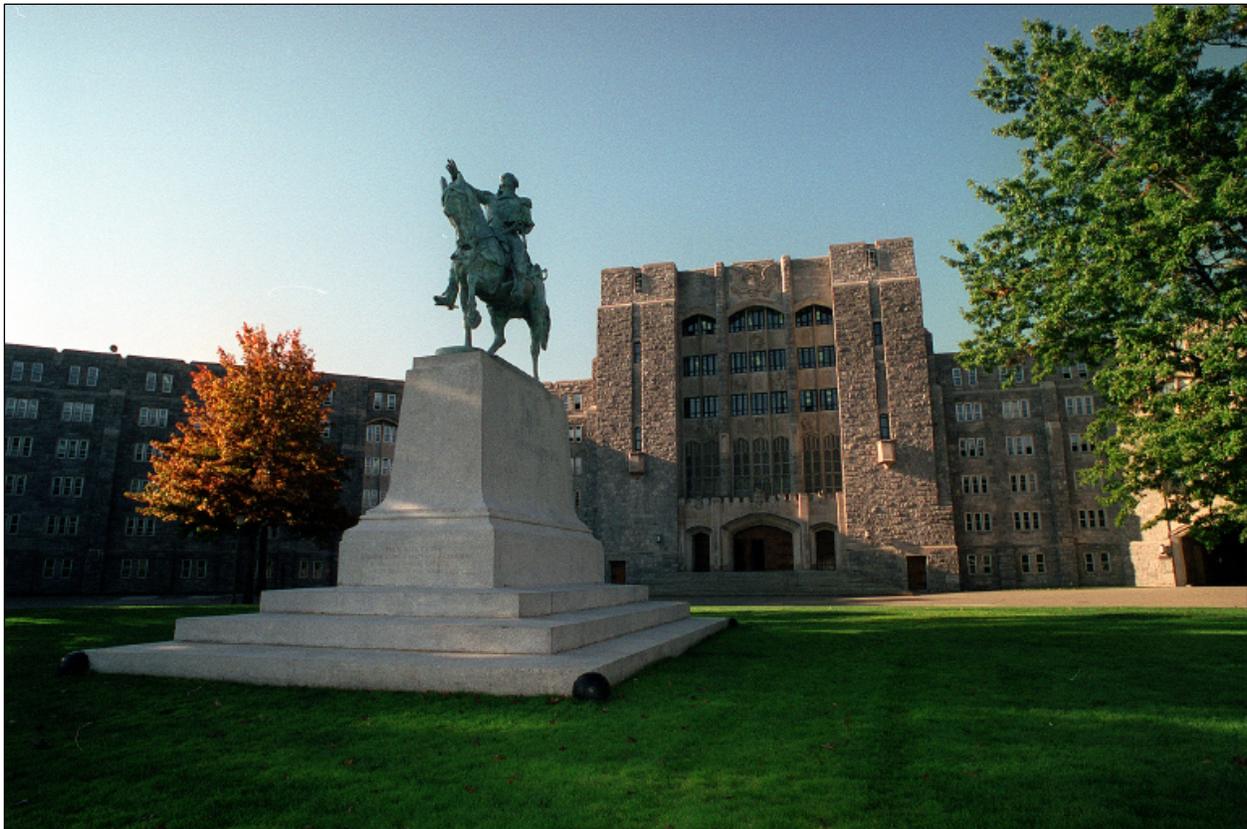




DEPARTMENT & ALUMNI NEWSLETTER

November, 2006



Washington Hall, the home of Geography & Environmental Engineering at the United States Military Academy, West Point, New York.

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FROM MY PERSPECTIVE

Colonel Eugene J. Palka Department Head

It was truly an honor and privilege to be selected as the Head of the Department last December. I conducted a battle-handover with Colonel Chris King on 1 June 2006 and began my twelfth academic year in the department on 14 August. From my perspective, academic year 2005-2006 was extremely productive for our department and we are off to a great start in AY 2006-2007.

We hosted a wonderful retirement and advancement ceremony for Colonel King and Jackie on 24 June. It was a first class affair and a fitting tribute to a terrific couple who have served the Army faithfully for more than 32 years, the last 15 of which were spent at USMA, with the final 8 years as our department head and first lady. We will surely miss the Kings, and we will continue to be grateful for their many contributions to our department, the academy, and the West Point Community.

Since our previous newsletter, we graduated another class of cadets and have returned to the field Army another cohort of instructors. The class of 2006 included 93 cadets who majored within our department and 180 who completed our environmental engineering sequence. This fall, 105 members of the class of 2009 selected majors within our department, and more than 180 chose the environmental engineering sequence.

In addition to our cadet graduation, each June witnesses the departure of one cohort of rotating faculty members and the arrival of another group. Four of our officers returned to the field after completing successful tours in the department and two officers moved to different organizations on post, having completed their duties in D/G&EnE. Lieutenant

Colonels Jim Dalton and Steve Houston provided the department with superb leadership and scholarship. Jim moved to the Dean's Office to serve as the registrar, while Steve was assigned to USCC as the S-3. Meanwhile, Majors Brian Bailey, Brian Forn, Mike Senn, and Tom Timmes departed from West Point and moved to various schools and follow-on assignments. Each made monumental contributions to D/G&EnE, USMA, and the West Point community. We will surely miss them and their families and we are grateful for their dedicated service. On the other hand, we have backfilled these individuals with another bumper crop of NIT-qualified "blue-chippers." Consistent with our long-standing tradition, our newest members of the faculty bring with them a wealth of operational experience from a wide range of branches and hail from some of the best graduate programs in the country.

We continue to focus on teaching as our primary mission, yet we also bring credit to our programs, department, and USMA via our professional publications and outreach to the Army and local communities. I believe that we have overcome the age-old dilemma cited by many academics (i.e., being stretched between teaching and research requirements) and have managed to demonstrate the ability to excel in both arenas. Over the past year, our faculty members have published books, book chapters, instructor's manuals, government reports, articles in journals and magazines, and delivered a countless number of papers at professional conferences. Meanwhile, they employ cutting-edge techniques in the classroom, effectively engage cadets, and have proven to be inspirational teachers and mentors.

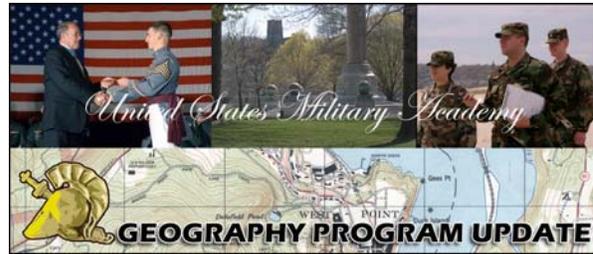
Our faculty members also continue to support a wide range of cadet activities outside of the classroom. This past summer, we planned, coordinated, and executed 13 different AIADs for 43 cadets. Geographers trav-

eled with cadets to Israel, Uzbekistan, and the Four-Corners region of the American Southwest. Environmental scientists and engineers participated in AIADs with the Corps of Engineers in Boston, USACHPPM at Aberdeen Proving Ground, FEMA, and the Army Environmental Center (AEC), and conducted the geology field trip based out of Colorado Springs, CO. GIS cadets held internships with Space Command in Colorado Springs, the Topographic Engineering Center in Alexandria, Virginia, and the Defense Geospatial Intelligence School in Washington, D.C. Moreover, we continue to provide a number of volunteer OICs and coaches for various cadet activities and clubs, as well as Officer Reps for the academy's intercollegiate athletic teams.

As many of you recall, we also continue to sponsor USMA's Orienteering Team. The tradition of excellence continues, as evident by winning the 2006 collegiate national championship. Additionally, for the second year in a row, the team was able to travel to Europe to participate in the world championships.

In summary, life remains good in the department and the view from the 6th floor of Washington Hall continues to be awe-inspiring. I consider myself to be fortunate, and yet accountable to all of you who have served in our department, so rest assured that I will maintain my azimuth and pace count and we'll remain a steady course. Best wishes! **GO ARMY!!**

Eugene J. Palka
COL, US Army
Professor and Head
Department of Geography &
Environmental Engineering



Colonel Laurel J. (Laurie) Hummel
Program Director

Greetings to former staff and faculty, and friends of the department! I recently returned from a year as USMA fellow to the US Army War College and assumed the helm of the Geography Program, aka Team Geo. It is peopled by 15 highly talented professionals who are enormously dedicated to the intellectual rigor and relevance of the 18 courses that comprise our major. As I settle into this position, I have been very impressed with the degree of dedication shown by our faculty – to USMA as an institution, the Corps of Cadets, the Department, the Geo Program, and to each other. As a result, our program is not only viable, it is growing. In fact with the ‘recruiting season’ for Class of 2009 majors selection just ended, we have signed an unprecedented number of students to Team Geo: 44 new human geographers and 20 environmental geographers. I believe this surge in interest is due to several reasons. Certainly the Chief of Staff’s call for a more culturally intelligent officer corps has resonated within the Army and with cadets, as well as the reality that these cadets will be fully engaged in ‘The Long War’ upon commissioning. Therefore, the immediate relevance and value of our curriculum resonates with the Corps. I also attribute the popularity of our program to the high quality of our faculty and the exuberance demonstrated by them both in and out of the classroom. Our faculty cares about all aspects of cadet development, and I believe the cadets sense that genuineness.

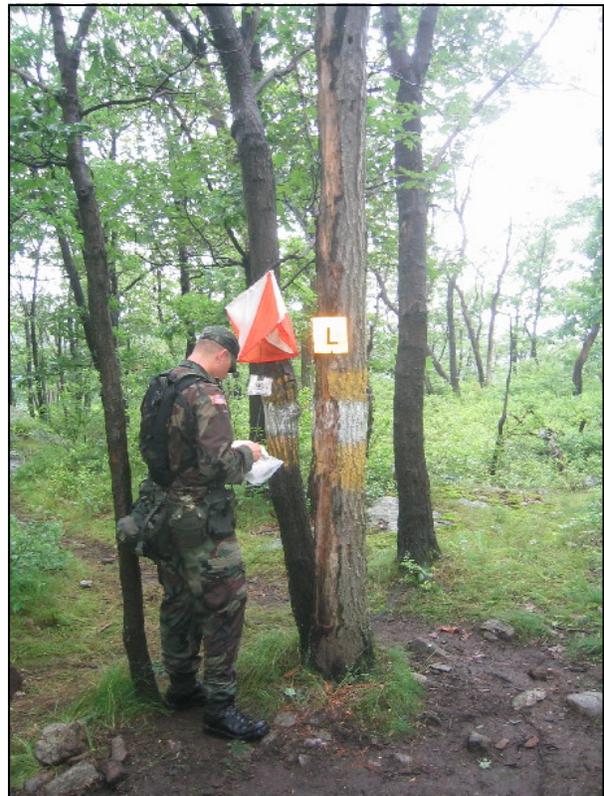
In addition to a change of directors, the program experienced other faculty movements. We congratulate COL Gene Palka on his selection as the department head. COL Palka continues to be a valuable member of Team Geo, both in terms of research/publication and teaching/course directorship. With all this and his duties as Head Football Officer Representative, he's a busy guy! LTC Frank Galgano ably heads our core course, EV203, sets the departmental standard during New Instructor Training, and works a number of special projects for the program and department, including a growing outreach partnership with the Defense Intelligence Agency. LTC Galgano continues his prolific agenda of research and publication, in the fields of coastal geomorphology, military geography, and others. Frank has also taken on the important task of representing the department on the USMA Curriculum Committee, which advises the General Committee on all curricular matters and largely decides what goes forward and what (to use the Congressional term) dies on the floor.

Team Geo's Title X civilian human geographer is Dr. Jon Malinowski, who is beginning his twelfth year in the department. Jon heads up the Human side of the program, where the majority of our majors reside, and continues to make our incoming majors excited about the discipline with his Foundations in Geography course. Jon serves the entire academy with his expertise in photography, and his videography skills have created our department's video public relations outreach, "DirtVision". Our Title X environmental geographer, Dr. Amy Richmond, begins her second year and is developing an excellent reputation among the Corps. Amy taught STAP this past summer (not just a remedial course anymore) and brought in a number of new majors through force of personality and extreme competence! We are gratified to have her on board. Including the 5 permanent faculty members, our team con-

sists of 15 faculty - comprised of 8 doctoral level and 7 master's level - teaching EV203 to the yearling class and electives to our 88 majors in the classes of 2007 and 2008.

During the summer of 2006, we led cadets on two Academic Individual Advanced Development (AIAD) opportunities. Four of our cadets completed independent research topics during the past academic year, and the geography faculty was involved in many extra-classroom cadet development experiences. Many of our officers and civilians served as Officer Representatives and OICs for programs such as Wrestling, Football, Soccer, Orienteering, Hockey, Women's Volleyball, Softball, Sailing, Navigators, the Corbin Seminar, and a host of other activities. One of our officers, MAJ James Chastain, was a land navigation site OIC during Cadet Field Training.

The aforementioned partnership with the



A cadet runs the Department's Land Navigation Course during summer training.

Defense Intelligence Agency moved forward over the last year. COL Palka conducted a series of professional development seminars for the DIA staff as part of his sabbatical. Cadets in EV483 (Colloquium) participated in the project as part of their final project and paper. The cadets researched subjects of interest to the DIA and prepared unclassified Defense Analysis Reports. They were able to interact with members of the DIA staff during this process as well. The project was a rewarding experience and several of the better final papers are now under review for use by DIA. A number of faculty members researched topics and prepared technical papers for DIA during the year. LTC Galgano examined the problems of ungoverned space, which is being exploited by terrorist organizations. Dr. Malinowski researched the proliferation of "feral" cities. This new and very interesting topic is concerned with the growing trend in which large cities are taken over by non-state actors and normal rule of law breaks down. MAJ Brian Doyle examined the modernization of NATO and Lt Col Lou Rios researched the intelligence requirements associated with DoD response to large catastrophic events such as hurricanes. Finally, the DIA generously funded this year's Four Corners AIAD. This was possible because the AIAD serves as an excellent analog to what cadets may expect to see in an underdeveloped theater of operations. We look forward to our continued relationship with the DIA staff.

COMINGS AND GOINGS

Graduation is an exciting time around the Academy, but it holds some bittersweet moments as well. As always, we are forced to say goodbye to some terrific officers and their families each year. This year, Majors Mike Senn and Brian Forn left us after three great years of service to the program, department, and Academy. Mike Senn departed on 25 May for Fort Huachuca, where he was

scheduled to begin his schooling to become a strategic intelligence officer. Kristen and the children – Mason, Nolan, and Payton – moved to the D.C. area to establish their new home while Mike was in school. Mike is now attending school at Boling Air Force base and will be assigned somewhere in the D.C. area afterward. Brian Forn departed in late June after teaching STAP. He moved to Korea and was preparing to serve on a brigade staff. While Brian is in Korea, his wife Nancy moved back to Los Angeles to work there during Brian's tour. Mike and Brian were big contributors to the program. They will be missed and we wish them the very best.

There are four new terrific families in our program this year. LTC Joe Henderson has arrived with a Ph.D. from the University of Tennessee with his wife Kye Hwa (Kay) and their children Rose, Suzie and Shane. This is Joe's second tour in the department, his first being 1997 through 2000. Joe is primarily a physical geographer. His doctoral research was in the area of dendrochronology. Joe is currently teaching EV203, and will branch out into Geomorphology, Climatology, and Military Geography in the future.

MAJ Jon Bushman and his wife Liz along with Miranda, Riley, Evan and Will join us from Madison, Wisconsin and the University of Wisconsin. Jon's master's research was in human geography. His thesis was entitled "Creating a Place of National Public Memory: The National World War II Memorial on the Mall in Washington D.C." Jon currently teaches EV203 and serves as the Dirt Admin Officer (a pain I remember all too well) and in future semesters will take on the Geography of Global Cultures (formerly Cultural and Political Geography), the Geography of Russia, and the Geography of Europe.

MAJ Jason Ridgeway and wife Teresa along with children Samuel and Catherine are newly arrived from Athens, Georgia and the University of Georgia. Jason's research on object-oriented approaches to mapping channel habitat on the lower Congo River was informed by GIS methodologies. Jason teaches EV203 and soon will be involved in the Geography of Global Cultures, the Geography of Latin America, and the Geography of Africa and the Middle East. Jason had the fortune of being named the Director of the EV203 Navy Skit – a time-intensive task that pays off great dividends just before the big game.

CPT(P) Benefsheh (Benef) Verell has arrived to us from the University of Maryland with her baby son Kamron in tow. Unfortunately Benef and her husband Thomas are geographically separated due to their status as a dual military couple. Thomas is currently stationed at Fort Drum, New York with the 10th Mountain Division; only our friends at the Human Resources Command would think that is very close to West Point! Benef's master's thesis was entitled "Spring Valley, Washington DC: Changing Land Use, Demographics, and Social Values from 1900 to 2000." Benef is currently teaching EV203 and in the future will teach our elective on Land Use Planning and Management as well as Military Geography.

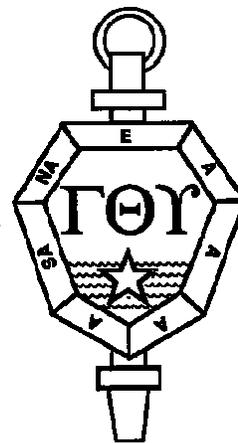
ACADEMIC YEAR HIGHLIGHTS

The past academic year was highly successful and included a number of highlights and notable personal achievements by cadets and faculty. LTC Steve Oluic was invited to speak at the University of Belgrade in April 2005. This trip was sponsored by the Department of State. LTCs Jim Dalton and Dan Gilewitch were selected for promotion to Associate Professor. This is a great honor and it

is indicative of their scholarship and efforts in the classroom. Lt Col Lou Rios, MAJ Megan Peguero, and MAJ Brian Doyle were selected for Assistant Professor; kudos to them as well.

Dr. Robert Kaufmann, a professor from Boston University, served as guest speaker and honorary Master of Ceremonies at the annual Gamma Theta Upsilon (GTU) induction ceremony on 14 February 2006. Dr. Kaufmann treated the assembled faculty and cadets to an intriguing presentation on global warming. This was our third cohort of inductees from the Geography and GIS programs. During the fall GTU luncheon on 27 October 2005, Dr. Anne Deakin from SUNY Fredonia served as the guest speaker. She spoke to our cadets about the wide range of geographical research occurring at her school. Dr. Deakin was also a guest lecturer for the Land Use Planning course.

GTU continued to sponsor teams participating in the World Geography Bowl during the annual conference of the AAG's Middle States Division. Last year our GTU team traveled to SUNY Fredonia for this event. The USMA team was paired against George Washington University in the first round. Although GWU beat our team by a narrow margin, which removed us from the winner's bracket, it is important to note that the George Washington team included masters students and Ph.D. candidates. Notwithstanding our disappointing loss, the points accrued by our team put the members in extremely good position in the individual point rankings. Cadet Sarah McNair was named to the Middle States Division team for competition in the national Geography Bowl in Chicago where she competed in April. In addi-



tion to participating in the Geography Bowl, three cadets presented papers at the conference. Cadet Sarah McNair took second place in the student paper competition for her work on the "Status of Women in Indonesian Education." Overall, our participation in the Middle States Conference was very successful and the Academy and Department were well represented. Clearly, GTU is meeting its objective of raising the level of scholarship within the Geography Program.

The program held its third graduation awards ceremony on 25 May 2006. The ceremony was preceded by a reception and the event was greatly appreciated by our cadets and their families. We had a great turnout with about 210 family members and 45 cadets in attendance. During the ceremony, we reviewed the year's academic highlights and recognized our top performing cadets:

Top Three Geography Graduates 2006:

- Sarah McNair
- Matt Schardt
- Ashley Ritchey

Top Human Geography Major:

- Sarah McNair

Top Environmental Geography Major:

- Cody Pittman

Best Independent Research Project:

- Oaken Ewens

Top Military Geography Student:

- Abby Casciato

Top Colloquium Student:

- Sarah McNair

This year's graduation awards ceremony will be held immediately following the Graduation Parade on 24 May 2007.



Cadet Nate Gontarz enjoys a ride in a Helicopter on his AIAD to Yuma Proving Grounds, AZ in June. This AIAD was a single year project coordinated through the Natural Environments Test Office at Yuma.

AIADS

The AIAD program is a great opportunity to demonstrate in the field those concepts taught in the classroom. Furthermore, the program is an outstanding enrichment opportunity for cadets enrolled in our program. This year was a challenge since many of the combatant commands which typically fund our AIAD trips experienced severe budget constraints. Thus, the AIAD program was curtailed Academy-wide and we suffered some cutbacks as well. Nonetheless, we were able to get our cadets out on some terrific trips. LTC Jim Dalton led a group of cadets to Israel on an AIAD sponsored by JINSA. During this trip, our cadets were permitted to observe first-hand the contested landscape in

the region. It was noteworthy that our cadets returned only three weeks before the start of hostilities between Israel and Hezbollah. Thus, they were able to see first hand the nature of the security landscape and strategic concerns in the region. Lt Col Lou Rios and MAJ Megan Peguero led this year's trip to the Four-Corners Region of the American Southwest. During this trip, cadets were exposed to the magnificent blend of cultural and physical geography so abundant in this region. The cadets also visited a number of Native American sites and National Parks. As mentioned, budget cuts forced the cancellation of planned trips to India, Indonesia, and Kazakhstan. Nonetheless, we are hopeful that this year we will be able to implement our full series of AIADs because they represent a critical margin of excellence for the program and for the department.

IN CLOSING

The Geography Program is busier than ever, but it is hard work worth doing. The program faculty are inspiring and indefatigable. I am proud of each of them as they hold themselves to the highest standards of teaching, scholarship, cadet development, and selfless service every day. We in the program believe that we are on the leading edge of something incredibly important in the Army: the understanding that "Geography matters." I'd like to leave with you an excerpt from a welcome message sent to each of our 64 new Geo majors last week.

"You are now poised to capitalize on the ascendancy of Geography within the Army's decision-making processes, as our senior leaders increasingly leverage geographical understanding to inform their tactical and strategic decisions. I like to describe Geography as both an academic discipline and a way of looking at the world. You are about to "learn geographical stuff", but more importantly you will also widen the lens through which you see the global envi-

ronment. Geography either explicitly or implicitly underpins every stance, commitment, policy, and activity that governments, businesses, cultural groups, and individuals undertake. Understanding this will enhance every decision you make as an Army officer, and it will poise you for success in your post-military career."

Thanks for the opportunity to update you on the Geography Program. Go Geo, and Go Army!



**ENVIRONMENTAL SCIENCE &
ENVIRONMENTAL
ENGINEERING PROGRAM**

**COL Jason Lynch
Program Director**

Greetings! Given that this is a faculty alumni newsletter I thought I would initially approach it from the perspective of one of those holiday form letters you would receive from someone who only writes once a year and crams everything into a couple pages in hopes that it will compensate for ignoring you the other 364 days. Writing this newsletter though is important. You are part of our extended family and there is a good chance that the two of us and the people I will mention might actually be related somehow by either genes or common experiences at West Point. So here goes; hopefully I can make you smile, reminisce a bit, and maybe even make you a little homesick for this rockbound highland home.

Was there a communal coffee pot in the office cubicle across from the environmental labs when you were here? It's still there – broken three times this year so if you are thinking about coming back and grabbing a cup of joe you won't recognize it (that includes you Tom Timmes; the pot you bought just before leaving is now also broken). The cubicle is not only a gathering place for coffee but also the wonderful baked goods MAJ Mindy Kimball routinely brings in to "sweeten the pot." We continue to hold faculty seminars and food has also found its way in to these events as well – anything from chili (Mike Baumeister you'll be happy to know we even managed to work in some venison) to goulash.

Jeff Starke, we continue to maintain a presence in the 'nug shack' with MAJ Ben Wallen being the newest occupant. Nothing changed there either; carpet; couch; TV; microwave and refrigerator make this a luxury suite for the three who share it. Mat Guerrie your picture is still hanging in memory above your old desk if you were curious. Speaking of offices, here is a little example of hurry up and wait. Before new instructor LTC Joe Henderson could occupy his office this summer here is what had to happen first. BG King vacated his old office so that COL Palka could move in; COL Palka had to vacate his old office so COL Manous could

move in; COL Manous had to vacate his old office so I could move in; I had to vacate my old office so that LTC Mark Smith could move in; and lastly, LTC Smith had to vacate his old office so that LTC Joe Henderson could move in. Talk about the ripple effect!!! Wonder if any of you had similar experiences after an office draw.

The Geology Field Course is undergoing some change; from whether it is offered for credit to where it is held. Plans are underway to broaden where we take cadets to study geology in the field; Chris Gellasch you might be surprised to hear that our plan this year is to go to Hawaii! The cadets could visit with Greg Fleming if he will have them. Thinking about it we haven't come up with any good nicknames for our current faculty. Triple Threat (Jim J. Jordano) I think you owned the last true good one. I was thinking about brewmaster for Bill Epolito but don't think it is catchy enough (I have a feeling his reading this newsletter will be the first time he will see/hear this; hope it doesn't catch).

Phil Dacunto and Kathleen (we all know it was Kathleen) had a baby boy earlier this year. His name is Peter and he is an adorable young man. Eric and Amy McAllister shared with me one night that their daughter Hannah would be playing in a peewee soccer game and I was able to attend and cheer her on. I got two treats that night – one reliving memories of my own daughters playing in this same league 12 years ago as I watched Hannah turn in to a scoring machine for the Orange Tigers and seeing her little sister Cailyn taking her first steps. Mark Talbot, I can also see in my mind Gabrielle and Sophie doing their last performances here – especially the one recorded on TV and played several times on the USMA information channel. Family is important and we are trying to make sure we give them the time they deserve. Marie Johnson has moved to a beautiful home on more than six acres in Cornwall and is



Cadets attending the Geology Field Course ran rapids in Colorado.

blessed with a street that does things together (like our block parties); she is loving life with her new friends.

Getting out of the office provides sanity and there is no better place than the USMA training areas where Steve Houston continued his huntsman lore by taking pheasant, turkey, deer, and other game with feathers or four legs this season; even the fish weren't safe! Ike Hall shows, the ski slope and sledding, fall festivals, and NYC, to name a few, rounded out places we found ourselves on our free time. Dirtman and now Dirtwoman have gotten out a lot around the Corps to include this picture of them leading the Yearling Runback from Camp Buckner this summer.

Let me take a moment and tell you a little about our other kids – the cadets before I succumb to serious news. We had our annual Firstie boat ride and threw in some humor giving faculty and cadets an opportunity to vote for “the most likely to ...” while we enjoyed the product of the Cow class EV396 beer lab. The stuff is actually getting not only palatable but even tasty (hence the name brewmaster for its instructor). We continued to take the cadets to Delaware to take the FE exam. The return trip is a story in itself but for here ‘what happens in Delaware stays in Delaware.’ Mike Butkus continues to take cadets out on hiking trips with our environmental trekkers who are a part of our EWRI



DirtMan and DirtWoman outdistance the Corps on a Brigade run.

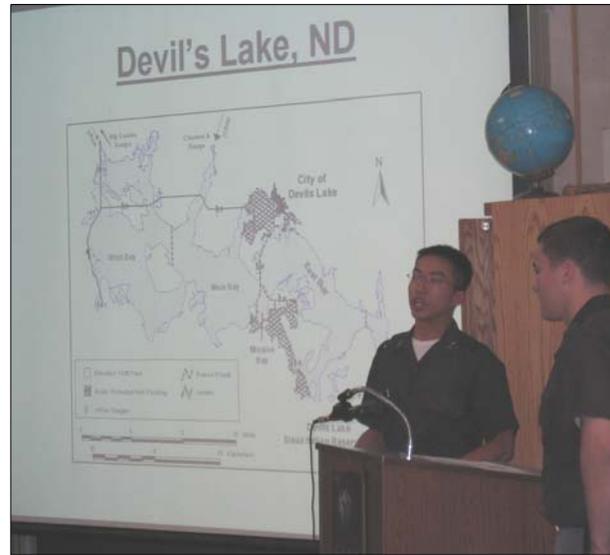
club. The under classes continue to enjoy coming to our homes for football games and BBQs and dieach and every day. I often wish we had extra resources to provide them with that margin of excellence like being able to take them to more conferences or entering them in project competitions that require sponsors to buy/provide the materials.

OK – if you were waiting for serious news here it comes!! One word of note; if you were not mentioned above I did not intentionally omit you and you are no less important to us. I just need to catch up with you a little. So write me if you want to be included in this yearly publication – I would love to do so!! We can make this into our own mini *Assembly*.

Let me share good news about our cadets. The Class of 2006 includes 13 environmental science majors and 24 environmental engineering majors whose branch selection varied from Infantry to Medical Service Corps. We also had the opportunity of positively influencing 150 environmental engineering sequencers with a better appreciation of how environmental issues are Army issues and the application of science and engineering to solve complex problems. Regardless of their branch or reason for being in our classrooms we are proud of their accomplishments as cadets and wish them well in their service as Army officers. Recognition for exemplary individual performance occurred during the USMA spring awards convocation when Cadet Justin Sprague, an environmental engineering major received the Order of the Founders and Patriots of America Award for excellence in environmental engineering studies, and Cadet Mathew Schardt, geography major, received the National Organization of the Ladies Auxiliary to the Veterans of Foreign Wars of the United States Award for excellence in the environmental engineering sequence. Twenty-two of our twenty-four environmental majors were able to take

the Fundamental Engineering Exam in April and though we beat the national average, our three year running of a 100% pass rate came to an end. I know they all tried their best and am still proud of each and every one of them. Continuing a tradition begun three years ago, all twenty-four environmental engineering graduates (and three members of our faculty) joined with other engineering majors and were inducted into the Order of the Engineer where they publicly “recognized and affirmed their responsibilities as members of a profession that serves the public good and seeks to preserve health and safety”. Twenty-one cadets took advantage of five advanced individual academic development opportunities offered by the environmental program this summer. Sponsors include the US Army Corps of Engineers, the Federal Emergency Management Agency, the Defense Intelligence Agency, the Army Environmental Center, and the US Army Center for Health Promotion and Preventive Medicine.

As in previous years, a highlight of the academic program was the completion of senior design and independent study projects. This past year included six senior design projects for environmental engineers and twelve county environmental security assessments for a multidisciplinary team of environmental scientists, environmental geographers, and foreign language majors. Examples of engineering projects include the analysis of environmental impacts associated with locating the preparatory school at West Point; the use of West Point waste grease and oil and ethane production by food waste fermentation to operate West Point government vehicles; and remediation measures for disruption of the West Point water supply. Examples of countries on which environmental security assessments were performed include Rwanda, Mongolia, and India. Project briefings were conducted in conjunction with the USMA Project’s Day activities, which includes project presentations from all academic pro-



Cadet Mun Poh Fan presents his independent study project.

grams at West Point. These presentations were well attended not only by cadets but also USMA agencies with an interest in the cadets’ findings and who later commented on the value gained by their attendance.

There were four cadet independent study projects completed over the academic year; three in the fall semester and one in the spring. The first was “Optimization of Milfoil Control Using the Herbicides 2,4-D (2,4-dichlorophenoxy acetic acid) and Triclopyr (3,5,6-trichloro-2-pyridinyl-oxyacetic acid)” by Cadet Charles Grutzmacher and supervised by LTC Jason Lynch. This project was a continuation of a summer Advanced Individual Academic Development effort under the advisement of Ms. Angela Poovey, ERDC research biologist at Vicksburg, MS to determine how best to control this invasive species on Army installations. The second project, “Optimizing Methane Gas Production and Collection from Wastewater Treatment Anaerobic Sludge Digesters” was completed by Cadet Amy Bauer and supervised by MAJ Tom Timmes. This study explored the feasibility of enhancing methane production at the USMA Target Hill Wastewater Treatment Facility and the best way to store

and utilizes this energy source. The third project was "Buoyancy Driven Flow between Adjacent Lake Basins" conducted by Cadets Matt Hitzeroth and Mun Poh Fan and supervised by COL Joe Manous. This project was a continuation of research begun by COL Manous on Devils Lake and the transnational issues surrounding water quality. The fourth project was "Precipitation Kinetics of Lead Phosphate: Determination of the Rate Limiting Step in the Formation of Lead Phosphate Precipitate under Varying Environmental Conditions" conducted by Cadet Justin Sprague and supervised by LTC Jason Lynch. This independent study is part of a larger lead immobilization study for small arms firing ranges headed by Dr Butkus, Dr Johnson and LTC Lynch and conducted for the Engineering Research and Development Center.

Second, let me share good news generated by our faculty. The first is the selection of LTC Mark Smith as our newest environmental program Academy Professor. LTC Smith joined our faculty last year as an environmental scientist and has unquestionably proven himself via file, interview, and in person performance to be the best person for this important position. Also of special note is MAJ Tom Timmes who completed the examination requirements and has been certified by the American Academy of Environmental Engineers as a Diplomate in Environmental Engineering (DEE) with a specialty in Water and Wastewater. Another noteworthy accomplishment is by LTC Steve Houston and his certification by the State of Virginia as a Professional Engineer in the discipline of environmental engineering. Dr Mike Butkus excelled during a very productive scholarly sabbatical during the fall semester. In this short period he was able to, among other things, submit two papers to refereed journals, author two posters, give presentations at WPI and Penn State Harrisburg, and review four papers, a textbook, and a doctoral dissertation. Not in the academic area but defi-

nitely worthy of mention and accolade are Coach (Dr) Marie Johnson and her Army Women's Lacrosse team who went 13 -1 in the regular season, won their league championship, and were invited to the Big Show (the nners. The number of our majors allows us to be closer to them than other departments. I still want to challenge them to a few events like we did a few years back but this time it will be something where half of our faculty doesn't have to go to sickcall the next day after playing flag football in freezing, snowy weather. Our cadets continue to give us as faculty energy and internal drive national tournament) in Plano, TX. The team's final ranking at laxpower.com is 15th in the country out of 173 club teams and according to Coach Johnson "This team remains the best I have ever coached at Army."

The people that make up the environmental faculty continued to lead by example in scholarship and service. MAJ Mindy Kimball published her abstract "Near surface geophysical surveying of east San Francisco Bay faults" in the Seismological Society of America 1906 SF Earthquake 100 yr anniversary conference proceedings and would have also presented had it not been for her teaching responsibilities here. MAJ Bill Epolito attended the American Chemical Society Conference where he presented a paper titled "Reaction Kinetics and Mechanism of Zero-Valent Iron Reductive Transformation of the Anthraquinone Dye Reactive Blue 4." LTC Steve Houston had his paper titled "Soil Contaminant Attenuation Characterization in an Army Impact Area" accepted for publication in the peer reviewed journal *Environmental Practice*. Dr Marie Johnson's research at the Lamont-Doherty Earth Observatory of Columbia University resulted in a paper titled "Galena Stability to 26kbar" submitted to the American Journal of Science. In the area of education advancement, four of our faculty presented papers and served as moderators at the American Society of Engineering Educa-

tors Annual Conference and Exposition. Deserving special recognition is Dr Mike Butkus who as Program Chair of the environmental division developed the ASEE Environmental Engineering Division National Conference Program, which included managing the review of 46 papers.

Regarding service, COL Joe Manous continues to provide support to the development of the US Army Sustainability Strategic Plan and is a leader in governance in the American Society of Civil Engineers and the Society of American Military Engineers. As previously mentioned Dr Marie Johnson, Dr Mike Butkus and LTC Jason Lynch continue their support of the Engineering Research and Development Center investigating the efficiency of using phosphate amendments as a method of reducing lead migration from small arms firing ranges. Dr Butkus has maintained active research projects with Cornell University in disinfection of drinking water and wastewater, the Engineering Research Development Center in immobilization of lead on firing ranges, and the Pennsylvania State University concerning the use of crumb rubber as filter media for ship ballast water. Every member of the faculty is contributing something of value to the local community and service to the Corps of Cadets. Though the names are too numerous to list, examples of their work include support to Special Olympics, the Science Olympiads, American Red Cross volunteers, officer representatives to competitive and non competitive teams and clubs, and service on the Jewish Community Council.

The annual Environmental Engineering Board of Advisors (BoA) met on 23 September 2005. The key topics of discussion included 1) an update on the environmental engineering program, 2) engineering education and assessment, 3) information technology and its role in engineering education, and 4) the environmental engineering sequence. Some recommendations from the BoA con-

cerned ensuring we have an auditable track from survey assessment data to curriculum impacts so that the ABET committee can track the linkage efforts and resubmitting EV398, GIS, to meet the IT requirement. Departing the Board at the expiration of their terms were Mr. Richard B. Adams, P.E. DEE (R.B. Adams and Associates); Dr. Joseph Delfino Ph.D. (Professor, University of Florida) and David C. Rosenblum (Senior Vice President, CH2MHILL). Newly appointed to the Board are LTC (ret) Glen DeWillie, P.E. (Buchart Horn, Inc.); Dr. Dave Dzombak (Professor, Carnegie Mellon University); and Mr. Dick Brownell (Malcolm Pirnie, Inc.).

As every year this one brought transitions to the environmental program faculty. On the positive side, two officers joined the environmental faculty in 2006. MAJ Gayle Davis, E.I.T., is a Medical Service Corps officer who is a 72E, Environmental Engineer. MAJ Davis holds a masters degree in environmental engineering from the University of Maryland and we look forward to gaining from her experience as an Army environmental engineer. MAJ Eric McAllister is also an E.I.T. and a 1996 graduate of USMA in environmental engineering. Before arriving at West Point, MAJ McAllister completed a Masters degree in environmental engineering at the Johns Hopkins University and spent a summer working a project involving increasing the removal of explosives from wastewater at the Holston Army Ammunition Plant. Transition this year also involved the advancement of COL Joe Manous from environmental program director to deputy department head of the department. Replacing COL Manous as the environmental program director is LTC Jason Lynch. Departing from our faculty were LTC Steve Houston and MAJ Tom Timmes. LTC Houston is now serving as the USCC S-3 and MAJ Tom Timmes is attending Penn State University to earn a PhD in environmental engineering.

Well, that's it for me – until next year!



GEOSPATIAL INFORMATION SCIENCE PROGRAM

Dr. John Brockhaus
Program Director

The past academic year was both a busy and productive one for the GIS program. Faculty were fully engaged in the education and mentoring of cadets as well as with outreach to the Army. In addition to our classroom activities each of the GIS faculty served as Officer Representatives or OICs for various cadet athletic teams and clubs to include: the women's softball team, the orienteering club, the triathlon team, the men's tennis team, and the rabble rousers. We are fortunate to have an addition to the GIS faculty this year. MAJ Ian Irmischer joined the GIS faculty this past summer. Ian is an Engineer officer and received his M.S. in Geography from the University of California at Santa Barbara. This sustains the number of GIS faculty at six: one civilian professor, two academy professors and three rotating instructors.

We are very fortunate this year to have Mr. Joseph Harrison of the US Army Topographic Engineering Center, Ft. Belvoir, Virginia on the GIS faculty. Mr. Harrison began a six month assignment as a visiting scientist at the USMA on Sept. 5, 2006. He will serve as an instructor and as a conduit for information exchange to academy faculty and cadets. Mr. Harrison graduated from Shippensburg

University with bachelor's and master's degrees in geoenvironmental studies and is now a doctoral candidate in earth systems and geoinformation sciences at George Mason University.

Our outreach activities to the Army continue to increase. LTC Fleming is working with Yuma Proving Grounds to develop GIS capabilities for an installation in Panama and another in Alaska. This work will involve a cadet double majoring in GIS and Spanish as well as a future instructor currently completing the Masters degree at the University of Florida. LTC Fleming has also established a cooperative relationship with the ERDC and the Engineer School at Ft. Leonardwood to acquire state of the art equipment to be used in several of the GIS courses and during cadet summer field training at Camp Buckner. MAJ Christopher Oxendine received additional funding from the Institute for National Security Studies to continue his research dealing with GIS technologies as they apply to homeland security and the war on terrorism. LTC Hendricks is conducting cooperative research with faculty in the Modeling and Simulations division of the Dept. of Systems Engineering dealing with spatial database mining issues. Additionally, he is working on a research project funded through the Army Topographic Engineering Center deal-



LTC Mike Hendricks mans the USMA booth at the ESRI Conference.

ing with digital elevation model resolution requirements for command and control systems. That work is also being done in cooperation with the Dept. of Systems Engineering. LTC Hendricks has also received funding from the Army Topographic Engineering Center to support work on the development of an Urban Tactical Planner database for West Point. LTC Hendricks, MAJ Oxendine and Dr. Brockhaus recently completed a project for Army Strategic Forces Command (ARSTRAT) to develop a prototype GIS training program. This program was targeted for officers in the Space Operations functional area. Dr. Brockhaus was funded through ARSTRAT to update the computer aided tutorial in remote sensing that was developed last year. Additionally, he is involved in the departments Tropical Warfare Training Site research effort. LTC Fleming spent the past summer deployed to Afghanistan where he provided assistance to the Afghan Military Academy in the development of their academic curriculum.

GIS faculty continued to be active professionally as well. Presentations were made at the following conferences this past year: the American Society for Photogrammetry and Remote Sensing Annual Conference, the BAE Systems SOCET SET User's Conference, the Army Geospatial Conference, the Geographic Information Sciences Conference, the AutoCarto International Conference, and the ESRI International User's Conference. While at the ESRI International User's Conference the USMA GIS contingent set up a West Point booth as part of the Academic GIS Fair. This drew the attention of numerous old grads attending the conference as well as some youngsters interested in attending the academy.

MAJ Brian Bailey, Masters degree in Spatial Information Science and Engineering from the University of Maine, left us after three years of exemplary service to the pro-

gram and the department. While here Brian course directed, taught and made significant improvements to EV378-Computer Cartography and EV380-Principles of Surveying. Brian oversaw the integration of real time kinematic global positioning system surveying techniques into our surveying course keeping our course well ahead of similar Geography. The example that he set in and out of the classroom, his dedication to excellence, humor in the classroom and ability to communicate with cadets will be sorely missed.

ACADEMICS

Seventeen cadets marched across the stage this past spring to receive their degree in Geospatial Information Science. Several of these cadets completed independent study projects during the spring term. Projects included the generation of digital elevation models from stereo satellite imagery, 3-D feature extraction from satellite imagery, and the georegistration of non-planimetric map databases. Cadet Doug Calloway was selected as this years recipient of the Environmental Systems Research Institute Annual Award for Excellence in Geospatial Information Science. The program maintains its breadth and depth in the discipline through the seven technical courses that GIS majors take as part of their graduation requirements. Required courses include: EV377-Remote Sensing, EV378-Computer Cartography, EV379-Aerial Photogrammetry, EV380-Surveying, EV398-Geographic Information Systems, EV477-Advanced Remote Sensing, and EV498-Advanced Geographic Information Systems. Our courses in remote sensing and geographic information systems can now be found on the electives list in three other departments: Civil and Mechanical Engineering, Systems Engineering, and Electrical Engineering and Computer Science.

This past year we completed a two year internal and external review of the GIS pro-

gram. Phase one, a lesson by lesson review of each GIS course, and phase two, benchmarking of our curriculum against similar programs at other universities were completed the first year. A three member panel of outside experts in the GIS discipline (Dr. Russell Congalton-Univ. of New Hampshire, Dr. Frank Scarpace-Univ. of Wisconsin, and Mr. Doug Caldwell of the US Army Topographic Engineering Center) conducted an on site review of the program in November 2005. The consensus of the panel was that the GIS program at the United States Military Academy was one of the finest undergraduate programs of its kind in the country. The primary curriculum change that was recommended was the addition of a new course titled Military Geospatial Operations. They felt that cadets majoring in GIS should be given the opportunity to study the military applications of geospatial technologies. Following this lead LTC Fleming offered a beta version of this course this past spring under EV485-Special Topics in Geography and the Environment. The course was well received by cadets and a proposal establishing this as a new course has been approved by the curriculum committee.

AIADS

Several cadets participated in Advanced Individual Academic Development (AIAD) projects this past summer. CDT Jeremy Stratman worked with the Spectral Operations Resource Center, Army Strategic Forces Command at Peterson Air Force Base in Colorado Springs, Colorado. His work there focused on assisting LTC Hendricks and Dr. Brockhaus with the GIS training program being developed for ARSTRAT. CDT Stratman was also selected to attend this years ESRI International User's Conference in San Diego, California. The Defense Logistics Agency (DLA) sponsored CDT Ryan Loviner for a three week AIAD in Battle Creek, Michigan. CDT Loviner was involved with

the automated map cataloguing system in use by the DLA. CDTs Mike Goode and Dimitry Sheykman spent three weeks at the National Geospatial Intelligence Agency (NGA) College at Ft. Belvoir, Virginia. While at the NGA College the cadets were given the opportunity to observe and participate in several GIS training courses ranging from remote sensing to surveying.

GEOGRAPHIC SCIENCES LABORATORY

The Geographic Sciences Laboratory (GSL) continues to be the heart and soul of the GIS program. New GPS equipment has been added to the GSL as well as new software to enhance the courses offered in the GIS program. Corporate and Department of Defense support of the GSL continues to be strong. The Environmental Systems Research Institute, better known as ESRI, renewed the unlimited site license for all of their geographic information systems software products. This has enabled us to continue to allow cadets enrolled in our courses to download this software onto their personal laptops and desktop computers. We also continue to offer this software to other academic departments as well as to infrastructure support organizations on post such as the DHPW and

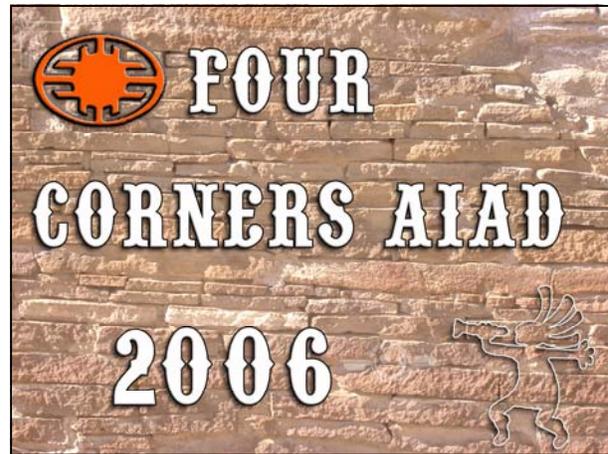


The Geographic Sciences Laboratory at USMA.

ITAM offices. BAE Systems supports our photogrammetry course through the donation of SocetSet software licenses to the GSL. Visual Learning Systems has provided a site license for both their Feature Analyst and Lidar Analyst software programs. These programs are being used in the Advanced Remote Sensing course. The National Geospatial Intelligence Agency (NGA) continues to be an integral supporter of the GSL. NGA support this year enabled us to acquire additional software assets and to upgrade our Real Time Kinematic surveying capabilities. This equipment upgrade will impact each of our courses and enhance the support of cadet and faculty research projects. Additionally, support from the NGA enabled CDT Jeremy Stratman to attend the ESRI International Users Conference in San Diego, California. The US Army Topographic Engineering Center has committed a significant amount of funding and resources to the acquisition of LIDAR imagery over the entire military reservation. This collect included two distinct data sets: 1) a terrestrial collect where the LIDAR sensor was mounted on a vehicle and oriented so as to capture building facades in the main part of post as well as Camp Buckner; and, 2) an aerial collect that will be used to generate a bare earth digital elevation model of the USMA.



EV Engineers and Faculty.



**Lieutenant Colonel Lou Rios
&
Major Megan Peguero**

The Four Corners cultural immersion was a West Point Advanced Individual Academic Development (AIAD) trip to the southwest United States, funded by the Defense Intelligence Agency (DIA). Two officers from the Department of Geography and Environmental Engineering (D/GEnE) hosted the eleven day trip for six cadets. There were many academic objectives for the trip, all centered on exploring the cultural, human, and physical geography of the area. Primarily the goal was to gain a better understanding of the Native American Culture, how it has merged with the Mexican-American culture, and how it has evolved throughout history.

ITINERARY

Day 1 consisted of travel from West Point to Albuquerque.

Day 2 began cool and dry as we headed into a Native American Reservation and stopped at the Acoma Pueblo (Sky City) visitor center. Here we learned that the Acoma people are a matriarchal society that has evolved to practice Christianity in concert with many of its tribal customs. There are still approximately 30 Acomas living on the mesa without technological improvements. New to this year's trip was a hike up the Bal-



*Cadets at Canyon de Chelley, Navaho Nation, AZ
(pronounced Canyon de "Shay").*

derra cinder cone and a walk down a lava tube where snow, water and ice have collected for centuries to a thickness of 22 feet and where the temperature never rises above 31°F. We then headed west on highway 53 and hiked the El Morro National Monument famous for its many "contemporary petroglyphs" courtesy of colonial explorers that visited the area from the late 1600s to late 1800s. We ended day 2 in Gallup, NM.

Day 3 Canyon de Chelley. We contracted a Navajo guide to take us on a 3-hour tour of the canyon where sharp contrasts between lush vegetation, rock and sand made for some spectacular photography. After our guided tour was over, we drove to Spider Rock overlook for a top view of three legs of the canyon. The remainder of this day was spent driving through the Painted Desert where landforms made up of red, yellow, orange, pink, white, gray, and purple soils mixed in with scattered vegetation dotted the landscape. We ended day 3 in Holbrook, AZ.

Day 4 started off with a visit to the Petrified Forest immediately east of Holbrook,

AZ. We next visited Meteor Crater. This crater, originally thought to be the caldera of an old volcano, was actually created by impact. Our next point of interest was Sunset Crater Volcano National Monument, which is the tallest of several dozen cinder cones that dot the landscape just north and east of Flagstaff. We hiked along the base of Sunset Crater and explored several lava tubes and lava blow holes. We then traveled north to the Grand Canyon, entering the park from the east. This allowed some spectacular low sun angle viewing of the eastern portion of the canyon. After we checked into our hotel (village of Tusayen), we drove to the canyon's rim and waited for sunset. As crowded as it was, it was remarkably quiet.

Day 5 began early (430AM). We drove north to the rim to view the sunrise. To no one's surprise, the rim was replete with tourists, mostly Japanese, German and French. It did feel like being in a foreign country. After sunrise, we had a hearty breakfast and hiked the Bright Angel trail 3/4th of the way to the Colorado River. This meant a total hike of 13.5 miles and a vertical drop and climb that added up to approximately 6,500 feet. This trail is a very popular one because it is marked by water points ever 1.5 miles.

Day 6 was also spent in the Grand Canyon, but this time we simply hiked the rim



Cadets relaxing at the Grand Canyon.

trail.

Day 7 took us from Kayenta, AZ into Utah and the Monument Valley Navajo Tribal Park. This region is known for its beautiful mesas, buttes and pinnacles and has been the backdrop for countless movies from John Wayne westerns to Forrest Gump. After Monument Valley, we traveled along the San Juan River and into Goosenecks State Park, which shows several sharp river meanders and ended up at Mesa Verde National Monument. This mesa was home to several Anasazi pueblos which were cleverly engineered into the sides of the canyons. We ended day 7 in Cortez, CO.

Day 8 was primarily a chance to drive out of the desert and into the Colorado high country.

Day 9 consisted of a drive down the million-dollar highway including many stops along the way.

Day 10 began with a drive south to the Chaco Culture National Historical Park. For 20 miles, the trip to Chaco Canyon is on unpaved roads which made for a more authentic-feeling experience. Once at Chaco, we toured two ruins which included a self-guided hike and top-level view of the ruins. The day

ended with a long drive and, strangely enough, we encountered thunderstorms as we approached Santa Fe for our last night in the Four Corners area. Not only was this the only day with precipitation, but also the only day we saw clouds!

Day 11 was the end of the road. We traveled south to Albuquerque, completing a 2,200+ mile loop around the four corners region. All in all, an outstanding experience that blended immersion into Native and Spanish-American culture, customs and practices with the rich tapestry of the physical geography of this uniquely American destination.

CONCLUSION

The trip was extremely valuable to the education of the cadets for numerous reasons. They gained an understanding of different cultures and how climate can affect daily life of different peoples. Many cadets connected this experience to their future roles at platoon leaders. As one cadet stated:

This AIAD was particularly beneficial because it introduced the desert environment and provided insight into how the desert environment influenced the way of life for the people in the Four Corners region. Also



Cadets on the Four Corners AIAD, sponsored by DIA, pose in Monument Valley, Arizona.

interesting to note was the underdevelopment of the region. As our group moved away from Albuquerque and began to enter the reservations, it was easy to see that there was a high degree of poverty in the region. This kind of experience is beneficial because the Army is in the business of conducting operations in countries that are much less developed than the United States. This AIAD prepares me well for my future as an Army Officer by exposing me to new experiences and new people of different cultures.

The cadets continually mentioned they felt as if they were in a foreign country. The majority of the people in the area were Native American, followed closely by Hispanics. People of other ethnicities were tourists. Throughout the experience, English was rarely the main spoken language. In addition, the Native American Reservations are sovereign nations with their own laws and customs. The cadets frequently reminded each other to abide by local customs to avoid alienating or offending the local people. They also discussed how difficult it was to remember the differences in culture, and how they would be expected to adhere to local customs when they deploy in the future.

Some cadets noted how the Anasazi frequently moved and eventually lost many of their people. The question remains today as to why movement was so common. One possible explanation is rapid climate change. A 25 year drought caused living conditions and farming techniques to change drastically. For example, at Mesa Verde National Monument the Anasazi moved from living on top of the mesa to building their dwellings within the cliff walls. The reason for their movement is not entirely clear, but the society would not have moved if it was not a requirement for their livelihood. This concept brought out the idea of Environmental Security. What does a society do to survive if they do not have the technological solutions necessary to fix a problem? In developed countries, a drought can be overcome with irrigation. Undeveloped regions often do not have that opportu-

nity.

Overall, this trip was a huge success. The cadets thoroughly enjoyed the trip and they learned a great deal about Native American (primarily Anasazi) culture and how it blends with the surrounding cultures in the southwest. The Academy and DIA should continue to fund this trip. First hand experience (outside of the classroom) of the culture and physical geography of the region is indispensable. As one cadet on the trip stated:

Within such a remote setting as West Point, it is often hard to grasp the important and global reach of societies, but on this trip, I was better able to recognize how a culture evolved and migrated throughout a region and by what means each culture survived or did not survive by. I learned more about how people must work together in tough situations to solve complex problems.

We recommend adding an additional two days, if possible, in order to include either Zion National Park or Bryce Canyon National Park. Both locations in Utah would add great experience to the trip.

ISRAEL AIAD 2006

**LTC Jim Dalton
Associate Professor**

The Department of Geography and Environmental Engineering recently hosted an



Cadets Tanja Duester and Gerald Gangaram (left to right) experience their first camel ride on an AIAD to Israel.



Cadets and Midshipmen preparing for a traditional Bedouin festive dinner at Manshit Encampment.

Advanced Individual Academic Development trip to Israel. Eight cadets and one officer joined eight cadets from the U.S. Air Force Academy and eight midshipmen from the U.S. Naval Academy for a eighteen day visit to this culturally rich and strategically important country. The trip was sponsored by JINSA (Jewish Institute for National Security Affairs), a Non-Governmental Organization whose charter calls for greater cooperation between the US and Israeli defense establishments.

The group visited many military installations, including the Armor Corps Memorial at Latrun, Hatzetim Air Base, Haifa Naval Base, Israeli Defense Force (IDF) Artillery Headquarters, and the Israeli versions of the Combined Armed Services Staff School, and Command and General Staff College. At each facility, we were met by Israelis who were eager to share their military experiences with their American guests. The cadets and midshipmen were especially interested in learning about the differences between an all volunteer military and the Israeli military, where males and females are conscripted into the IDF.

Although the cadets and mids thoroughly enjoyed visiting with the IDF, the group

spent the majority of the trip experiencing first hand the diverse cultural landscape of the Middle East. After arriving in Tel Aviv, the group embarked on a journey that included stops in Jerusalem, Mitzpah Ramon, the Negev Desert, the Dead Sea, Haifa, the Sea of Galilee, and many other locations. At each site, they examined the artifacts of many past cultures including the Canaanites, Babylonians, Hebrews, Romans, Byzantines, Ottomans, and others.

Although rich in history, Israel is also at the center of much of the political and cultural conflict in the Middle East today. Much of this conflict arises from the fact that Israel is a Jewish State with Arab neighbors. The Old City of Jerusalem was a perfect laboratory to observe the boundaries and transition zones between the Muslim, Christian, and Jewish cultures. Nowhere were the borders between these groups more striking than along the newly constructed security fence separating the West Bank's Jewish and Arab populations.

The trip's capstone event was a meeting with Ambassador Richard H. Jones, the American Ambassador to Israel sine September 2005. The Ambassador gave a brief overview of his challenges and then spent the next hour fielding questions from the cadets and



Cadets Matt Acosta, Bryan Coward and CDR Mike McMahon (left to right) enjoy a festive traditional Bedouin dinner.

mids. The sophisticated questions by the cadets and mids clearly demonstrated how much they had grown from the experience.

This trip was an unparalleled opportunity for the faculty and cadets to experience geography on the ground. The group was able to experience how other cultures view the United States and Americans. After eighteen days, all the members of this AIAD undoubtedly gained a greater understanding of some of the important political, cultural, and environmental issues that affect this very important and historic region.



Ambassador Richard H. Jones hosted cadets and midshipmen at the embassy for an informal discussion on the Middle East.

YUMA PROVING GROUNDS AIAD

LTC Daniel A. Gilewitch
Associate Professor

This short field study was sponsored by the Natural Environments Testing Office at Yuma Proving Ground (YPG) and enabled Cadet Nate Gontarz to travel to the Sonora Desert to participate in a field research experiment. Data collected from this work may provide the basis for Nate's Geography Honors Thesis at USMA. Nate left for Yuma on Monday, 5 June accompanied by LTC Dan Gilewitch, a geography instructor at USMA. They met with fellow researchers from the Desert Research Institute that night. On

Tuesday morning, YPG provided a brief to Nate that described the YPG mission and facilities. This was followed by an office call with the YPG commander and a two hour helicopter flight that familiarized him with a large portion of the over 838,000 acre complex. Finally, Nate arrived at the field site in the warm (110F+) glow of the afternoon sun. Nate spent the next three days at the field site taking measurements, and returned to NY on Saturday, 10 June. He drank plenty of water and had a good farmer's tan going by the time he was finished!

Nate collected field data for an ambitious study that will help determine the impact of military movement on desert surfaces. Researchers chose a well developed ~800,000 year old desert pavement surface at YPG, and marked off areas for HMMWV, Stryker, T-72 tank (Russian), and an M1A2 tank (USA) to traverse under controlled conditions. Nate and the team of research scientists measured soil density, surface morphology, dust potential, infiltration rates and a number of other physical characteristics of undisturbed and tracked pavement using state-of-the-art instruments as well as more traditional field methods.



The Stryker makes a turn during its run. It did not take long for the vehicle to create ruts in the fragile desert pavement surface.



A nuclear density gauge was used to determine soil density and moisture content down to 300mm in depth. These tracks were made from 5 passes by the Stryker.

These data will be reviewed, additional data will be taken at the field site, and several papers will be generated to share the results. This AIAD represents a target of opportunity for the department to offer current, exciting research opportunities for Cadets that have relevance to Army interests. The data collected during this research for example, clearly demonstrates the effect that mechanized or wheeled unit maneuvers would have at YPG. It is not anticipated that this particular AIAD at YPG will be offered in the fu-



Cadet Gontarz uses a more traditional method to measure surface morphology for each vehicle pass lane. He completed nearly 800 field measurements in the hot desert sun.

ture, but our faculty is always searching for the correct type of projects and sponsors to provide our Cadets with research opportunities.



LTC Mike Hendricks Officer Representative

The West Point Orienteering Team enjoyed another successful year, highlighted by capturing their fourth consecutive U.S. Intercollegiate Varsity Championships this spring in Wells State Park Massachusetts. Other events of note included; hosting the 26th annual orienteering meet out at Camp Buckner, training over a hundred scouts at their Boy Scout Orienteering Workshop, assisting the intramural orienteering program, and of course traveling to numerous orienteering meets.

INTERCOLLEGIATE CHAMPIONS

The cadet's three teams, Black, Gold, and Grey, swept the competition, and allowed West Point to retain its title as the Intercollegiate Orienteering Champions. USMA Black lead the team to victory by winning 1st place Varsity, and also winning the 1st place club competition. The team consisted of three members of the class of 2006, Brian Shepard, Allen Griffith, and Nate Pritchard and two



USMA's 2006 Intercollegiate Champion Team

members of the class of 2007, Andrew Komm and Brad Hutchison. USMA Gold earned 2nd place Varsity with members Greg Hope class of 2006, and class of 2007 members Chelsea Cunningham, Matt Lensing, and Zach Taron. The USMA Grey team took 3rd place with team members from the class of 2006 Jim Perkins and Brian Boyles, and 2007 members Matt Sherburne, Sarah Klaben, and Alan Hastings. On the Junior Varsity side of the competition, USMA Red, consisting of class of 2008 member Chris Beckwith, and class of 2009 members Neal Trump, Ben Bruder, and Paul Freeman captured the 1st place Junior Varsity Champion award. USMA Green team won 2nd place Junior Varsity Champion award with class of 2008 members Zach Furst, Adam Jannetti, Ben Scrivner, and Kyle Stilwell, and class of 2009 member Michelle Alderson.

Individual winners for the weekend were Chelsea Cunningham who won 3rd place female Varsity Champion, Michelle Alderson who captured the 1st place female Junior Varsity Champion award, Zach Furst who achieved the 1st place men's Junior Varsity Champion award, and Paul Freeman who won the 2nd place men's Junior Varsity Champion Award.

INTERNATIONAL COMPETITIONS

Though their effort and outstanding performance five cadets, Chelsea Cunningham (2007), Andrew Komm (2007), Sarah Klaben (2007), Matthew Sherburne (2007), and Zach Taron (2007) were selected to compete with U.S. National team at the 2006 World University Orienteering Championships in Košice Slovakia, 12 August – 20 August 2006. LTC Hendricks also traveled with the team as the head of the U. S. delegation. For Chelsea Cunningham (2007) this was the second international orienteering event of the year, as she traveled to Latvia in February to compete in the 2006 Ski Orienteering World Cup.



The U.S. World University Orienteering Team

WEST POINT ANNUAL ORIENTEERING MEET AND BOY SCOUT WORKSHOP

Last spring the team hosted the 26th Annual West Point Orienteering Meet May 6th and 7th 2006. Cadet Brian Shepard, the meet director, ensured the meet was a success. As an interesting twist the cadets erected, with the help of SFC Rouse the Engineer branch NCOIC, an aluminum foot bridge that was crossed by the competitors as part of their day two courses. The Department supported the event by printing the competition's maps in the Geographic Sciences Laboratory which saved money and allowed greater flexibility.

The cadets also hosted their second annual Boy Scout Orienteering Weekend Workshop May 22nd and 23rd. Cadet Kyle Stilwell planned and organized this event for the second year in a row and again received excited response from the scouts.

UPCOMING YEAR

This upcoming year promises to be another outstanding season. The team conducted a successful tryout at the beginning of the semester and picked a strong team of consisting of CDT Michelle Alderson ('09), CDT Christopher Beckwith ('08), Benjamin Bruder ('09), Paul Caston ('10), Jacob Cook ('07), CDT Chelsea Cunningham ('07), CDT

Aaron Fairman ('07), CDT Eric Flowers ('09), CDT Nickolaus Fuhriman ('10), CDT Zach Furst ('08), CDT Brad Hutchison ('07), CDT Daniel Keyser ('09), CDT Sarah Klaben ('07), Jonathan Knight ('07), CDT Andrew Komm ('07), CDT Matthew Lensing ('07), CDT Nicholas Lewis-walls ('10), CDT Zachary March ('10), CDT Heidi Miller ('09), CDT Aaron Palmer ('08), CDT Alex Reiter ('10), CDT Ben Scrivner ('08), CDT Matthew Scrivner ('10), CDT Matthew Sherburne ('07), CDT Shawn Soviak ('10), CDT Kyle Stilwell ('08), CDT Zach Taron ('07), CDT Neal Trump ('09), CDT Ruben Veliz ('10), CDT Joshua Wiley ('10).

The team is planning a full schedule of orienteering which includes the following major trips: *2006 Northeast Regional Championships*, Cortland, NY, 22-23 Sep 2006, *Hudson Valley Orienteering Workshop*, Harriman State Park, 30 Sep 2006, *2006 North American Championships*, Milton, Canada, 6-9 Oct 2006, *Batona 500*, Hammonton, NJ, 11-12 Nov 2006, *Georgia Navigator Cup*,



CDT Andrew Komm Finishing a Course

Lithia Springs GA Feb '07, *Intercollegiate*, unknown location and date, *Boy Scout Orienteering Workshop*, West Point, NY 14-15 Apr 2007, *West Point Annual Orienteering Meet*, West Point, NY, 28-29 Apr 2007.

The following faculty members returned from last year to help out again with the team: LTC Mike Hendricks (G&EnE), LTC (R) Richard Hoff (Chemistry and Life Science) and MAJ Chris Oxendine (G&EnE). We are pleased to now also have with us MAJ Jon Campbell (Physics), who was on the orienteering team as a cadet, and his wife MAJ Victoria Campbell (History). We also have another returning member of the team helping out this year, MAJ Robyn Wood (Math). Our group of Officer Representatives is rounded out with CPT Jeffery Sheehan (Chemistry and Life Science)), new to the sport of orienteering, but eager to learn and help out. We also are lucky to have assistance from LTC (R) Robert Turbyfill, who puts in a lot of hours traveling from Washington D.C to help with the team.



Orienteering across the Floating Footbridge



This Newsletter was compiled and edited by
LTC Daniel A. Gilewitch
Associate Professor

CURRENT FACULTY, DEPARTMENT OF GEOGRAPHY & ENVIRONMENTAL ENGINEERING

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