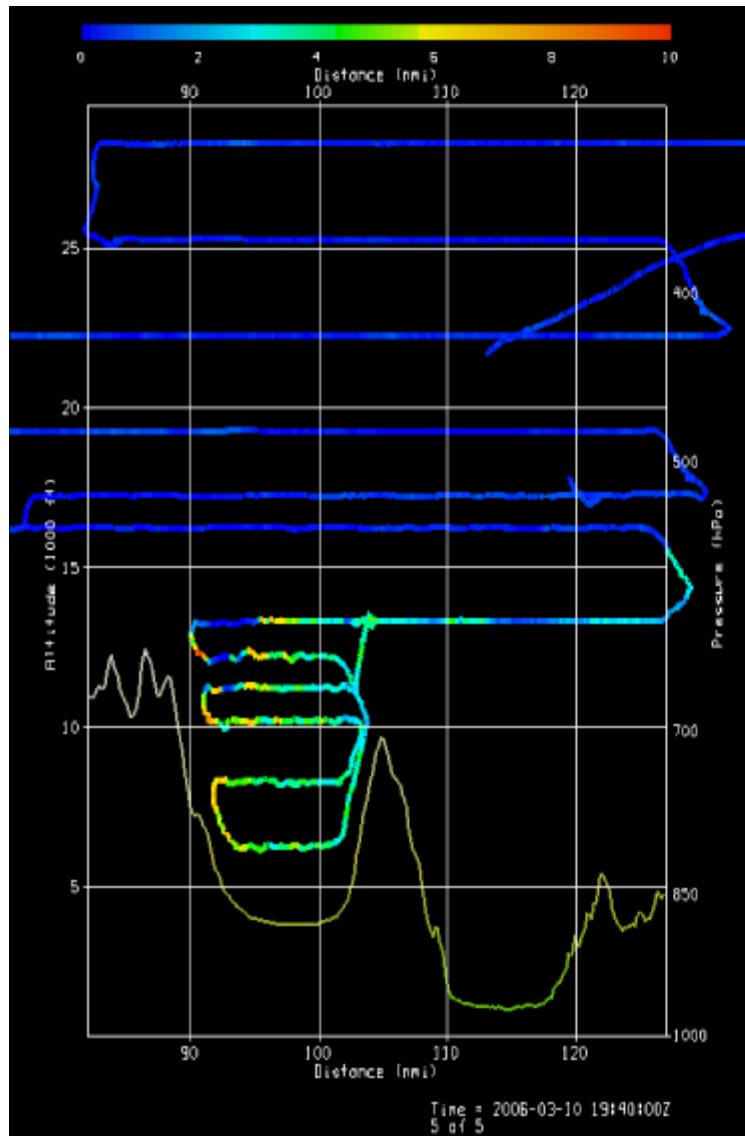


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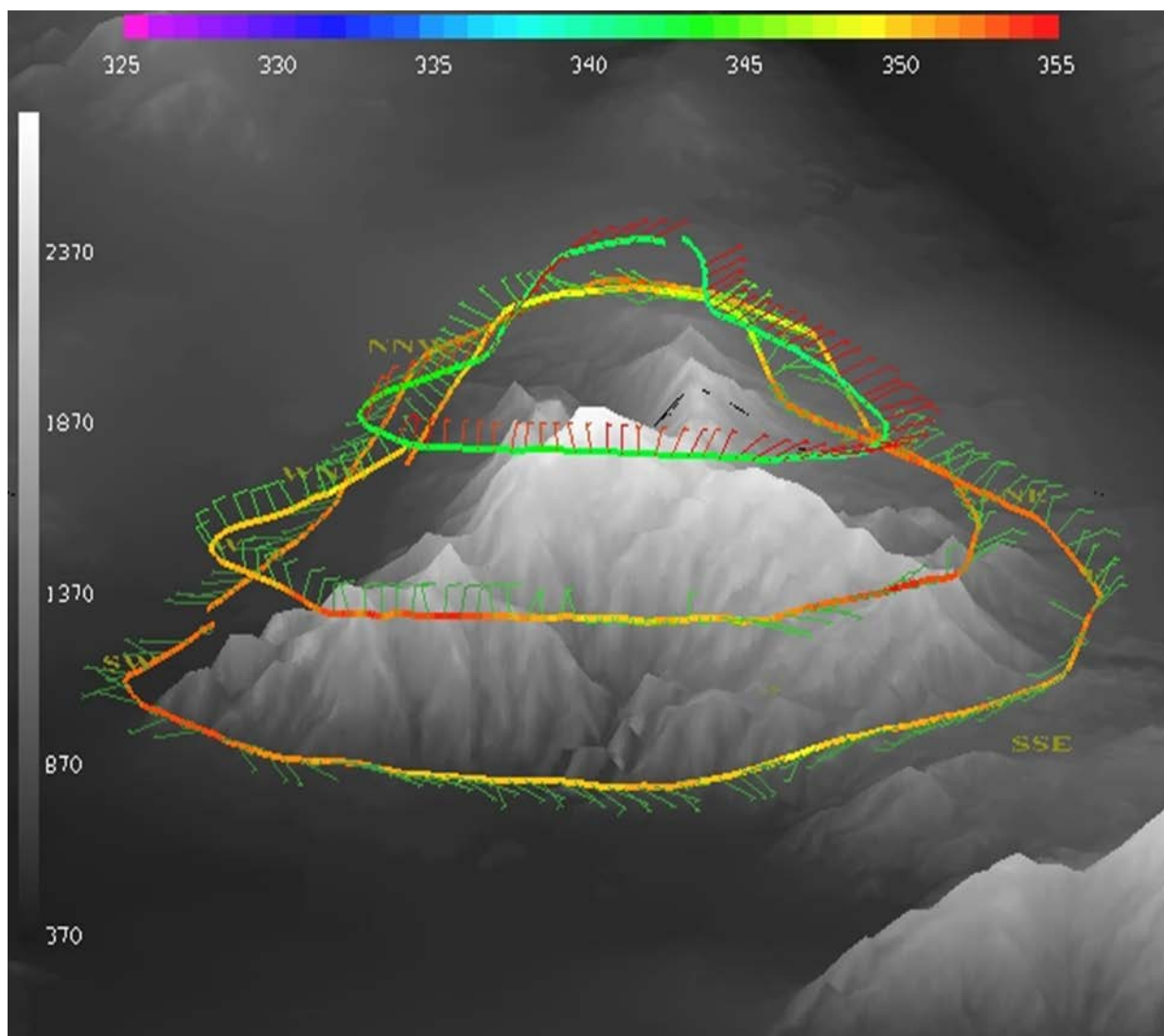
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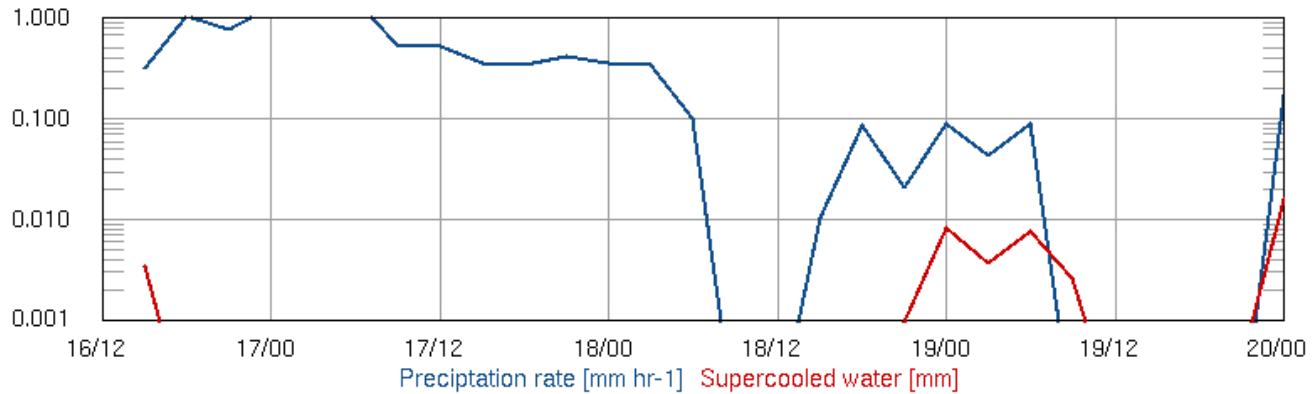
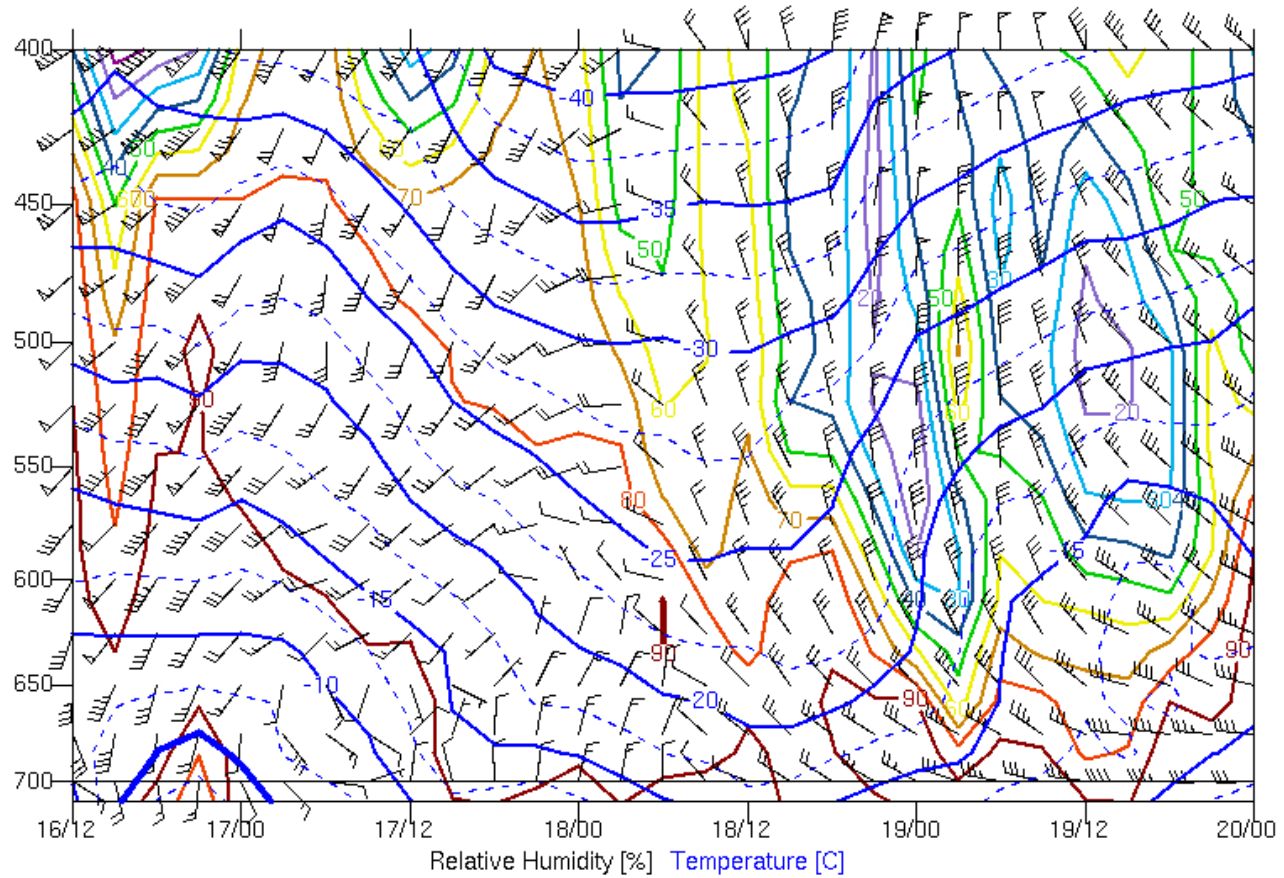








# MedicineBowPk (41.36;-106.32)









8/15/2013 3:07:00 pm



Image IBCAO  
Image Landsat  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
© 2013 Google

Google earth

Imagery Date: 4/10/2013 lat 50.900096° lon -4.100128° elev 381 ft eye alt 61.16 mi



