



## NSF education experiment:

### TOM – Teaching flow Over Mountains

*Information for U. of Colorado students who signed up for the experiment*

<http://rain.colorado.edu/TOM-experiment>

#### Summary:

The goal of this activity is to enhance undergraduate and graduate student learning in the atmospheric sciences by providing experience with hands-on instrument, data analysis, and a practical application of Doppler radar scan strategy design. While teaching the fundamentals of “flow over mountains” at introductory and advanced levels is important, another goal of this activity is to educate students about field measurements, fundamentals of selection and evaluation of data, and assuring data quality and reliability. This activity is a collaborative effort between the Dept. of Atmospheric and Oceanic Science (ATOC) at the U. of Colorado (CU) and the Dept. of Marine, Earth, and Atmospheric Sciences (MEAS) at North Carolina State University (NC State) funded through the National Science Foundation (NSF). We request the Rapid Scan Doppler On Wheels radar to be deployed in the Boulder, CO area to observe snow storms along the foothills during the spring semester 2011. Our goal is to obtain data from two snow events so that we can understand if terrain effects explain why North Boulder tends to receive heavier snowfalls than South Boulder. The experiment will start in the beginning of March and end after two snow events have been collected or 15 April 2011, whichever comes first.

**Where:** **1<sup>st</sup> deployment:** Table Mountain ~14 km (8.5 miles) north of Boulder. Driving directions: Take U.S. Route 36 North out of Boulder, turn right on Plateau Rd (~100 m before Lefthand Canyon Dr), follow the road until you see a white radar truck with an antenna dish.

**2<sup>nd</sup> deployment:** South Mesa trailhead at intersection highway 93 and highway 170 ~7km (~4 miles) south of Boulder. Driving direction: Take highway 93 South out of Boulder until you reach intersection highway 93 / highway 103 (road to Eldorado Springs and Superior), turn LEFT at the intersection onto highway 170 and turn right immediately after 10 m. You are entering the South Mesa trailhead parking lot.

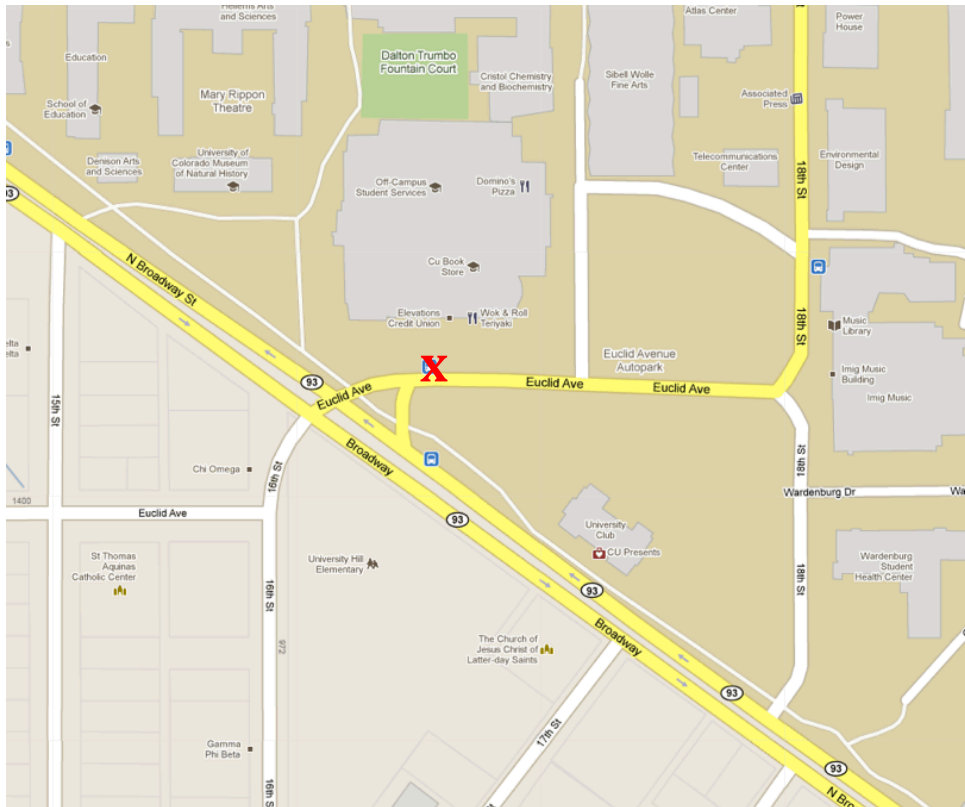
**When:** Sometime between 1 March – 15 April 2011. We will deploy only during university hours, i.e., Mo-Fri 8:00am - 6:00pm. No operation during spring break (21 – 25 March).

### How do I know when there will be a deployment and how can I sign up?

You will receive an email ~ 48 hours prior to the snow storm with the anticipated deployment time. You will also receive a link to an online scheduling application *doodle* where you will be asked to sign up for a specific 2 hour time window, e.g., 8:00 am-10:00 am or 10:00 am - 12:00 pm etc. You will spend 2 hours at the radar site. When you sign up via Doodle, please be aware of the additional travel time need to get to the deployment site (15-20 minutes from campus to the location depending on the weather conditions), i.e., please be available 30 minutes before and after your time window.

### How do I get there?

You can drive yourself to the deployment site or you can use the shuttle car service that will run between CU campus and the radar site. The shuttle will leave 15 minutes before the hour from the UMC and you will arrive on the hour at the radar site. **MAKE SURE YOU ARE ON TIME** and please wait at the bus stop in front of the UMC, Euclid Ave (see map below). Once you are done with your 2-hour radar duty, the shuttle will drive you back to the UMC. We expect the driving time to be 15-20 minutes depending on the weather conditions.



### What do I have to do at the radar site?

You will oversee the radar operations during your 2-hour duty. A radar operator will be in the truck with you and the technician will give you more information on how a radar works. You will make sure that the predefined scan strategy (<http://rain.colorado.edu/TOM-scan-strategy>) is running correctly, i.e., all predefined elevation angles are scanned. Additionally, you need to fill out a task sheet that you need to fill out while you are there. There will be detailed explanations and the radar operator will help you with this task. Please make sure that you write your names, time of your visit, and course number on the task sheet. You can leave the task sheet in the radar truck.

### What do I have to do in order to get the extra credit?

If you are not attending ATOC 1050 (Prof. Friedrich) you need to talk to your professor/instructor to see how/if you can get extra credits.

**Valid only for ATOC 1050 (Prof. Friedrich) students:** You will get 5% extra credit for fulfilling your 2-hour radar duty including filling out the task sheet (see above) and 5% extra credit for handing in the exercise sheet. The exercise sheet will be due at 2:00 pm on Monday 18 April 2011. No late exercise sheets will be accepted. Meg VanSciver (your ATOC 1050) will dedicate at least 2 exercise sessions (Tues/Wed 500-600pm) for the experiment. The exact dates will be announced in class and will be posted on the CULearn site and the class website. If you need further help please visit the ATOC Study Center (Mon-Thurs 5:00-7:00 pm).

### What do I have to do if I have a class during the radar deployment?

If you have classes during the available time windows during the 1<sup>st</sup> deployment you can wait and see if the day/times are more convenient during 2<sup>nd</sup> deployment. Remember to sign up as soon as I send out the email with the date and time windows so that you have the option for choosing a convenient time.

**Valid only for ATOC 1050 (Prof. Friedrich) students:** If you cannot attend the radar site you can still do the exercise and receive 5% extra credit.

### What happens if....?

If you have more questions please visit the TOM web site <http://rain.colorado.edu/TOM-experiment> or send an email to [Katja.Friedrich@colorado.edu](mailto:Katja.Friedrich@colorado.edu)

Enjoy your stay at the radar.