Guide to Computing Services for Visitors while at the National Center for Ecological Analysis and Synthesis – April, 2011

Welcome to NCEAS! This brief document will orient you to the computing services that are available during your visit here. If you have any questions about computing issues while at NCEAS, please feel free to ask any of the computing support staff, or email help@nceas.ucsb.edu. Many technical details for using our systems while at NCEAS can also be found on our website at http://help.nceas.ucsb.edu.

General Systems and Network Support: We can all be reached at help@nceas.ucsb.edu. Individually, Thomas Hetmank (rm. 314, x506, hetmank@nceas.ucsb.edu), can help you with general use of our facilities: getting your laptop networked, software availability, printing, use of projection devices, etc. In addition to Thomas, Nick Brand (rm.305; x507; brand@nceas.ucsb.edu) and Mark Schildhauer (rm.304; x509; schild@nceas.ucsb.edu) can assist you with questions about our servers, account creation, and network-based mechanisms for collaboration and data archiving. But feel free to ask any of the computing support folks for assistance, and we’ll re-route issues to the person best able to address your needs.

Please Note: If you bring a laptop computer that you wish to connect to the NCEAS LAN or if you anticipate that the NCEAS Network Support may need to modify (or otherwise service) your laptop’s file system, be sure that you know your computer’s Microsoft Windows or OSX Administrator Password.

Scientific Programming and Analytical Support: Rick Reeves and Jim Regetz (reeves@nceas.ucsb.edu; regetz@nceas.ucsb.edu) are Scientific Programmer/Quantitative Analysts for NCEAS. They are available to assist you and the members of your group with these computing-related issues:

 Scientific Software: Selection of the software package(s) best suited to your analytical tasks and preferred computing platform.
 Computing Hardware: Selection of the NCEAS computing platform most appropriate for the scope and nature of your analytical tasks.
 Scientific Analysis: Statistical, simulation and modeling, and geospatial tasks.
 Data Management: Data preparation, storage, and documentation; compliance with the NCEAS Data Policy.

Jim and Rick are available to work with you at any time during your visit. Mark Schildhauer is also available to consult on scientific computing resources and database/informatics initiatives at NCEAS. For a detailed list of analytical software and services available to Working Groups, please see also the Scientific Computing Overview at the end of this document.

Hacker Security: If you are bringing your own laptop system for connecting to our network, particularly if these are running Windows software–please be aware that infection rates due to various viruses can be quite high if you are not running the latest MS Windows security updates, a personal firewall and/or up-to-date antivirus software.
Before hooking up to our network, we strongly recommend that you contact one of the above computing support staff, and ask them to test and patch your machine for these major security problems. It is much easier for us to fix these before you get onto the network rather than afterwards. If your machine is infected, its network access must be disabled until the security problem is corrected.

**Accessing the Network:** Full access to the Internet (Web, email, etc.) is available from either of the Conference Rooms (rms. 323 and 201) as well as from the two Common Access Rooms (rms. 327 and 313). If you wish to connect your own laptop to the Internet, you should set it up to use DHCP services in order to get assigned a proper name and number to operate on our network.

The two conference rooms are set up with network cables (RJ45) at each seating station, and these can be attached directly to your Ethernet network card. Wireless service (802.11b/g WIFI) is also available, and broadly accessible through the NCEAS’ premises, including the lounge area. Instructions on how to get onto our wireless networks are posted in the Conference Rooms. The Service Set Identifier (SSID) for our service is “nceas”, which requires that you enter a 63 character WPA key in order to be authorized for use. This key will be provided.

A “visitor” account provides login access to a storage area where files can be shared anywhere within our network. The password is displayed on machines in our Common Access areas.

**Email:** Our local email (SMTP) server is “mercury.nceas.ucsb.edu”. If you want to send email while at NCEAS, you can reference this local email server in your email software. You should switch this back to your default setting after leaving our facilities. Detailed instructions about how to do this are at [http://help.nceas.ucsb.edu/NCEAS_Email](http://help.nceas.ucsb.edu/NCEAS_Email).

**Computer Access:** All computers that are permanently located in our Vislab are hooked up to the Internet, and available for your use. These Macintosh, Windows, and Linux machines are running a broad array of Internet, Office, Graphics, and Scientific/Analytical application software. If you cannot locate the package that you need, please ask one of the computing support staff for assistance. We often have available a limited number of Windows and Mac laptops that can be loaned out for computing during a meeting.

In addition, accounts are available on our Linux systems for demanding scientific analyses and modeling needs. Contact Nick or Mark ([help@nceas.ucsb.edu](mailto:help@nceas.ucsb.edu)) for assistance on Linux account creation, and availability of software on these systems. Our Scientific Programmers can assist you with running your analyses on the Linux servers.

**Printing:** High-speed laser jet printers are located in the Common Access rooms, and a high quality color laser printer is located in rm. 313. These printers can be accessed via their IP addresses: use 128.111.220.29 to connect to the laserjet in rm. 327 across from the 3rd floor Conference Room 323. Use 128.111.220.22 to connect to a laserjet in
Data Projectors: Both of the Conference Rooms have data projectors permanently mounted to point at the main screen. These projectors work best at SXGA+ or XGA resolution (1400x1050 or 1024x768), so you should set your laptop to one of these display resolutions in order to get the best screen coverage. Detailed instructions on using the projectors, including how to cable them up to your laptop and switch the remote control, are located in each Conference Room. We also have available highly portable XGA data projectors that can be used in breakout rooms or the lounge.

Collaboration mechanisms: All Working Groups are entitled to a private, shared Web area where you can exchange and archive working documents, references, data sets, etc. Upon request, we can enable an online discussion forum within this private Web area. We can also set up a private email list for the use of your group. Particularly when using our servers to conduct analyses, you may also find it useful to store files directly in the “visitor” account or (upon request) an account reserved only for the use of your Working Group. All files on our servers are archived via nightly tape backups. Please contact any of the computer support team for more details about setting up these facilities for your working group.

Telephones: We have two Polycom speaker/conferencing phones available for use upon request (contact Nick/Thomas). A toll-free conferencing number is available for your group to use in case you need to involve multiple remote parties in your call. Please contact Joan Dandona in NCEAS’ Front Office for details about setting this up.

Videoteleconferencing (VTC) is an increasingly convenient way to involve off-site participants in Working Group meetings. NCEAS offers 3 primary VTC solutions:

- **iChatAV** for remote Macintosh users with iSight cameras
- **Polycom V7000** for dedicated high-quality videoteleconferencing with other sites that also have the popular Polycom or Tandberg dedicated VTC systems.
- **Marratech** for flexible, multi-way VTC with any computers equipped with webcams and microphone/speakers. This solutions requires that the remote users download and install free software that operates on Windows, OSX and Linux.

For any of the VTC solutions, we recommend some advance preparation to assure smooth functioning. Our computer support team is happy to assist the remote participants in configuring their systems to operate most effectively with our videoteleconferencing solutions.

DVD and CD-recorders are available for archiving documents and data files for individual Working Group members to take back to their home institutions, if Web access is not readily available at home institutions. A DVD can archive about 4GB of...
information, and a CD about 700MB of information. We also have available for loan USB flash drives in various sizes from 512MB up.

Please contact Nick or Mark for further information about any of these services.

**Digital Library Services:** Computers networked at NCEAS are inside the UCSB.edu domain, and can access the California Digital Library, a rich set of digital resources including full text of many scientific journals. See details at – [http://www.library.ucsb.edu](http://www.library.ucsb.edu) and [http://www.cdlib.org](http://www.cdlib.org)

**Technical Assistance:** Our computing support staff is available to help you on-site during the normal business hours of your meeting, and by special request on weekends or after-hours. We are also available for assistance via email at help@nceas.ucsb.edu. Our contact phone numbers are posted in the Conference Rooms if problems arise while we are not around. We are here to assist you in having a smooth and productive meeting!

NCEAS’ Web site-- [http://www.nceas.ucsb.edu](http://www.nceas.ucsb.edu)  
NCEAS’ Help Wiki site-- [http://help.nceas.ucsb.edu](http://help.nceas.ucsb.edu)

**Computing Support Staff:**

Nick Brand, Systems and Network Administrator ([brand@nceas.ucsb.edu](mailto:brand@nceas.ucsb.edu))  
Thomas Hetmank, Desktop Support Administrator ([hetmank@nceas.ucsb.edu](mailto:hetmank@nceas.ucsb.edu))  
Rick Reeves, Scientific Programmer/Quantitative Analyst ([reeves@nceas.ucsb.edu](mailto:reeves@nceas.ucsb.edu))  
Jim Regetz, Ph.D., Scientific Programmer/Quantitative Analyst ([regetz@nceas.ucsb.edu](mailto:regetz@nceas.ucsb.edu))  
Mark Schildhauer, Ph.D., Director of Computing ([schild@nceas.ucsb.edu](mailto:schild@nceas.ucsb.edu))
Overview: NCEAS Scientific Computing

NCEAS offers a broad array of Scientific Computing to Working Groups. Since each group can have a unique set of analytical needs, it is important to prepare and consult with our Analysts in advance in order to best meet your objectives.

Your group’s working relationship with Scientific Computing begins prior to your group’s arrival at NCEAS, builds during your session, and may even continue after your meeting adjourns. The process typically begins one month prior to the start of your meeting at NCEAS. A Scientific Computing team member will contact your working group’s Analytical Lead to discuss the group’s computational and data management requirements. Our intent is for this initial contact to evolve into a written plan detailing the computational tools, data management methods, and consulting services that NCEAS will provide.

Once this plan is developed, Scientific Computing will implement it prior to your group’s arrival at NCEAS. When your group arrives at NCEAS for its initial meeting, we will meet with your key analytical personnel to orient them to the computer and software resources that have been prepared. During your group’s stay, Scientific Computing staff and resources are available to assist with the group’s computing-related tasks. At the end of your meeting, we will help your group archive your results. Through special arrangement, NCEAS computing resources can be made available to your group AFTER your meeting has ended. Our Linux servers, each with multiple CPUs and access to 16GB of RAM, are ideal for running long-term and large analyses and models, even when analysts are off-site. NCEAS also has a number of computers available in a cluster formation (ROCKS) that provides additional computational capabilities for residents and guests.

Registering your data products: NCEAS is committed to making ecological data available to the broader scientific community, and your Working Group can assist in this effort by contributing its valuable data to our archive, where the data will be preserved and potentially useful for future integrative research studies. As a condition of their acceptance of NCEAS funding, all Working Groups have committed to adhering to NCEAS’ data policy which:

- Requires that derived data generated during an NCEAS research project be well documented and made publicly available. NCEAS provides technical assistance to do so.
- Urges that data used to generate derived products be well documented and made openly available. NCEAS provides technical assistance to do so.
- Respects the intellectual property rights of data owners who use their data in NCEAS research projects.

To achieve these goals, we require that all derived data created at NCEAS be well documented and made publicly available within the Knowledge Network for Biocomplexity (http://knb.ecoinformatics.org; KNB). Upon your arrival at NCEAS, a member of our scientific computing staff will meet with you to discuss your project’s data requirements and projected output data products with respect to our Data Policy. A member of the NCEAS Scientific Computing staff will maintain contact with your group’s Analytical Lead after your final meeting to assist them in completing the registration of your NCEAS-related data products.
Computing and Analytic Resources at NCEAS: NCEAS strives to offer a broad range of Scientific Computing resources to visiting Working Groups. Specific versions of software available may vary by platform. Staff expertise in these packages varies, but we are happy to work with you to identify the most appropriate software package for your needs. In general, NCEAS encourages use of software that is a) multiplatform; b) best-of-class; c) scripted; d) affordable. These features are highly conducive to accomplishing robust, verifiable, collaborative scientific analyses. In addition, our Scientific Programmers are often aware of useful free, open-source options for your scientific analyses.

Advanced Quantitative Software Tools: The following applications are representative of the software available during your association with NCEAS. If you do not see your specific software of interest, please contact one of the computing support team:

- **Languages**: Fortran, C/C++, Java, python – some in multithreaded and parallelizable versions
- **ESRI ArcGIS**: Geographic Information System
- **GRASS**: Geographic Information System
- **MATLAB**: Numeric computation and visualization
- **Mathematica**: General-Purpose Mathematics, computation, and visualization
- **MetaWin**: Interactive meta-analysis toolset
- **Morpho**: Data and Metadata management; NCEAS Data Repository access
- **Microsoft Office** suite, including Excel and Access
- **PostgreSQL**: Open-source relational database management system
- **R Statistical software** (open source version of S-Plus)
- **SAS**: Comprehensive statistical application and data management
- **Various Linux**-based data processing tools software development environment, and scripting languages (shell scripts, Perl)

Graphics and Data Visualization Tools: In addition to the graphical capabilities of the software packages listed above (e.g., MATLAB and R), NCEAS provides the following software tools:

- **Adobe Acrobat, Illustrator, and Photoshop**: Desktop publishing and image enhancement

Quantitative methods and data management consulting: With advance notice, NCEAS Scientific Computing can assist your group in devising and implementing efficient and accurate quantitative methodologies that maximize group productivity during your stay. We work with the designated analytical lead in your group. Here are a few examples of NCEAS-supplied services:

- Identify appropriate statistical techniques (and the software tools to apply them) to support your group’s analytical work.
- Assist in designing and implementing a database architecture to contain and facilitate exploration of your group’s data.
- Design custom scripts to automate use of the NCEAS-hosted analytical software. For example, we can design and code R or SAS processing scripts that efficiently import, process, and export your data.

- Host a password-protected or publicly accessible Web site for your Working Group, to facilitate data sharing and access during and after the meeting.

- Assist you in registering the datasets related to your NCEAS Working Group activities in the NCEAS Data Repository (http://data.nceas.ucsb.edu), which is part of the Knowledge Network for Biocomplexity. This repository contains information (in the form of metadata) about the research data sets collected and collated within or under the auspices of NCEAS' funded activities, including most Working Groups. For activities not associated with NCEAS, we can assist you in contributing your data to the KNB. Contact Scientific Computing for details: Rick Reeves (reeves@nceas.ucsb.edu), Jim Regetz (regetz@nceas.ucsb.edu), or Mark Schildhauer (schild@nceas.ucsb.edu).

In addition to these specific examples, NCEAS’ Scientific Computing team will gladly consider (with appropriate advance notice) specialized requests for services for your group.

1/30/2009