

GIIF NEWS

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Letter from the Director

Another exciting semester has passed, and the GIIF continues to be a hub of geospatial activity in CNR and on campus. We've increased our user-base to over 100, and we are hosting a range of interesting workshops and events. For example, together with CAMFER, the GIIF continues to host the weekly GeoLunch series of geospatial presentations by faculty, visiting scholars, NGOs, and students. A full list is on our website, and highlights are to the right.

In personnel news, the GIIF is tremendously happy to announce that Karin Tuxen, PhD, will be joining us as Facility Manager. Karin brings a wealth of technical skill, enthusiasm and connections to the Facility, and starts work in May. In addition, the GIIF has assembled an exemplary team for our external Advisory Board. This group will advise on current and upcoming technologies, be our link to Bay Area and nationwide geospatial initiatives, and help to council us on fundraising. The Advisory Board includes CNR Alums and GIS/remote sensing experts Kass Green, Don Lauer, Ross Congalton, Steve DeGloria, Larry Pettinger, Dean Angelides, and Larry Orman.

Geospatial technology continues to grow with Internet mash-ups, new software and new approaches to data analysis, and new imagery streams with which to work. Make sure to sign up for a workshop soon, and don't forget to come by to inquire about ways to incorporate geospatial technology into your research!

Come visit us in 111 Mulford!
- Maggi Kelly

Recent Activities

GeoLunch

GeoLunch is a weekly seminar series on Friday afternoons, featuring presentations related to geospatial theory or application by scientists from academia, governmental agencies, and non-profit organizations. This semester's highlights included Karen Seto (Stanford U.), who presented her documentary film *10,000 Shovels* about land use change in China. Charles Benton (UCB-Architecture) presented the history, technique, and application of kite aerial photography. Matt Merrifield and Kirk Klausmeyer (The Nature Conservancy) presented geospatial tools for marine conservation and habitat modeling under climate change scenarios. Other presenters included numerous students, Peng Gong (UCB-ESPM), USFS Forestry Monitoring Coordinator Lisa Fischer, and Alta Vista's and ASPRS' Kass Green.

Geocaching

CalDay was another success this year, which included the GIIF's annual geocaching activity! On April 19th, numerous kids and parents lined up to learn about geocaching, and to use GPS units and fun clues to find caches of candy (Figure 1).

Geocaching, a high-tech scavenger hunt using GPS units to find caches, is a new craze sweeping the GPS and outdoor industry, and allowing children and parents alike to get outside and enjoy their local open spaces and learn about new places. Visit the GIIF's geocaching activity at next year's CalDay!



Figure 2. Families enjoy our geocaching activity at CalDay 2007.



Cal Student Research Highlights

Climate Change and Butterfly Habitat

Joel Scheingross, a senior Environmental Science major, completed his senior thesis this May. He modeled the distribution of rare Alpine butterfly species, endemic to the Sierra Nevada. Joel predicted species distribution using two modeling tech-

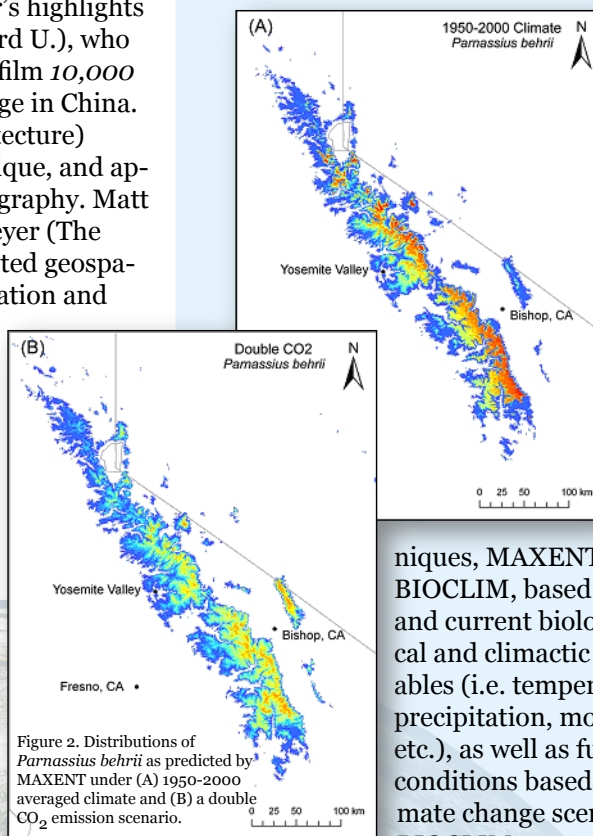


Figure 2. Distributions of *Parnassius behrri* as predicted by MAXENT under (A) 1950-2000 averaged climate and (B) a double CO₂ emission scenario.

niques, MAXENT and BIOCLIM, based on past and current biological and climatic variables (i.e. temperature, precipitation, moisture, etc.), as well as future conditions based on climate change scenarios. BIOCLIM was run in

DIVA-GIS (diva-gis.org). Future climate models show the most suitable habitat for the butterflies moving towards higher elevations, along with an overall reduction in alpine habitat within the Sierra Nevada. Figure 2 shows the distribution of one of the species, using MAXENT with (a) past and current climate conditions and (b) climate change scenarios. Warmer colors indicate more suitable habitat. These modeling techniques allow for better prioritization of species conservation as well as improved habitat management.

Mapping Mima Mounds near Merced
Sarah Reed, a 2nd year ESPM PhD student, is using high-resolution LiDAR elevation data to study Central Valley Mima mound-vernal pool systems, located in Eastern Merced County near the UC Mer-

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Upcoming Events

O BIA Symposium 2007

June 7-8, 2007

The Symposium features nine presentations about OBIA methods and application from researchers in the discipline, three in-depth hands-on workshops, detailed discussion about problems and

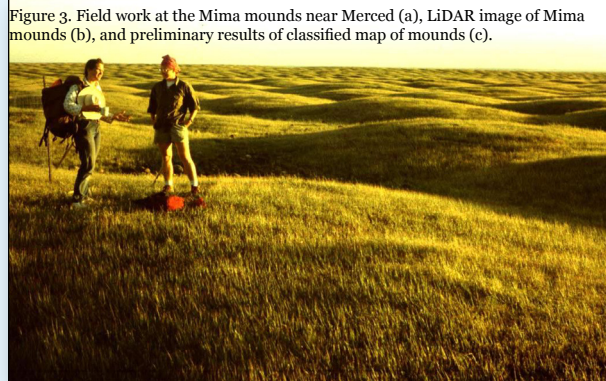
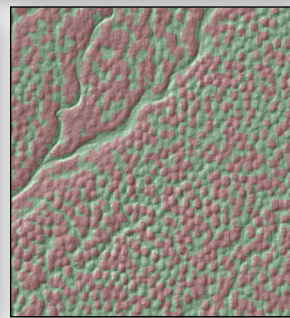
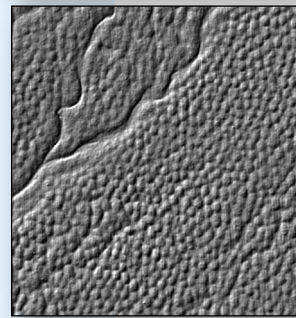


Figure 3. Field work at the Mima mounds near Merced (a), LiDAR image of Mima mounds (b), and preliminary results of classified map of mounds (c).



ced. Mima mounds (Fig 3) are geomorphic landscape features with adjacent depressions called vernal pools. The mound-pool complexes create a unique set of seasonal wetlands which harbor rare and endangered plant and animal species. Sarah is exploring the role of pocket gophers (*Thomomys* spp.) as agents in the formation and preservation of Mima mounds. Using LiDAR (Light Detection and Ranging) data collected by the National Center for Airborne Laser Mapping (NCALM), Sarah is utilizing an object-based segmentation and classification approach to map the individual mounds. She used contextual information to classify mounds as those objects that are surrounded by lower elevation neighboring objects. Figure 3c shows preliminary classification results, where red surfaces are mounds and green are non-mounds. It is important to understand how land use and climate change may affect these landscapes. The vernal pools and the protected organisms contained within them could be significantly threatened if gopher populations change or relocate due to climate change.

And the winner is...

Tim DeChant, a 3rd year ESPM PhD student, was one of three awardees of the 2007 GeoEye Award, which gives the awardee free IKONOS imagery. Tim plans to use high-resolution satellite imagery and historical imagery to assess how disturbances such as urbanization and Sudden Oak Death affect oak physiology. Tim was highlighted in several geospatial publications, including *Directions Magazine*, and follows in the footsteps of past ESPM student winners like Orien Richmond, who won the GeoEye Award in 2006.

Supporting the 1st Annual ESPM Graduate Research Symposium

On April 28th, ESPM graduate students hosted the first annual Graduate Research Symposium. The event was a huge success, and highlighted presentations and posters by ESPM graduate students, as well as a keynote presentation by Gretchen Daly of Stanford University. The GIIF was proud to be a co-sponsor of the event through donations of student poster and publicity material printing. Congratulations to the Planning Committee for a job well done!

solutions dealing with OBIA, and a keynote by Thomas Blaschke from the University of Salzburg, Austria. Dr. Blaschke is a world-renowned and well-published researcher in the field of OBIA, as well as an interesting speaker – his Geolunch presentation last year was an exciting and informative mix of case studies. The event will be relatively small (about 50 people), which will allow for very targeted and in-depth discussions.

GIS Day 2006

November 14, 2007

Another exciting event in 2007 will be our GIS Day events on November 14th. The event is co-sponsored by the GIIF, the Geographic Information Science Center (GISC), and the Bay Area Automated Mapping Association (BAAMA). The event will be located in Mulford Hall, and will feature an afternoon University/Higher-Ed session as well as an evening Professional session. Oral and poster presentations by both academics and professional, as well as a featured keynote, will enable knowledge exchange as well as networking between and among Bay Area students, faculty, and professionals.

UCCE Geospatial Training

Summer 2007

RREA is enhancing geospatial training for Cooperative Extension. With renewed funding from the Renewable Resources Extension Act (RREA), Karin Tuxen and Maggi Kelly are again leading a series of workshops for UC Cooperative Extension Advisors and Specialists interesting in integrating GIS and GPS technology into their research and extension activities. See <http://giif.cnr.berkeley.edu/CE/> for more information. Last year, over forty colleagues attended from 20 California counties. This year, we are adding more advanced exercises, specially tailored to real-world situations in which UCCE colleagues find themselves. To find out what those real-world situations were, we created a survey of UCCE colleagues to currently use or would like to use GPS/GIS in their work. We found that many are using GPS, GIS, and remote sensing mostly for data collection and mapping tasks but less for spatial analysis and statistics. Also, nearly half of the respondents were in the agricultural field. Said one respondent, "I have GPS points for fields where various pesticides are applied and I want to plot them in a GIS and estimate total use of those pesticides in each county." Introductory GPS/GIS workshops will be held on July 5 and July 17. Advanced GIS workshops take off where the introductory leaves off, and will be held on July 6, July 18, August 2, and August 14. Sign up at <http://giif.cnr.berkeley.edu/CE/>!

People at the GIIF



Abe Hendricks has been with us since the GIIF's opening on GIS Day 2005 as the Computer Resource Technician. Abe is responsible for maintaining all hardware and software in the GIIF, and he works with the CNR IT department to maintain the CNR Teaching Lab in 124 Mulford Hall.



Karin Tuxen recently joined the GIIF as Facility Manager, after finishing her PhD in ESPM, where she mapped restoring tidal wetlands in the San Francisco Bay.

Steering Committee includes Maggi Kelly (Faculty Directory), James Bartolome, Beth Boyer, Justin Brashares, and Max Moritz.