Air Force officials kick-off energy awareness month

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by 2nd Lt. Meredith Kirchoff
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10/6/2010 - **COLORADO SPRINGS, Colo. (AFNS)** -- The undersecretary of the Air Force helped launch the federal government's energy awareness month at the U.S. Air Force Academy here Oct. 1.

Erin C. Conaton, accompanied by Terry Yonkers, the assistant secretary of the Air Force for installations, environment and logistics, chose the Academy as the location to highlight the Air Force's energy efforts because of its selection as the service's net-zero installation. Each of the services designated an installation which will study and implement initiatives to achieve a net zero energy status through its use of renewable energy sources and energy reduction efforts.

Col. Rick LoCastro, the 10th Air Base Wing commander, welcomed Ms. Conaton and Mr. Yonkers and explained that the Academy is uniquely equipped to take on the task of being the Air Force's first net zero installation.

"We have untapped potential here," he said, referring to the Academy's energy triad, which consists of the professors, cadets and engineers of the 10th ABW.

Through the energy triad, the Academy is able to incorporate research and findings into cadet learning and capitalize on the inventive ideas cadets can bring to the program, Colonel LoCastro said.

"The partnership you have here among these three entities is truly something I've never seen before," said Ms. Conaton, who discussed energy initiatives with about 30 professors, cadets and engineers from the 10th ABW and also had an opportunity to engage with cadets and faculty regarding the numerous ongoing research initiatives in the chemistry, life sciences, electrical and computer engineering, and civil and environmental engineering research centers.

Russ Hume, the Academy's energy program manager, outlined where the Academy is with electric, natural gas and water consumption and the projects already underway, such as solar array and photovoltaic roofing on Vandenberg Hall dormitory, to help reach goal levels in each area.

Energy awareness is not an issue unique to the Academy and is critical for the service as a whole, Ms. Conaton said. The Air Force's theme for this year's federal government's Energy Awareness Month is "A New Culture: Energy as an Operations Enabler."

"Seeing what you all have been able to accomplish on this scale inspires the actions we can take as an Air Force to reduce energy demand, increase supply and change our culture," she said.

One initiative that caught the attention of the undersecretary was energy foundations for buildings, a project co-developed by Dr. Karen Henry, a civil engineering professor, and Dr. John McCartney at the University of Colorado. This project also linked to two civil engineering design courses taken by first-class cadets--Foundation Engineering and Expeditionary Facility Design.

"(Dr. Henry's) designing it from the ground down, and I'm working it from the ground up," said Cadet 1st Class Leif Lindblom, an expeditionary facility design student.

Energy foundations combine the structural supports of a building with a heat pump, where heat is absorbed and/or shed to the ground by way of a circulating fluid to provide heating and cooling for the building, Dr. Henry said. This provides a cost-efficient approach to conserve energy, reduce carbon emissions and reduce installation costs.

This project would result in a facility on Academy grounds designed and constructed by both 10th Civil Engineer Squadron engineers and an Air Force RED HORSE squadron, she added.

Colonel LoCastro stated that the Academy is taking a holistic approach to energy conservation and consumption.

"It's about having an energy program, not just a solar array; a recycling program, not just some recycling bins," Colonel LoCastro said.

Ultimately, Academy officials want to create a template other installations can adopt.

"Net zero is a high goal, but we have to try to get there," the colonel said. "It builds momentum, and we're trying to make it contagious."

Cadet research benefits Falcon Stadium

by 2nd Lt. Meredith Kirchoff
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5/7/2010 - **U.S. AIR FORCE ACADEMY, Colo.** -- Two cadets majoring in mechanical engineering devoted their senior capstone research project to studying the heating system under the synthetic turf football field of Falcon Stadium.

Cadets 1st Class Caleb Becker and Ben Saunders simulated the functioning of the heating system in order to determine the minimum amount of time the heater would need to be turned on to eliminate any ice from the field before game time.

"We geared our research toward a real-world scenario," said Cadet Saunders, the squadron commander for Cadet Squadron 15. "Based upon what we heard from the stadium staff, we thought it could be of some benefit."

Theirs is the second of two independent studies on the heating system from cadets in the Department of Engineering Mechanics. The first was accomplished by now-2nd Lt. Will Parker, a Class of 2009 graduate who developed a spreadsheet using an electrical analogy for the transfer of heat through the layers of the turf. The model could be manipulated to reflect average temperatures and winds for December at the Air Force Academy, but the cadets needed to refine the model by adding a layer of ice to the already defined layers of turf for the most recent research endeavors.

The system received an upgrade in heating capacity when artificial turf was installed in 1997, but when the field was resurfaced again in 2006, the resistance heater was left in its current state. Adding the layer of ice to simulate a realistic scenario without available historic data was one of the most difficult parts of the project, said Cadet Becker of CS 07.

"Trying to figure out what was under the field, especially the amount of water present, since we could not dig up the turf was also tough," he added.

Normally, stadium management turns on the heating system a week before a game where weather that might result in ice on the field is anticipated.

"We were doing that because we didn't know how long it would take to get it up to temperature with the rubber layer of the turf," said Mike Wehrmann, Falcon Stadium manager.

"We found that the heater could be effective to melt layers of ice off the field up to 3/8 inch in 24 hours," Cadet Becker said of the results of their research. "They could save about $2,600 per game by turning it on for one day instead of one week before the game."

Mr. Wehrmann said the heating system is typically used two or three times per football season.

"It's definitely going to help us with utility cost savings, and will be a big benefit to the Falcon Green initiative," he said, and explained that the Athletic Association is responsible for the utility bill for Falcon Stadium during football season.

"This is as real as it gets," said Dr. Mike Maixner, the professor leading the Engineering Mechanics 499 research course. Cadets' research will be published in the second paper of a two-part series on the heating system projects.

In research like this, "You can't check your answers in the back of the book," Cadet Becker said. "We had to make sure we were the ones getting the work done."

Cadets Becker and Saunders also had the opportunity to present their research findings at the Colorado Springs Undergraduate Research Forum April 10 at the University of Colorado - Colorado Springs.

The best part of doing this project was getting into the research mindset, Cadet Saunders said. "Not only did we have to solve the problem, we first had to define it for ourselves."

Cadet Saunders, a native of Katy, Texas, is a Draper scholar and will attend the Massachusetts Institute of Technology to study aeronautical engineering, while Cadet Becker, of Kingsport, Tenn., will enter pilot training at Columbus Air Force Base, Miss., following graduation.

The cadets should be proud of what they have accomplished Dr. Maixner said.
"I didn't know the answer, they didn't know the answer, and that's why they did they research," he said.

Dean reflects on history of Cadet Wing women

by 2nd Lt. Meredith Kirchoff
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3/4/2010 - **U.S. AIR FORCE ACADEMY, Colo.** -- The dean of the faculty never fathomed in 1979 that she would one day return to the Academy in that role. Like most fourth class cadets, her thoughts were consumed by making it from breakfast to lunch, lunch to dinner, dinner to call to quarters, and eventually to sleep.

"I absolutely can honestly say I never thought about being the dean of the faculty... It was really just trying to do the best with each day and hope that I had the opportunity to become an officer in the United States Air Force," Brig. Gen. Dana Born said.

She received that opportunity and graduated from the Academy in 1983 as a member of only the fourth class to graduate women. While working as an exchange officer in Australia, and approaching the end of her five-year service commitment, the then-Capt. Born was struck by the power of what she became involved in through the Air Force.

"It was evident to me that I wanted to stay with the United States Air Force because of the mission we have and the people we get to complete that mission with," the general said.

Not only did she feel inspired by the mission she was advancing, she felt empowered by those who had gone before her and helped to pave the way for women in the military. As a second lieutenant, General Born had the opportunity to meet Brig. Gen. Wilma Vaught, the first female comptroller to attain general officer rank.

"I'd never seen a female general officer before," she recalled, noting that meeting and staying in contact with General Vaught profoundly affected her career aspirations.

Today's cadets and young officers have a far greater selection of general officers to look to as role models. General Born herself is among the pioneers of female Academy graduates as one of only 14 to rise to the general officer ranks.

General Born returned to the Academy from June 1989 to August 1991 as an assistant professor for the Department of Behavioral Sciences and Leadership, and again in October 2004 as the first female dean of the faculty. Her history at the Academy gives her a unique perspective of the progress women cadets have made over three decades.

"When I was a cadet in 1979 there were women in each of the four classes," she said. "At that time, we had maybe one or two women per squadron and there was kind of a tokenism feel where we were, in a sense, competitors. And so, there really wasn't a unifying 'we're women in the military,"

While cadets will always be competitive, the dean said she saw more camaraderie among women in the Cadet Wing as an instructor.

"I saw a different culture," she said. "I saw an evolution of women who were spending time together and had assimilated, as women, into a very male culture."

Although many cadets agree there is solidarity among the women at the Academy, some still feel the strain of competition.

"Oftentimes I think we are our own worst enemy," said Cadet 1st Class Whitney Bouchard from Cadet Squadron

13. "To find the line between being 'one of the guys,' as this male-dominated institution seems to require at times, and still being a lady is a hard one to find and an even harder one to stand on."

General Born said she can see how far the Cadet Wing has come and is fascinated when she sees female cadets celebrating as women.

"Whether they want to be ultra-feminine or they want to be more androgynous. I think that there is less, 'Let's be better than the guys,'" she said.

What was once a competition between individuals has transformed into a competition within the individual. General Born said she believes women today are challenging themselves to be the best cadet, or best officer, they can be, rather than trying to be better than those around them.

It is that confidence and self determination the dean hopes a new era of women will carry with them when they leave the Academy and begin their careers as Air Force officers. The mindset General Born had hoped future cadets would adopt when she graduated in 1983 is becoming a reality in today's female cadets.

"I don't think being a woman in the military is anything different than being a man in the military," said Cadet 1st Class Megan Moulton from CS 15. "Women need to make sure they stand out for their own achievements." Cadet Moulton would like to see more women in space as an achievement accomplished as women progress in the military.

Cadet 1st Class Tamiko Toyama of CS 23 articulated a similar perspective.

"I hope that women simply continue on the path that they have already begun: to serve alongside our male counterparts in completing the mission, without any mental reservations along the way about differences in gender," she said.

Ultimately, General Born said she sees the posture that women have taken to advance in the military as one that can be applied across lines of gender, racial, ethnic, socioeconomic and religious backgrounds.

"It's about how you can bring the talents that you have and the strengths that you have to something that's bigger than yourself," she said. "That's really what unifies all of us; that we are contributing to something much bigger than ourselves. And, there aren't limitations based upon anything other than how well you are contributing to that mission."

General Born's message for young officers and Airmen is to invest in developing personally as well as passionately developing those around you.

When every cadet and graduate adopts that attitude, she said, "It advances our Air Force Academy, it advances our Air Force, it advances our nation, and if you take that further, it advances our world."

Falcons scare Sooners in comeback, fall short 27-24

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by 2nd Lt. Meredith Kirchoff
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9/18/2010 - **NORMAN, Okla.** -- Meeting for only the second time in school history, Air Force posted 351 rushing yards against the nationally-ranked Sooners in a close 27-24 defeat at Oklahoma University's Memorial Stadium, Sept. 18.

The Sooners took an early lead with a touchdown by running back DeMarco Murray on an offensive drive within the first five minutes of play. Falcon linebacker Pat Hennessey led the Falcon defense with a sack for a loss of nine yards, putting a hitch in the Sooner's opening drive, and would go on to amass eight more tackles during the game.

The Falcons responded with a push to the 3-yard line resulting in a 20-yard field goal by Erik Soderberg. The score was set up by a 39-yard run by wide receiver Jonathan Warzeka, and a 20-yard pass by Tim Jefferson to Zach Kauth.

Later, after forcing an Oklahoma punt, Air Force would fight down the field to the Sooner's 32-yard line where a Soderberg field goal attempt went wide right and rounded out the first quarter.

Defensive play dominated the second quarter, causing several unsuccessful offensive attempts before the Sooners pressed close enough for a 32-yard field goal by Jimmy Stevens. Four more defensive stops would characterize the next eight minutes of play before Jefferson took a knee with 18 seconds on the clock before the half. The Sooners led10-3 going into the half.

The Falcons opened up the third quarter with a dynamic drive, and a 38-yard touchdown by Jefferson, who was assisted by a notable block from running back Cody Getz. This is the second time in three games Air Force has scored on the opening drive of th second half.

The Sooners answered readily with seven points of their own on a two-play, 22-second drive for Murray's second touchdown to brin the score to 17-10. Adding three more points during the third quarter with a 41-yard field goal by Stevens, Oklahoma doubled the Ai Force score, 20-10.

In the first turnover of the game, Oklahoma's Jeremy Beal forced a Jefferson fumble on the Sooner's 35-yard line, which was recovered by defensive back Javon Harris. Oklahoma would take advantage of the opportunity with a17-yard pass by Landry Jones to Murray for the touchdown.

A Sooner standout, Murray gained 148 yards total, scored three touchdowns, and with 52 all-purpose touchdowns, now ranks third the program's history.

Willing Falcon fullback Jared Tew into the end zone, Air Force picked up seven more points at the start of the fourth quarter.

After a slew of incomplete passes by Sooner quarterback Landry Jones, the Falcons regained possession, and rushed down the field with a 14-yard run by Jefferson, and a 16-yard run by Asher Clark, before wide receiver Kyle Halderman dove for the touchdown, advancing the score to 27-24.

The Sooners held onto their possession for just under four minutes to secure a victory over the Falcons.

"Our guys are not interested in close," said Air Force head coach Troy Calhoun. "As we go play over these next nine games, most important is to recover, rejuvenate and make Monday a good day for us.

"You can go back and look, there are some areas all across the board where we have to play better football," he added. "The things we do have are pride and we have character, and that gives you a starting point to have that kind of make-up on a football team. W just have to work."

The University of Oklahoma held a military tribute during half-time for a sold-out crowd of 84,332. A four-ship of F-15s from Mountai Home Air Force Base, Idaho, flew over the Field before the game and a C-17 from nearby Altus AFB, Okla., flew over during the half-time tribute.

The Falcons are now 2-1, and will travel to Laramie, Wyo., next week to take on Mountain West Conference rival Wyoming at 12 p.m. MT.

Cadets take 1st, 3rd at international LOAC competitions

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U.S. Air Force Academy Public Affairs

4/8/2010 - **U.S. AIR FORCE ACADEMY, Colo.** -- Six cadets ventured to Quebec, Canada, and San Remo, Italy, during spring break to compete in Law of Armed Conflict competitions against international contestants.

Cadet 1st Class Charlton Coats from Cadet Squadron 08 won the top individual honor out of 70 participating cadets, while Cadet 1st Class Kelly Snyder from CS 15 took third place in the individual rankings.

Two teams of three cadets traveled to Quebec for the Jean-Pictet International Humanitarian Law competition and to San Remo for an international service academy competition sponsored by the International Institute of Humanitarian Law.

In San Remo, cadets were placed on mixed teams and assigned a mock country to represent in a complex international conflict scenario, said Maj. Matthew King, an instructor in the Academy's Department of Law and coach of the LOAC competition team.
"Some countries are aggressive superpowers; others are tiny peace-at-all-costs states," he said. "Cadets have to know more than just the law; they have to know how to apply it as their country would."

Cadets representing the Academy set the standard at the service academy competition, Major King said, and were awarded for their high level of performance.

In addition to his individual award, Cadet Coats and his Swiss teammate also garnered the best mixed-team award, which is considered the highest honor of the competition, Major King said.

"I am most proud of the mixed team award," Cadet Coats said. "The team from USAFA represented the Academy very well and developed strong friendships with the cadets from almost every country present."

The Jean-Pictet competition is different in that the participants enter and compete as a team, and most of the teams are comprised of graduate and law school students. Cadet 1st Class Jordan Craft of CS 36 competed as a member of the Academy's team and said they were one of only two undergraduate teams -- and the only service academy -- in attendance.

The Air Force Academy's team did well to be accepted into such a prestigious competition and performed at a level much higher than the capability of most undergraduate students, Major King said. The Academy's team did not make the semifinal round, getting edged out by the London School of Economics team.

The week-long event put teams into a variety of simulated scenarios -- competitors might act as a legal adviser, prime minister, Red Cross delegate or other role for a given situation.

"It consists in 'taking law out of the books', by simulations and role plays, allowing the jury of the Competition to evaluate teams' theoretical knowledge and practical understanding of IHL (International Humanitarian Law)," Cadet Craft said.

"We received great feedback about the team," Major King said. "They impressed a lot of people, which is saying something at this civilian, academic competition."

All six students representing the Academy endured a tough selection process and rigorous training to reach an internationally competitive level of LOAC knowledge, Major King said.

"They were selectively chosen based on their performance in (Law 361) and recommendations from other faculty," he said. "They have to have a strong baseline LOAC knowledge as well as great critical thinking and communication skills."

Students began the process with Law 361, Modern Application of LOAC, and continued with Law 466, Advanced Topics in LOAC, in the spring semester, during which most of the competition training took place. Reading assignments and scenario exercises entailed a great deal of time and preparation outside of the classroom, Major King noted.
The Jean-Pictet team had to write a series of essays during holiday breaks for their team to be considered for a position in the competition, and also took Law 461, International Law, as a part of their preparation curriculum.

The cadets collectively agreed that all of the research, studying and preparation were well worth the exertion for the opportunity to compete on an international stage.

"It really has been a culmination of all my experiences in the legal studies major as well as the Academy that has really served to further my understanding of the Law of Armed Conflict," said Cadet Coats who will attend pilot training at Whiting Field following graduation and hopes to fly the A-10 Thunderbolt II.

Cadet Snyder said he found the most valuable skill he acquired to be the critical thinking developed from thinking on his feet. He co-authored the winning paper for the Inter-Academy Law of Armed Conflict Exercise in 2009 and hopes to become an Air Force judge advocate.

Major King said this experience will serve cadets when they become Air Force officers.

"They develop the ability to think on their feet in a pressure-cooker environment; they need to know the law, apply it to the scenario, and articulately communicate their ideas -- all almost instantaneously," he said. "This skill is something that will serve them well even on day one as second lieutenants."

Cadet Coats, a native of Rupert, Idaho, said the experience has already impacted his character.

"(The Academy) has provided opportunities that cannot even be comprehended by students of other institutions," he said. "I would proudly say that the Academy, as an institution, has influenced who I am and motivates me to what I hope to become.