The weather in Boulder can deviate wildly from one day to the next. Forecasting the local weather can be a significant challenge. Now, imagine forecasting the weather for a random place in the United States and competing against over a thousand individuals across the nation.

This is precisely the premise of the WxChallenge competition, which succeeded the National Collegiate Weather Forecasting Contest in 2006. The goal of the WxChallenge competition is simple: Make the best forecast of the next day’s high temperature, low temperature, maximum sustained wind speed, and accumulated precipitation for a designated city. Forecasts are made over a two-week period for a preselected list of cities. For the 2011-2012 competition, the cities are Miami, Riverton WY, Dayton, Juneau, Erie, New Orleans, Providence, Albuquerque, Hilo, and Lincoln.

Each participant receives penalty points depending on how far off his/her forecast is from the verification. Like golf, a lower number is better. Those with the fewest penalty points in each city and in the entire competition receive trophies. Additionally, the team with the best overall score receives the team trophy to be displayed proudly at their institution for the year.

NCAR’s current team consists of nine members vying for the individual and team accolades. Many of us have years of prior forecasting experience, having taken courses in synoptic meteorology and weather forecasting. However, there are many examples of others who have joined the competition with no prior forecasting experience and have done exceedingly well. Some have participated in the competition for over ten years, such as the team’s manager Craig Hartsough. My first year in the competition was 2003-2004, which I joined after taking Roger Wakimoto’s synoptic meteorology class at UCLA.

The competition quickly becomes addicting. There are days when tiny differences in temperature, wind, or precipitation can determine whether a participant or the entire team is in contention for a prize. It becomes a nail-biter as the observations come in hour-by-hour and determine the fate of a close race. Perhaps the sun breaks through a low-cloud deck and causes the temperature to skyrocket, thus dashing the hopes of some while propelling others to victory.

For those of us who do basic atmospheric science research, the competition also offers an opportunity to remain engaged in operational meteorology.
NCAR team member Shawn Honomichl states, "I enjoy getting the chance to forecast, since I wouldn't have an opportunity to do it otherwise." Furthermore, there has been a rapid advancement of numerical weather prediction and other tools used to forecast the weather over the last few decades. "WxChallenge has helped me catch up on the improvements I have missed in the field and learn about some of the more modern tools forecasters have at their disposal in the 21st century," says Joe McInerney.

Forecasters also gain practical knowledge of the atmosphere by educating themselves about various atmospheric phenomena observed during the forecast process. For Craig Hartsough, forecasting has improved his understanding of diurnal heating, the effect of cloud cover, coastal winds, and the effect of topography. Topography, for instance, is important for phenomena such as mountain waves, downslope wind storms, upslope precipitation events, and cold air damming. One can obtain a great advantage in the competition by recognizing signals in numerical weather prediction models of these phenomena.

Certainly, a competition would not be fun if it did not challenge the participants. One of the greatest challenges is "switch [ing] to a new forecasting location every two weeks," states Shawn Honomichl. "A strategy that works well in one place may not, and in many cases, will not, work in another." The locations vary from the mountains to the sea and from the tropics to the midlatitudes, as can be seen by the variety of cities chosen in this year's competition. Each location has meteorological idiosyncrasies that may not be obvious to a person who does not have many years of experience forecasting for that particular location. Additionally, there are always days when one is humbled by a forecast that turns into a disaster and reminds us all of the chaotic nature of the atmosphere.

There are several strategies to do well in the competition. One can be alerted to meteorological idiosyncrasies by studying the topography and climatology of the forecast location. Another good strategy is to get a running start by studying model biases for a given location before the start of the forecast period. Incorporating information from different models and model ensembles can give one an idea of the uncertainty in a forecast and give one a sense of when to take risks. Days with high ensemble spread are often good days to take risks, since the reward-to-risk ratio is higher. Discussing the synoptic situation with others on complex days can also help hone a forecast, since the consensus of skilled forecasters oftentimes beats the forecast of any individual in the long run.

More information about the WxChallenge contest and current standings can be found at: [http://www.wxchallenge.com/](http://www.wxchallenge.com/). If you are interested in joining the competition in the future, the signup period is in September.

Editor's Note: Brian Tang was the WxChallenge Overall Individual Winner of the 2006-2007 Competition.
Developing Leadership Skills

In an article at Science Careers entitled “Enhance Your Career with Leadership Skills,” experts argue that it’s never too soon to begin building your leadership skills, even if a managerial role seems years away. From the article:

Scientists are called upon to show strong leadership all along the career ladder. Early on, they may need to steer decisions during group meetings, develop research collaborations, or organize student conferences. When the time comes, they're expected to become leaders in their labs and then in their fields, take charge of university courses, serve their institutions and professional organizations on committees and in leadership roles, and eventually, perhaps, lead a department or even a research institution.

Experts say it’s a good idea not to wait too long to start developing those skills. “During your research career, you have to focus on your research, especially in the early stages, because it is hard to be a research leader if you don’t do good research. But even at the early stage it is beneficial to also be building leadership skills. They will help create opportunities and build collaborations and networks,” academic leadership expert Hugh Kearns writes in an e-mail to Science Careers.

“Whatever role a researcher might be in, they can lead,” adds leadership expert Jeremy Mead.

The article goes on to suggest concrete methods for developing your leadership skills in research and academia. These include developing a vision, engaging with people, and cultivating respect.

As Hugh Kearns writes, “I think most people have unrealistic ideas about leadership. They tend to think they have to be Nelson Mandela or some such inspirational character. In reality leadership is much more mundane: for example, preparing for your meeting, communicating with people, and listening. The good news ... is that although we can’t all be Nelson Mandela, we can improve our basic skills.”

Please see the article in its entirety at http://sciencecareers.sciencemag.org/.

Meeting other Postdocs and Graduate Students at NCAR!

Join other postdocs and graduate students at the Southern Sun in Table Mesa for lunch the first and third Fridays of the month. Hanna Lee will send out reminders with times on the postdoc-grad email list.

Speaking of the list, did you know that you can use the email list to set up your own postdoc/graduate student gatherings? Want to go on a hike or set up a happy hour? It’s perfectly acceptable to use the email list to announce fun get-togethers. Visitors, this is open to you as well.

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For more information, please see https://www2.ucar.edu/atmosnews/communications

I suppose leadership at one time meant muscles; but today it means getting along with people.

--Mohandas Gandhi

Weather watchers from NCAR, 1976