JET-SETTING FOR SCIENCE

HIPPO TEAM TAKES TO THE SKIES AGAIN THIS SUMMER


This summer, a group of researchers from EOL and science institutions around the nation will take the Gulfstream V (HIAPER) on two whirlwind tours of the Pacific. The HIPPO (HIAPER Pole-to-Pole Observations) field project consists of five missions in all, beginning in 2009. Next up is the fourth mission, which runs June 14–July 10 and focuses on sampling the western Pacific and Australia. The fifth and final mission, scheduled for August 9–September 9, will take a slightly different route that returns via the central Pacific.

An ambitious project, HIPPO seeks to make the most extensive airborne measurements of carbon dioxide and other greenhouse gases to date. Sampling as much of the atmosphere in the Pacific Basin as possible, from 85°N down to 67°S, will give scientists a longitudinal snapshot of Earth’s atmosphere that lends itself to improving our understanding of a wide range of atmospheric species.

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Above: EOL’s Britt Stephens prepares the NCAR Airborne Oxygen Instrument (AO2) to fly aboard HIAPER during HIPPO this summer.

Below: Brent Kidd (left) assists Kurt Zrubek (both EOL) in repairing HIAPER’s cloud droplet probe in Kona, Hawaii, on a maintenance day during HIPPO III. The probe had developed a loose connection but was successfully repaired to full functionality. (Image by Pavel Romashkin.)

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Sun-Earth Connections exhibit opening at Mesa Lab

IN LATE MAY, the components of a new public exhibit will begin to appear at the Mesa Lab. Sun-Earth Connections, a joint project between EO and HAO, will be located on the lab’s mezzanine opposite the Main Seminar Room.

The exhibit features a large, colorful wall mural designed by HAO’s Don Kolinski that shows the history and evolution of solar and space research over the past half century, with a section devoted specially to HAO. Next to the mural will be a touch screen that provides visitors with more information. Five large light boxes will display solar-related images and interpretative text. A screen similar to the one currently on display at CG1 will display real-time data and images from the Mauna Loa Solar Observatory. A second touch screen, which will be installed by late summer with input from HAO’s Yuhong Fan and Mark Miesch, is still in the planning stages. Graphic panels featuring space weather, solar magnetism, and other aspects of the solar environment are also part of the exhibit.

“HAO is really looking forward to seeing Sun-Earth Connections at the Mesa Lab,” says Joan Burkepile, who contributed to the exhibit. “We’re delighted to share our solar research with staff and the public.”

The idea for Sun-Earth Connections arose when HAO’s Stan Solomon suggested that the CG screen showing data from Mauna Loa be replicated at the Mesa Lab. The 40th anniversary exhibit, which previously occupied the mezzanine, was getting dated, according to EO’s Becca Hatheway. “We saw an opportunity to use that space to include even more content,” she says. “We’re excited to be collaborating with HAO on an exhibit and look forward to working with more labs and divisions in the future.”

Grab and go: Bike sharing comes to UCAR/NCAR

GETTING AROUND TOWN, and between our organization’s sites, gets easier this spring with the advent of Boulder B-cycle. The new bike-sharing program is nearly identical to Denver’s, which became the first large-scale bike-sharing program in the nation when it launched last year. UCAR/NCAR is in on the action, as two of the first bike-sharing stations in Boulder will be located at Center Green and Foothills. The organization will provide memberships for all staff, similar to the Eco Pass benefit.

Over the next year, Boulder B-cycle will be installing 20 bike stations across town that will offer 200 professionally maintained bicycles for short-term rental. Anyone can swipe a credit card at a kiosk to buy a membership ranging from just one day to a full year. The first hour of any ride is free, after which an hourly rate kicks in. This means that staff could, for example, grab a bike at Center Green or Foothills, ride to Twenty Ninth Street and return the bike at a station there, eat lunch or shop, and then grab another bike for the return trip. By turning in the bike at one destination and checking another out, riders keep the bikes in constant sharing mode and avoid usage fees of $4 per half hour.

The UCAR/NCAR stations will be located at CG2 in the main thoroughfare between buildings and at the new Anthes Building. The partnership with B-cycle came about when the program was looking for early hosts and eager to work with UCAR/NCAR due to its recognition in the community, says Kimberly Kosmenko, UCAR’s sustainability program manager. As an early adopter and large employer, UCAR was offered the opportunity to lock in bulk memberships at a fraction of the cost to the general public.

Blue Bike enthusiasts can rest easy, Kimberly says, as the 12-year-old internal borrow-a-bike program remains in service. Once Boulder B-cycle’s red bikes are available for immediate use, Blue Bikes will shift from a self-serve checkout system to direct checkout via the Sustainability program. This change cuts maintenance and administrative costs by reducing the number of missing or lost Blue Bikes, while continuing to support employees and official visitors looking for short-term commuting solutions.

www.fin.ucar.edu/sustainability/bikes.html

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The five missions all follow similar flight paths but at different times of year, in order to compile a collection of seasonal snapshots of greenhouse gas concentrations. The team is constructing vertical as well as latitudinal cross sections, with HIAPER dipping as low as 1,000 feet (300 meters) and soaring as high as 47,000 ft (14,000 m).

The findings will help scientists determine where and when greenhouse gases enter and leave the atmosphere, a critical prerequisite for taking steps to curb global warming. It will also shine light on questions such as why atmospheric levels of methane, a potent greenhouse gas, have tripled since the Industrial Age and are on the rise again after leveling off in the 1990s. And researchers will be able to analyze other gases and particles in the atmosphere that can affect temperatures by influencing clouds or the amount of solar heat that reaches Earth’s surface.

“Some of the biggest questions that we have about where our carbon dioxide is going focus on northern forests, tropical forests, and different regions of the ocean,” explains Britt Stephens, one of HIPPO’s co-principal investigators. “By taking this aircraft and flying from Boulder to as far north out of Anchorage as we can, all the way down the Pacific to as far south out of New Zealand as we can, we’ve been able to cover an enormous distance and see

Left: The proposed HIPPO IV route. The route originally included stops in the Philippines and Japan that were cancelled due to the earthquake in Japan.

Changes are afoot in UCAR Communications with the arrival of new director Matt Hirschland in early June.

Matt comes from the global management consulting firm McKinsey & Company, where he oversaw internal and external communications and media relations. Prior to McKinsey, he worked at the nonprofit firm Business for Social Responsibility as director of research and communications. He has been a communications professional for more than a decade, specializing in public relations, business strategy, sustainability, brand marketing, and stakeholder relations.

Matt holds a Ph.D. from CU-Boulder in political science. He returns to Boulder after stints in San Francisco and Brussels, Belgium.

“I am excited to engage with the scientists and community at UCAR/NCAR, building the kind of strategic communications that will serve both individual and institutional goals by shaping the debates that matter most to us,” Matt said prior to beginning his new role.

Matt replaces Lucy Warner, who retired in late April after 27 years at UCAR, including 15 as director of Communications. “So much has changed in both the external and internal environments for science communications,” Lucy says. “We have many more avenues for communication than when I started working here in 1984, and much more enthusiasm among scientists for explaining their research to the public. Our science is more visible—and sometimes controversial.”

Communications will relocate to the Anthes Building in September, along with the rest of FL4’s current occupants, while their building is renovated. For more, see page 7.
The first three HIPPO missions, which occurred during the Northern Hemisphere’s fall, winter, and early spring, are already providing interesting results. The team noted significant variations in carbon dioxide distributions and concentrations on each mission. Observations also showed a more widespread, uniform distribution of black carbon than anticipated, with greater-than-expected levels found at high latitudes in the Northern Hemisphere. Additionally, concentrations of nitrous oxide, the third most important long-lived anthropogenic greenhouse gas (after carbon dioxide and methane), were higher than expected in the mid- and upper tropical troposphere.

About a half dozen EOL staff will be aboard HIAPER during the two missions this summer. A typical day includes several hours of pre-flight preparation, an 8-9 hour flight, and an hour of post-flight operations—followed by additional hours of analyzing data and sending it back to NCAR over often-slow Internet connections. “For the scientists on board, it’s a very exciting time, but also very exhausting,” Britt says. “Watching all the data come up in the real-time displays is extremely engaging but not nearly as relaxing as an in-flight movie.”

After HIPPO’s field component wraps up this summer, the number crunching begins. Britt estimates that there is a decade’s worth or more of work to be done. “The exciting part for me is all the collaborators pouring in, eager to work on the data—we’ve been making it widely available and it’s been well received,” he says, adding that demonstrating HIAPER’s ability to undertake this sort of experiment should motivate researchers to make similar use of the aircraft in other disciplines.”

HIPPO
hippo.ucar.edu
You work mainly with lidars. Most of us have heard of these, but what exactly is a lidar? A laser-based radar. Instead of transmitting radio waves, it transmits light. So rather than using a big antenna to collect your signal, you use a telescope. In EOL, we use lidars to look at aerosol particles—dirt or particles suspended in the atmosphere—by bouncing light off the particles and then collecting the data. On an airplane, we can use one to search for layers in the atmosphere. We have an instrument in EOL that we acquired about a year ago called the High Spectral Resolution Lidar. It gives us calibrated properties of aerosols and is set to fly on the G-V [HIAPER]. We'll use it to get aerosol and atmospheric properties that can be plugged into climate models.

Where do you see lidar technology going in the future? What will scientists use them for in 20 years? There are several varieties of lidars and you can use them for many different things. They're especially nice because you can do remote sensing—sample from a distance instead of going out and collecting samples. There's a lidar being developed in Montana right now that will be used to profile the amount of water vapor in the atmosphere. It's a micro-pulse system that is eye-safe at the transmitter exit; water vapor lidars in the past have had pulse energies too high to be eye-safe. The cost of the Montana system is also lower and the reliability of the fiber lasers used is high. Another development is that they're trying to develop lidars that will measure carbon dioxide from the ground. This is a very difficult problem because there's not a lot of CO₂ in the atmosphere and it's pretty uniformly distributed, so you have to measure with incredible precision and accuracy to record changes.

If you're flying lidars on aircraft, that must mean that you go on field projects. I've been on many. I used to work out of RAF—wherever the aircraft went, we went. I flew over the North Pole in the Electra [a former NCAR aircraft retired in 2001] and did projects in Antarctica before I came to NCAR. We also flew the Electra over the Kuwait oil fires in 1991. I like the remote places. We went to Resolute Bay, Alaska, on a project; there were maybe 500 people in the town, and the airport had a gravel runway. I was also on TOGA COARE, based in the Solomon Islands, and INDOEX, in the Maldives. The one continent I can't claim is Africa.

If you could have any superpower to help you perform your job better, what would it be? The ability to fix things! Instruments are always breaking and you have to improvise repairs. Especially in airplanes.

You've probably seen the technology improve tremendously in your years in the field. Today we collect more data in an hour with some of the instruments than we used to collect on entire field programs. For the DYNAMO field project next fall, they're taking hard discs about the size of a tape recorder that can hold a terabyte of data.

You also apply your scientific mind to making beer. Or is that an art? It's fun to experiment. I haven't used a standard recipe in a long time; I have a basic structure and go from there. I've made a lot of beer in my life, mostly stronger, heavier brews—India pale ales and stouts. The best beer I've made is probably one of my IPAs.

Other than lidars and beer, what's important in your life? I'm married with two kids. My daughter, Kate, is currently at the London School of Economics in the master’s program. My son, Steve, is studying for a master’s in jazz at the University of Miami. Laurie, my wife, is on the school board and involved in local politics. We live in south Boulder and I bike to work most days. I like to hike and fly fish and get into the mountains.

Any favorite fly-fishing spots? The high mountain lakes and Yellowstone. I'm trying to get into the Yellowstone backcountry this summer.

There's that theme of remote places again. Remote places are fun. Before I came to NCAR, my family spent a year in Greenland, when the kids were two and four. I also spent a full year at the South Pole.

What's the most recent book, movie, or concert you've taken in? I went to the Conference on World Affairs jazz concert at CU. That's always an exceptional concert. And if you know about the local jazz scene, you can always find some nice jam sessions.

Is there anything that you're known for among your co-workers? About six months ago my beard was down to my sternum. They kept asking when I was going to shave.

So what made you do it? It was time. ZZ Top wasn't sending me any royalties.
The inner lives of red giant stars

AN INTERNATIONAL TEAM of astronomers that includes NCAR’s Savita Mathur has observed mixed waves—a mixture of acoustic and gravity waves—that run all the way to the cores of red giant stars. Astronomers already knew that such waves (known as stellar oscillations) existed, but until now had only observed pure acoustic waves traveling through the outer parts of stars. In the same way that scientists use sound waves to learn about Earth’s interior, the discovery, which was published in Science in March, opens a window for learning about the interiors of red giants.

The discovery came about when astronomers were analyzing data from NASA’s powerful Kepler space telescope and noticed that some stellar oscillations behaved differently than others. By comparing these observations with theoretical models, they realized that they were viewing the signatures of mixed waves that “sense” the heart of a star.

“This is a very exciting result, showing that asteroseismology is a great tool to better understand stars and probe their interiors,” Mathur says.

A red giant is similar to our Sun but is in the last phase of its life. (The Sun will be a red giant in about five billion years.) Having exhausted the supply of hydrogen in its core that powers nuclear fusion, a red giant instead burns hydrogen in a surrounding shell. At the end of its life and when massive enough, it burns helium in its core, and its color changes from yellow to reddish.

In related research published in Nature, the discovery is helping astronomers determine where stars are in the evolution from infancy to death. The Kepler telescope allows researchers to continuously study starlight from hundreds of red giants in unprecedented detail. Changes in brightness at the surface reflect stellar oscillations traveling through a star’s interior and back. Under the right conditions, these waves interact with other waves trapped inside the star’s helium core. The resulting mixed oscillation modes can reveal whether a star has run out of hydrogen and is now burning helium, indicating that it is at a later stage in life.

Ozone recovery and greenhouse gases in the Southern Hemisphere

A NEW STUDY in Geophysical Research Letters looks at how the anticipated recovery of the ozone hole over Antarctica and simultaneous increase in greenhouse gas concentrations will combine to affect weather and climate in the Southern Hemisphere. It concludes that over the coming half century, ozone recovery will result in a nearly complete cancellation of the effects of increased greenhouse gases on atmospheric circulation.

The Southern Hemisphere’s prevailing atmospheric circulation pattern is the Southern Annular Mode (SAM), also known as the Antarctic Oscillation. In the mode’s positive phase, a stronger and more southerly vortex encircles the pole, leading to fewer intrusions of Antarctic air into the southern oceans. The negative phase features a weaker, more variable vortex and a greater risk of Antarctic outbreaks of cold air heading north.

SAM has trended toward positive values since the 1960s, a development that scientists attribute to the effects of both stratospheric ozone depletion above Antarctica and increases in greenhouse gas emissions. The ozone hole stopped growing in about 2000, however, due to a ban on ozone-depleting substances. It is expected to recover completely sometime after the middle of this century, leaving scientists wondering whether atmospheric circulation patterns will return to conditions prior to the formation of the ozone hole or if increasing greenhouse gas concentrations will counter the effects of the recovery.

For the study, a team of scientists that includes NCAR’s Clara Deser used the Community Atmosphere Model (CAM), a component of NCAR’s Community Earth System Model. Continued on page 7
The Anthes Building: A Status Report

RAL’s NEW HOME is taking shape at the Foot hills campus in the new Anthes Building. The remodel that’s under way is part of UCAR’s long-term strategic plan for space needs. The building, which was purchased back in 2009, will feature energy-efficient, “green” components and resulting long-term cost savings.

“This building is a great addition to the Foothills campus and its acquisition was a cost-effective part of our long-range strategic space plan to meet the needs of NCAR and UCP,” says UCAR president Rick Anthes. “I am really pleased that it will be our greenest and most energy efficient building, which is appropriate for a national center that does world-class research on weather and climate.”

Rick adds that while parts of NCAR and UCP have experienced budget shortfalls over recent years and have experienced reductions, overall NCAR and UCP have grown in most years since 1990. This growth requires more space, and owning is far less expensive in the long run than leasing.

“UCAR’s purchase of buildings has resulted in a significant net savings to NCAR and UCP and the savings is growing every year as the debt service is reduced,” Rick says. Eventually UCAR will own the buildings and NCAR and UCP will use them for only the cost of maintenance, with neither rent nor debt service.

When the Anthes Building is complete in August, the current occupants of FL4 will be the first staff to move in. They’ll stay there until next spring, while FL4 is being retrofitted to take care of long-term electrical and structural deficiencies. In April 2012, RAL will settle into the building for the long term.

Research continued from page 6

System Model, to run different simulations for the period 2000–2060. The results confirm that ozone recovery and greenhouse gas forcings will have opposite effects, with the increase in greenhouse gas concentrations countering ozone recovery and preventing SAM from returning to its pre-1960s patterns.

>>>Interior Alaska: Subsistence hunting in a warming world

ALASKA IS AMONG the fastest-warming places on Earth, with its interior region warming the most statewide. A study by NCAR’s Shannon McNeeley looks at the vulnerability to climate change of rural native communities in the Koyukuk–Middle Yukon region, with an emphasis on how warming temperatures affect people’s ability to hunt and harvest critical subsistence foods, particularly moose.

Over the last decade, communities in the region have reported difficulty harvesting moose before hunting season closes. Hunters cite warmer fall weather along with changing precipitation and water levels, all of which affect moose behavior and movement; the hunting season’s regulatory framework also poses problems. However, autumn temperatures as measured during the three-month period of September through November show a relatively weak warming. This has left resource managers at state and federal agencies wondering how to reconcile local reports of warmer autumns with weather data that show a very small magnitude of warming.

For the study, McNeeley and colleagues integrated indigenous observations and understanding of climate with an analysis of meteorological data from the region. They found that weather records support the observations continued on page 9

Below: The Koyukon Seasonal Round. For a larger version, go to www2.ucar.edu/staffnotes/research/4279/interior-alaska-subsistence-hunting. (Image courtesy Shannon McNeeley.)
Stewards of the Mesa: UCAR’s Wildfire Mitigation Plan

Matt McMullen  
Director, Facilities Management & Sustainability (FM&S)

Last fall, the Boulder community and UCAR/NCAR staff watched nervously as the Fourmile Fire tore through the foothills outside town. Two of our staff lost homes in the blaze, and a number were evacuated. Shortly after, the Dome Fire threatened a repeat. These events were a sharp reminder that our beautiful landscape here on the Front Range is susceptible to wildfire.

The Mesa Lab, with its spectacular perch on 45 acres of forested land above town, is no exception. After decades of fire suppression, the amount and thickness of forest cover on the mesa has gradually increased. After last year’s fire season, a group of NCAR senior scientists expressed concern about the condition of the surrounding forest and grasslands to the President’s Council, which in turn directed FM&S to look into the situation and develop an action plan. Now that FM&S has finished resurfacing the asphalt road and creating a bike lane and pedestrian path, the next item on its plan for the Mesa property focuses on the land itself. As stewards of the Mesa on behalf of both NSF and the local community, we’ll be following the best practices for ecosystem management, based on the latest research.

To assist us, we’ve contracted with Anchor Point Group, Boulder-based consultants who specialize in wildfire mitigation services. UCAR’s relationship with Anchor Point dates back to 2005, when the firm prepared the NCAR Ecosystem Management Plan to meet long-range resource planning goals for the Mesa.

After a recent comprehensive evaluation of wildfire hazard on the Mesa, Anchor Point recommended forest restoration treatments. These include maintenance of historic forest openings (meadows); reductions in forest density through removal of low-hanging branches from healthy trees and selective cutting to remove undesirable species and diseased trees; retention of mature trees through selective pruning; and implementation of pine needle/undergrowth removal and prescribed burns.

Because the health of NCAR’s grasslands is threatened by the proliferation of certain weeds, Anchor Point has also done an inventory of these plants. They recommend forest thinning to preserve rangelands and implementation of an integrated weed management plan that includes prescribed burns to rejuvenate the landscape and establish a healthy growing environment for native plants.

Over the next two years, with Anchor Point’s help, we’ll be carrying out wildfire mitigation and forest management work on the Mesa. The first phase of the plan runs June–November 2011, with a second phase planned for March–November 2012.

During the first phase, staff and visitors can expect to see trees being thinned around the Fleischmann Building to create defensible space around the structure. Trees will also be thinned along the Walter Orr Roberts Weather Trail. Anchor Point will also create an inventory of hazardous trees near the lab’s parking lot and main lawn area.

The second phase, during spring 2012, will include five prescribed grassland burns surrounding the Mesa Lab. These small, intentionally set fires, also known as controlled burns, reduce fuel build-up and decrease the likelihood of more serious wildfires. Anchor Point estimates that it will take one day to burn each unit.

We’ll be coordinating our efforts with surrounding land agencies throughout the two-year plan. In the aftermath of last year’s fires, City of Boulder Open Space and Mountain Parks and Boulder County Parks and Open Space are implementing forest management measures on their properties. Anchor Point has very strong working relationships with these and other local agencies.

Funds for our wildfire mitigation plan, which will cost $300,000 for all the work over the two-year period, are drawn from NSF money that has been earmarked specifically by the foundation for the maintenance and upgrade of NCAR’s buildings and sites. This money is separate from the funds used for salaries, research, and operations, and as such NSF has specific requirements regarding its use.

As the mitigation effort unfolds, more details and information will be shared with staff. Staff with questions are encouraged to contact me at ext. 2060 or mattm@ucar.edu.

Stewards of the mesa: ucar’s wildfire mitigation plan
A MYSTIFYING FORMATION OVER BOULDER

PEGGY LEMONE (NESL/MMM) has always loved clouds. A particularly striking one on the afternoon of March 23 prompted her to write a blog post and carry out follow-up work that could include a peer-reviewed paper.

In her March 30 post at NCAR & UCAR Currents, “A cloud to remember—and a mystery to solve,” Peggy recalls the moment she left FL3 a week before. “I was stopped in my tracks by an incredible sky: a high, very thin layer of small, uniform, tiny cloudlets.” The cloud came and went in about an hour’s time, during which UCAR photographer Carlye Calvin snapped this photo.

In the cloud’s wake came a flurry of discussion among Peggy and weather-watching colleagues. One of the main questions was the cloud’s height. To the naked eye, it resembled cirrocumulus—high, thin sheets of ice crystals—but other clues suggested that it was actually a lower-altitude cloud made of water droplets. The cloud’s thinness made it difficult to determine its height from satellite data. After posting her blog, Peggy continued to dig. She’s corresponded with colleagues that include Tom Schlatter (NOAA) and gathered pilot reports and other data. “I’m pretty convinced now that the cloud is high—which was my first impression,” she says. “This makes this cloud particularly exciting from a scientific point of view. If this is confirmed, the cloud’s height and behavior will challenge the microphysics community.”

At press time, Peggy was working on a follow-up post for Currents, and she and her cloud-watching colleagues may pursue a journal article as well.

On the Web

NCAR & UCAR Currents
www2.ucar.edu/currents

“A cloud to remember—and a mystery to solve”
www2.ucar.edu/currents/cloud-remember-and-mystery-solve

by indigenous hunters of warmer temperatures in the early fall (late August through September), when they most affect the moose hunt, which ends around September 25.

Because the region’s social and ecological systems are highly sensitive to environmental change, even a very slight shift in seasonality caused by warmer temperatures, when combined with other stressors that the community experiences (social, biological, and economic), can have an outsized impact, according to the study. This “window of vulnerability” created in warmer-than-normal autumns decreases the opportunities for hunting communities to harvest moose before the regulatory season ends, threatening food security.

“Alaska Natives maintain a very close connection to their natural world, and are among the best teachers in the world for understanding the nuances of climate change impacts and adaptation,” McNeeley says. “Integrating their observations with more conventional scientific data analysis provides more powerful insights than either can provide alone.”

Below: Alaska Natives in the Koyukuk–Middle Yukon region return from a successful moose hunt. (Photo by Shannon McNeeley.)
[QUESTION 624 • RECEIVED 02.25.11]  
STAFF TRAVELERS get to use the frequent flier miles that they accumulate via UCAR travel for personal travel. Does it work the same way for rewards programs such as Office Depot? May the purchaser use the accumulated points for personal purchases?

A  
THIS IS AN INTERESTING QUESTION and I appreciate the opportunity to address it.

We follow the federal government’s guidelines on Frequent Flier Miles (FFM), which allow travelers to “keep” the miles they earn. It’s important to note that FFM can be accrued on both personal miles and UCAR business miles, as well as on credit cards, all of which are difficult and costly to sort out. UCAR business miles often include travel before and after business hours, and hardship on travelers being away from family and work (I can assure you that business trips are not vacations!). Any UCAR business travel involves approvals by senior management and audits by the UCAR Travel Office. Also, the airlines, despite repeated requests, will not issue two FFM member cards to individuals. In accordance with airline rules, individuals cannot sell their FFM.

In contrast, rewards “earned” by placing orders for supplies to be used for UCAR business are required to be credited back to our federal sponsors, in compliance with the Office of Management and Budget Circulars to which we adhere. Rewards are not to be used for personal gain.

It’s clear in UCAR policy and guidelines that personal gain, or even the appearance of personal gain, is prohibited. So, no, it is not the same thing. [RESPONSE TO QUESTION 624 • RECEIVED 04.12.11 FROM KATY SCHMOLL, UCAR VICE PRESIDENT FOR FINANCE & ADMINISTRATION]

[QUESTION 625 • RECEIVED 03.27.11]  
THERE IS NOW A THREE-WAY STOP at the top of the Mesa Road. When the stop signs first appeared, there was widespread outrage expressed by staff because it was noted that requiring a full stop was more hazardous than having no stop signs at all, and stop signs were not necessary. In all the years I’ve driven up the hill, I’ve never had a problem at that intersection. In fact, if anything, there is even less hazard in the last couple of years since they banned all vehicles except NCAR shuttles from going up the lane to the front door. At most, there are only two to three shuttles per hour at that intersection coming from the Mesa Lab’s front door lane. And for all other traffic on the Mesa Road, likely amounting to 30 or more vehicles per hour, and many more during morning and evening rush hour, there is an annoying full stop required where none was ever necessary before, and is not necessary now.

Due to the outcry when the stop signs first appeared, I heard a rumor that management reasonably saw the need for yield signs on the Mesa Road, with a stop sign coming from the Mesa Lab’s front door lane, NOT a three-way stop. However, the stop signs are still there, and now I hear a rumor that the security guards will start monitoring scofflaws who treat the stop signs like yield signs, with possible disciplinary action.

This is unnecessarily escalating a situation that can be readily fixed by just replacing the two stop signs on the NCAR hill road with more reasonable, and just as safety-effective, yield signs. Wouldn’t this be more rational, reasonable, and very easy to do, as opposed to asking the security guards to start acting as policemen and going after staff?

A  
THE REDESIGN OF THE MESA LAB approach road, with the inclusion of a dedicated uphill bike lane and a pedestrian-only sidewalk, triggered a fresh look at the multimodal traffic patterns that are now formalized by the concrete bike lane, concrete sidewalk, and designated pedestrian crossings. The wording in the question above takes a very automobile-centric viewpoint. The safety issues at this intersection extend also to pedestrians and bicyclists that use our access road and hiking trails. For a further explanation we asked Aaron Heumann, the professional transportation engineer from Martin/Martin Engineering who designed the traffic controls for the intersection and road, to provide an explanation of the rationale for the all-way stop.

“Intersection traffic control follows the regulations and guidelines established in the Manual on Traffic Control Devices (MUTCD) developed by the Federal Highway Administration. The MUTCD discusses multi-way stop control, which includes considerations for safety associated with the presence of pedestrians and bicyclists or lack of adequate sight distance as justifiable applications based on engineering judgment. In specific, the MUTCD states support for multi-way stop control where: ‘Safety concerns associated with multi-way stops include pedestrians, bicyclists, and all road users expecting other road users to stop.’

In addition, there are optional criteria for multi-way stop control applications where there is: ‘The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes.’ And also for: ‘Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.’

Due to the expected multiple users of the intersection, marked crossings through the intersection, potential for substantial conflicts between vehicles and pedestrians/bicyclists, the poor sight distance for vehicles approaching the intersection from the ramp looking to the left, and the need to transition from a long entryway roadway into a potentially congested and active parking area, based on our experience and engineering judgment we felt it was
prudent to control the intersection with a multi-way stop control.”

Regarding the enforcement part of the question, there are no changes planned from past practices. If complaints are received from staff then Health, Environment & Safety Services (HESS) investigates and works with the offending employee. This is the exact same process that has been in force for the last 25 years. Please use common courtesy to the level that you would expect in your own neighborhood. Please treat the stop signs as full stops and not yield signs. A few extra seconds in your day to ensure the safety of pedestrians, hikers, and bikers, whether visitors or staff, is surely worth the time.

[RESPONSE TO QUESTION 625 • RECEIVED 04.06.11 FROM MATT MCMULLEN, DIRECTOR OF FM&S]

Q [FOLLOW-ON TO QUESTION 625 • RECEIVED 04.15.11] THANKS FOR PROVIDING the rationale behind the three-way stop recently installed at the top of the Mesa Road, which we now learn came about as a result of a recommendation from a transportation engineer from Martin/Martin Engineering—an engineering consultant, not a decision taken by anyone at NCAR. The engineering consultant made the recommendation based on guidelines established in the Manual on Traffic Control Devices (MUTCD) developed by the Federal Highway Administration. For reasons involving “multiple users of the intersection, marked crossings through the intersection, potential for substantial conflicts between vehicles and pedestrians/bicyclists, the poor sight distance for vehicles approaching the intersection from the ramp looking to the left, and the need to transition from a long entryway roadway into a potentially congested and active parking area,” the engineering consultant felt that “it was prudent to control the intersection with a multi-way stop control.”

There is always a compromise between inconvenience/aggravation and possible safety issues. For example, sometimes people break the speed limit on the Mesa Road, and this could be cause for possible safety concerns. A way to control this would be to install speed bumps every few hundred feet on the road. Slower speeds would produce consequent safety benefits, but the aggravation/inconvenience factor would escalate, and this must be weighed against the relatively low risk of accidents involving automobiles, pedestrians, and cyclists based on a history of previous incidents.

A careful reading of the engineer’s rationale leads me to believe that a prudent compromise between safety concerns of pedestrians, cyclists, and automobiles at the top of the hill would be a “yield to pedestrians in crosswalk” sign each way on the main Mesa Road, and a stop sign coming from the ramp down from the front door.

Again based on the “prudent” assessment of risk, weighing safety concerns against inconvenience/aggravation, I would note that the Mesa Road has been in operation for 45 years. Those 45 years have seen thousands of pedestrians, cyclists, and automobiles transit the intersection at the top of the hill. In those 45 years, how many accidents have occurred there?

Assessment of risk would indicate that the only new aspect of the intersection is the marked pedestrian crosswalks (paving the shoulders on either side of the hill only formalizes the use people have put to the sides of the road for decades). It’s likely that 95% of the pedestrian traffic at that intersection consists of people transiting the intersection on the sidewalk from the parking lot to the hiking trail and back. Thus, the risk is higher for people crossing in front of vehicles using the ramp to the front door, reasonably warranting a stop sign there. For the other 5% of occasional pedestrian traffic who would use the pedestrian crossing from the hill road path to the ramp lane, a prudent assessment of risk would seem to indicate a “yield to pedestrians in crosswalk” sign for automobile traffic on the main Mesa Road. Could we agree that this compromise is reasonable, and install new signs accordingly?

AFTER FURTHER CONSULTATION with SaSS and F&A, FM&S will leave in place the physical improvements designed by the professional licensed traffic engineer and engineering services firm. The design and construction of this intersection was part of the overall engineered plan for the entire road and parking lot replacement effort. If this employee wishes to bring this matter to the President’s Council and challenge the Council’s previous approval and decision, that remedy remains open to him/her.

[RESPONSE TO FOLLOW-ON QUESTION 625 • RECEIVED 04.19.11 FROM MATT MCMULLEN, DIRECTOR OF FM&S]
ON APRIL 28, UCAR/NCAR celebrated Take Your Child to Work Day at Foothills campus. The event, which was hosted by EO, was divided into three age groups. Kindergarteners through second graders participated in “The Stories Clouds Tell” activities, third through sixth graders explored radars and severe weather, and seventh through twelfth graders took an insiders’ tour of NCAR. Each group also attended a weather balloon launch. Here, Sander Spurgeon, 6, son of Trude Eidhammer (RAL), and Vincenzo Agnona Lauritzen, 5, son of Silvia Agnona (GLOBE) and Peter Lauritzen (NESL/CGD), practice making clouds.

GLOBE has appointed a new director, Andy Tasker, who served as chairman of the program’s Europe Regional Board from 2008 to 2010. Watch for more this summer.

For more about the devastating rash of tornadoes that swept through the southern United States in late April, read Bob Henson’s blog at www2.ucar.edu/currents.

Read about the past, present, and future of the ASP Summer Colloquium in a UCAR Magazine column by program director Chris Davis, found at www2.ucar.edu/magazine/columns.