

Minutes
UCIME Group Meeting
December 4, 2001

**** Important dates and announcements:**

- Our next UCIME meeting will be **1/18/02 at 9:00 am** in Keith's office.
- Happy Holidays to all.

Attendees: Keith Clarke, Helen Couclelis, Jeanette Candau, Noah Goldstein, Jeff Onsted, Xiaohang Liu, Melissa Kelly, Tim Robinson, Martin Herold and Helen Couclelis.

Martin:

- He has been working on obtaining a national dataset for land use, specifically for the lower 48 states. The land cover classification uses Modis (Moderate Resolution Imaging Spectroradiometer with 36 bands) imagery at 1 km resolution (bands 8- 36). The data will be registered with 1992 data we have and will be used to calibrate SLEUTH. The intention is to use the data to run SLEUTH and model urban growth for the entire lower 48. The land use / land cover classification has not been completed (Alan Strahler's group). They are using Modis in connection with previous NOAA AVHRR land use data , which was never completed, specifically urban extent. Maybe fewer land use classes will be used to speed up the process. Keith and Jeannette worked on this issue prior and defined the urban extent for the lower 48 using census tract studies from the 1950s to 1992. Hardcopy plots of the urban extent (population density over a certain threshold) were scanned and a threshold was done in XV. The feeling is that they over estimated urban extent. There is no way to do a model run for 2000 data because of the lack of the urban extent. Martin is trying to calculate the amount of RAM needed to do a model run, as we will have to request time on machines off campus. There are problems as well with the road layer, specifically with road definitions, but he will keep after it. This will lead into a proposal to NSF (Geography and Regional Science, Keith as PI). The ideas is to get funds to support Martin and Jeff Hemphill with a two year award to look at national level projections of land use / land cover change as well as changes in the urban hierarchy.
- Martin has also been working on some 3D imagery for the Santa Barbara area that can be looked at on his web page
Default_XREF_styleREF<http://www.geog.ucsb.edu/~mherold> (look under PhD studies, urban growth modeling).
- Martin and Noah wrote an abstract on urban growth for the Santa Barbara area and sent it to Remote Sensing in the Environment for a special issue, which got accepted. It is due in March and so plenty of work to do here.

Melissa:

- She has lined up two good interns for next term to work on the next landuse layer for 1976. Remember that 1986 and 1998 are done. The developed methodology should

speed up the process. She is hopeful that the layer will be done by the end of the quarter.

- She will be working on her dissertation proposal paper that focuses on landuse change dynamics.

Xiaohang:

- She is still working on population density. The idea is to create a map of population density at a higher resolution than is possible at the moment with census data. Landuse data will be used instead of census tracts and she is working on a way to distribute population inside of each landuse polygon. 2000 census data will be used for calibration. She had a setback in her work when artifacts were found in the relationship curve of landuse area to population density. She has gone back to clean the population data by counting the number of buildings in each census tract per pixel, could be the best population density map in the County. With this done she can go back and test the previous relationship. It would be interesting to see population density maps from her work and the census.
- She put a paper together with Claus from LANL, which was submitted (11/15) for a special issue of Computers, Environment and Urban Systems.
- Returning to LANL might be a possibility later in the year. Others interested in going are Helen, Keith, Mark Probert, Tim and Noah.
- Her dissertation proposal is progressing and she will report upon it when she has something concrete.

Jeannette:

- She has been writing her thesis. She did calibration testing and ran three specific calibrations on Santa Barbara data; one using 7 layers of historical data from 1927 to 1998, another one using 4 layers only (1927-1998) and finally only four layers beginning in 1967. The best R^2 value was for the 1967-1998 runs, hence short-term predictions are more reliable. Keith has a first draft and a second is coming soon. She also ran a quick landuse forecast for Santa Barbara with Anderson Level I data. More memory is needed to do Level II data. 1967-1998 run results were used.
- She hopes to get 2 papers out of her thesis (Calibration testing of Urban CA and a second on previous calibration methodologies (brute force) relating to scaling issues).
- She is working with Noah on a paper that Noah will explain.
- The Central Valley Project is progressing. She is working on calibrations and doing forecasting, which will be compared with the Landis modeling results for the area. CUF II will be used because it is done and is a very popular model in the area. Multiple papers are expected.

Noah:

- He is working on a paper with Martin as described above.
- He is looking at 2 issues with calibrating SLEUTH with a GA (genetic algorithm) instead of the brute force technique; the first one will be done with Xiaohang in a paper for AAG focusing on a GA approach to do calibrations and the second comparing the brute force technique with other approaches, an effort to be done with Jeannette.
- He wrote a paper with Steen that Steen is in charge of submitting, possibly for a journal circulated on Capitol Hill. It's on using information technology for disaster relief, timely for Homeland Defense. There is lots of potential here given their previous work with Urban Securities.
- He was invited to give a talk at the Agent Based Modeling conference in March in Lake Arrowhead.
- Noah submitted an EPA proposal just recently.
- With Tim, they have been working on the exclusion layers, which will be done shortly.
- He is working on a paper for a special issue on complex systems for Computers Environment and Urban Systems. The focus is on back casting with SLEUTH with a spatial temporal interpolation method from the parcel map data.

Jeff:

- He did a presentation of SCOPE for the Carpinteria Valley Association.
- He and Keith participated in a video taping session regarding SCOPE results.
- His thesis draft is just about done. His focus at the moment is on the literature review. A draft will be turned in by the end of next week.
- The presentation at the Rotary Club is still pending.
- He has an intern who has worked out well and will continue on next term. He has been gathering data and building tables. The hope is to get at least one paper out of his thesis. He will be giving a poster at the next AAG meeting on his thesis.
- He helped Jeannette by giving a very nice presentation for visiting USGS folks.
- Once his Master's thesis is done he will then focus on a dissertation topic in the area of urban growth in relation to the Williamson Act. Keith recommended contacting Laurie Kurilla for data.

Helen:

- She went to UNC to give a colloquium on integrated modeling, which was well received.
- She will be offering a seminar on Agent Based Modeling and Land Use change during winter term.

Tim:

- He is working with Noah on the exclusion layer, specifically for a green scenario. This includes his work on groundwater recharge zones and a variable width buffer which is determined by landuse and zoning.

- The early rain this year has kept him busy doing fieldwork. His research requires fine scale sampling of runoff from 6 different landuse classes throughout the storm hydrograph.
- He has a poster going to AGU on the first year's results on nutrient loading to coastal streams in the Santa Barbara area.
- He wrote an abstract on his research, which was accepted for the spring meeting of the American Water Resource Association on Coastal Water Resources in New Orleans.
- He is still reading and studying for his written exams, which are coming within the next couple of months.
- He will be participating in a HGM (Hydrogeomorphic) Approach workshop, a tool to do ecosystem function assessment. The County is sponsoring the workshop with the idea of adopting this approach for future development and restoration projects evaluation.
- On 11/20 the Santa Barbara Coastal LTER team hold a meeting where each of the four groups (terrestrial, near shore, marine and data base) presented their activities and findings. The UCIME project got three slides.
- He would like to go to LANL sometime over the summer.

Keith:

- We are on the home stretch with this project. People will be supported from now until the end of February. Keith has requested a “no cost” extension until June and that is it, e.g. the delivery of products is coming. This is an important meeting to set final objectives.
- Wei Ning Xiang, a professor from the University of North Carolina, will be here in January. He will be teaching a seminar for the department on multi-criteria decision-making in GIS. He is well known for the multiple width buffer and greenway implementation. He is very interested in our integrated, outreach approach. Tim will send him a copy of the publication packet.
- Someone will be coming from Italy who will be working with Annabell Ford and Keith.
- David Mark from Buffalo is coming.
- We need to write the definitive UCIME paper, which should be a show case piece on all the work done.
- Keith was able to get \$7k additional funding from the Santa Barbara Economic Community Project to continue funding Jeff. They are working on other funds that will be announced soon.
- Keith has been looking for following funding for the UCIME project. Two possible resources are being considered: the Wendy McCaw Foundation (John Clark) and another IGERT grant. The first attempt didn't get funded. There is a second round for IGERT within the near future (due in May or June). The idea is to fund a center that would focus on UCIME and should dovetail the IGERT award to Bren.