Minutes
UCIME Group Meeting
July 19, 2001

****** Important dates and announcements:**

- The next UCIME group meeting will be in September. The date and time will be announced.
- Claes Anderson from LANL will be at UCSB for the week of July 23rd. Xiaohang will be coordinating his visit.

Update Reports from each team member:

Noah:

- Noah just returned from a month at the Santa Fe Institute Summer Program and he gave a brief description of his activities. He worked on two projects of which the first was using the Santa Fe / LANL Internet database set up for the Cerro Grande fire, the disaster web page. The idea was to look at who visited the site and investigate ways in which to use that data. Specifically he looked at overlapping networks with different degrees of degradation, applying concepts of a small world network. The experiment flushed out to be a study on how two separate lattice networks can synchronize with nodes that learn behaviors to optimize integration. This was done in MATLAB. The second project was regarding online web translation services such as BabelFish or Worldlingo.com that are viewed as complex systems with divergent/convergent behavior, which oscillate, and are condition sensitive. Both projects required writing a paper that will be published in the Institute's summer book. He also gave a talk on each project. The program took place at St. John's College in Santa Fe. In general it was a valuable experience of learning about different systems and interacting with interesting people.
- Regarding UCIME, he has been working with Xiaohang on the density model. He made the pixel age map and the road density map.
- He also will be focusing on getting the model to run with various different types of fire scenarios.
- Finally, he and Xiaohang would like to work on applying genetic algorithms in the calibration mode, which would be an alternative to the way it is done now and has proven to return interesting results. The hope is to improve the methodology of selecting the optimum set of parameters.
- He has been looking at the metadata that Scott Crosier put together and it looks good.

Jeannette:

- She recently finished all of her calibration runs for her thesis work. But ….. she just discovered that she had set one of the self-modification parameters incorrectly, which assigns too large of a bust coefficient such that the system can not recover. From the most recent runs, there is a difference in each calibration run which is a good sign. The more data the better and the longer the time period the better yet. She will begin again running her calibrations next week with great success expected. Once she has this calibration process figured out she will be using William Acevedo's Great Valley

Project data to calibrate the model for that area. She is hoping with the above work that she will be finishing her master's thesis soon.

- She is working on two papers, the first on Deltatron and the second will be a follow up to the Urban Dynamics Workshop in Santa Fe to define the USGS science plan for the next five years. Six research areas were determined and a paper will be written about each that lays out the vision, research objectives, issues, etc. She will be working with Keith on the Model Visualization theme. Accompanying these initial papers will be technical reports illustrating what is going on. The Deltatron paper might be a good reference for an example of this theme. The deadline is in March 2002.
- She has posted a web-discussion site for the Gigalopolis project, which is working and has had various hits. All are encouraged to participate.

Keith:

- He just submitted a proposal to the ECP to fund Jeff Onsted for two years to work primarily on model visualization. He is not here today as he is preparing for a large presentation of his work this week.
- He has hired Sean Mullin, a recently graduated Geography undergraduate student. He is half time on rebuilding the ECP web site and half time at Planet Earth Science to learn about their interactive web tools. They make educational products but have developed a tool that is an interface between Macromedia Director and IDL. Keith is hoping that it will be the vehicle to construct the UC"I"ME.
- We now have a dedicated web server for the project and Jeff is busy getting that online. Keith would like to use this machine to use the web capabilities of the Stella Model to open up the "See the Future" model over the Internet. He would like to call it SIM-Santa Barbara. Secondly, he would like to install the Arc-IMS software on the new server and post the whole Santa Barbara GIS for general access.
- Tomorrow there is a meeting in Santa Barbara of the Council of Governments. ECP is giving an hour presentation. Jeff's 10-minute presentation will be part of their efforts.
- The IGERT (Integrated Graduate Education and Research Training, a NSF program) proposal is in with a healthy endorsement from Jack Dangermond to fund a Smart Growth Institute in the Geography Department. There would be funding for PhD students, equipment and maybe infrastructure.
- Elisabete Da Silva gave a paper on the model at a conference in Shanghai and it was well received.

Tim:

- He has just returned from giving a GIS class at the University of Girona, Spain. He also gave two talks at the UNIGIS conference for Spanish Speakers that took place this year in Girona.
- He is now cranking back up on two hydro-layers for the model, recharge zone from the Dibblee Geological Maps and setback limitations from water bodies (rivers, lakes, oceans and wetlands). He hopes to have these done with in a couple of weeks at which point he will begin their incorporation in SLEUTH.

- He has been working on the Santa Barbara Channel LTER project, specifically with their modeler who was just hired. That project will be interfacing with the UCIME project, as Keith is one of the PIs.
- He will be meeting with Jeannette later in the day to plug back into projects on SLEUTH and the web page.
- He also has been studying for his written qualifying exams, a slow but sure process.
- Finally, he is looking for funding and hopes to send in two proposals by the end of the summer.

Xiaohang:

- Claes will be here next week to work with Xiaohang on Steen and Claes' urban growth model.
- She has been working on a population model, which uses a historical calibration dataset with settlement at different time periods depending on the transportation network. This can be used for predicting new settlements on into the future. The hope is to create a function to predict population that would include landuse, cluster size, roads, pixel centroids, and pixel age:

  Population Density ~ f(landuse, cluster size, roads, pixel age)

  The larger the blob of pixels the greater the population density, where pixel groupings are contiguous, including diagonals. The problem at the moment is that the Santa Barbara data is such that the clusters are large and continuous. A regression model might need to be used or using pixel age. Xiaohang, Noah and Keith will meet next week to discuss potential solutions. She will be getting 1990 and 2000 census data for that effort. She has been working with the census data in ArcView and Arc/Info.
- She and Noah are working on calibration with genetic algorithms and will be meeting twice before the end of the summer. One of her tasks for the summer is to learn calibration. She is going to China for a short visit next month. She is hoping to finish the georeferencing part of their work prior to her departure.
- She also attended the UCGIS Conference in Buffalo and gave a paper, which was well received. She got a prize for third place for student presentations.

Melissa:

- She is done with 1998 and 1986 Landuse coverages.
- She gave the landuse data to Dennis Gibbs of the County of Santa Barbara who was interested in the data as they are working on a demonstration project for watershed analysis for San José Creek. The topic is in parallel with her interest for a dissertation project. A rough description of the project is to develop a practical method for measuring habitat quality (ecosystem vitality) through characteristics obtained from aerial photography. She would like to then project her findings on into the future. She will be meeting with potential committee members soon (example John Melack) with a draft proposal in hand.