



Winter 1-13-2004

## A Comet's Tale: Professor, Student Travel to Chile for Research

Sherry Wallace  
*Illinois Wesleyan University*

Follow this and additional works at: <https://digitalcommons.iwu.edu/news>

---

### Recommended Citation

Wallace, Sherry, "A Comet's Tale: Professor, Student Travel to Chile for Research" (2004).  
*News and Events*. 5708.  
<https://digitalcommons.iwu.edu/news/5708>

This Article is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).

©Copyright is owned by the author of this document.

January 13, 2004

**CONTACT:** Sherry Wallace

### *A Comet's Tale: Professor, Student Travel to Chile for Research*

BLOOMINGTON, Ill. — As Linda French and Gautham Narayan sit in front of a computer meticulously studying photographs of findings from a recent research expedition, it is hard to believe that only a month earlier the two astronomers had taken the pictures halfway across the globe.

French, associate professor of physics at Illinois Wesleyan, and Narayan, a junior at Illinois Wesleyan, traveled to the Cerro Tololo Inter-American Observatory in La Serena, Chile as part of a teacher-student research collaboration last fall. Located in the Andes Mountains at an altitude of 2,200 meters, Cerro Tololo is an observatory primarily financed by the U.S. government and the National Science Foundation.

During October, French and Narayan used the facility to observe an object designated as asteroid 2002 CE 10. The object is listed among some 40,000 catalogued asteroids, which are small rocky or metal-like bodies that orbit the sun.

However, French and Narayan question whether 2002 CE10 is, in fact, an asteroid. "The object we were observing was in a very strange orbit, taking it above and below the paths of the other planets. Because of this, we had a hunch that it might be a comet, an object in an odd orbit that is made up of ice, frozen gases and dust, rather than an asteroid," said French.

French and Narayan hoped they would be able to see a small tail—"coma" — on the object that would be a tell-tale sign of a comet. Another team of astronomers in Japan had previously reported seeing a coma on the same object. Although pleased with the initial results of their work, French and Narayan will not reach any firm conclusions until they have finished analyzing the data they collected — a process that will take hundreds of hours.

Gathering the data at Cerro Tololo was invaluable. The dry climate and low humidity there make observing conditions ideal. According to French, the climate of LaSerena is quite mild and is often compared to that of San Diego, whose latitude is about the same north as LaSerena's is south.

"It's quite an otherworldly atmosphere in that area because when you're sitting in the middle of the Andes, you look in one direction and see taller mountains, and you look in the other direction and see the ocean," said French.

Twice a year, scientists like French submit one-page proposals outlining their planned research and what they hope to accomplish with their observations at Cerro Tololo. Approximately four of every 10 proposals are accepted, creating stiff competition among scientists to obtain research time on any of the observatory's several telescopes.

**MORE**

## FIRST ADD: A Comet's Tale

Even after a proposal is accepted, there is no guarantee that an astronomer will have clear skies to make use of the telescope time.

"Sometimes you go all the way around the world and you don't even get to observe because of unfavorable weather conditions," said French. "I've been at Cerro Tololo before and never had the chance to open the telescope. Once it sleeted and rained for a week. We actually ended up devising a way to go sledding in order to keep us in good spirits."

This time, accommodating weather meant that Narayan was able to do field research in astronomy for the first time. French has collaborated with students many times before. At the Massachusetts Institute of Technology in the 1980s, she helped to lead several three-week field camps at an observatory in Arizona, where students worked individually on projects with professional astronomers.

For Narayan—a physics major and third-year student from Chennai, India—the experience was both exciting and stressful. "You go into your research very naïvely without realizing how much work is involved," he said. "Then you have ridiculously long days up in the observatory thinking everything is going to go smoothly, but of course it doesn't. You have to be on the ball doing research. It is more hands-on. This expedition really lifted the blinders from my eyes,"

As with most scientific endeavors, French and Narayan endured a few mishaps in the course of their research.

"Because the climate is so dry in Chile, there's a lot of static electricity," recalled Narayan. "One night, a small static burst went through Dr. French and shut down the focus data on the telescope and computers. We had three things beeping at us at once and we were running around trying to fix them so we could get on with our observing."

"We were fortunate," says French, "because those kinds of small problems can take many hours to fix, however, we were up and running again in about two hours."

Despite these minor setbacks, French and Narayan considered the research trip a success.

"It can sometimes be years before you are able to present your findings," said French. "In between teaching and other obligations, I have been examining results and preparing a manuscript for something I observed all the way back in October of 2001. It is really good if you turn around your findings in about a year."

Data from astronomical observation is valuable because it can help us learn about our own home in the galaxy. French explained that comets and asteroids are like the fossils of the solar system and can teach us much about the physical history of our own planet.

"A planet like the Earth has been molded by gravity, by weather, and by geology. That molding is still going on today, meaning we don't have a piece of the Earth that hasn't been reworked in some fashion." In contrast, she says, "The materials that comets and asteroids consist of, are the bits and pieces that have been around since the creation of the universe."

To discuss this research with French, please contact Ann Aubry or Sherry Wallace at 309/556-3181.