NISAC Meeting Report
3-5 Mar 2008, LTER Network Office, Albuquerque, NM

Attendees: James Brunt (LNO), Bill Michener (LNO), Will Pockman (SEV), Linda Powell (FCE), Ken Ramsey (JRN), Inigo San Gil (LNO), Mark Servilla (LNO), Wade Sheldon (GCE), John Vande Castle (LNO), Kristin Vanderbilt (SEV), Libe Washburn (SBS/MCR), Bob Waide (LNO)

NISAC Meeting Bullets and Action Items
- The Committee reviewed LNO priorities and recommended that they be accepted in their current state
- The Committee recommended that LNO deploy a prototype of the proposed Data Access Server architecture and recruit site IMs to test the system
- The Committee endorses the inclusion of funding for initial CI to support the decadal plan in the LNO renewal proposal, and Linda Powell and Wade Sheldon will provide a letter of support on behalf of NISAC to that effect for inclusion with the proposal
- Bob Waide will contact Corinna Gries and Nicole Kaplan regarding a letter of support from IMExec
- The Committee intends to continue conducting video teleconferences at least twice per year (September following the IM annual meeting, and February to prepare for the NISAC annual meeting). The annual NISAC meeting will be scheduled prior to the annual Science Council meeting, but preferably not directly associated with the SC meeting.
- John Vande Castle and Inigo San Gil will design a new survey, in consultation with John Hobbie and Tom Schmidt, to assess the extent of microbial genetics research being done at LTER sites and LTER-associated Microbial Observatories, and to update the Microbial Ecology web page at LNO. Based on the survey results, additional efforts may be initiated to assess the data archival and analytical needs of this community to guide future NIS development
- Wade Sheldon will organize the CI implementation matrix into an annotated Gantt chart, and begin to fill in the CI Implementation Plan document outline. The outline will then be divided up and distributed to NISAC subgroups for completion. The completed draft will be given the IMExec for comment and then submitted to the EB for consideration
- The Committee will review the 2004 document describing the process for proposing a new NIS module (prepared at the request of the former LTER Coordinating Committee) and revise as necessary to reflect the new LTER governance structure, then submit to the EB for consideration
- The Committee will review the original NISAC charge, and discuss any necessary clarifications or revisions to roles and responsibilities with the EB
- The Committee will improve transparency of its activities by 1) sending VTC and meeting agendas to Phil Robertson and IMExec co-chairs in advance to solicit input, 2) sending minutes and reports from meetings to Phil Robertson and IMExec, 3) posting dates and times of upcoming NISAC VTCs and meetings on the IMC web site.
- Will Pockman agreed to serve as domain science co-chair when Deb Peters' term ends in May, but further discussion of membership rotations was deferred to a May/June VTC due to the high number of meeting absences

LNO Renewal Proposal Report – Bob Waide reported that the first draft of the LNO renewal proposal was close to finished, and would be sent out to friendly review and technical editors by mid-March. The full proposal is due at NSF March 30, 2008. Support will be requested for CI work in anticipation of the decadal plan. NISAC and IMExec should be prepared to provide input to LNO on priorities if requested funds are not received, because some current support staff

positions are contingent on these funds. Letters of support from NISAC and IMExec for augmented CI funding in the LNO renewal proposal were requested.

Shared CI for Environmental Observatories Workshop Report – James Brunt reported on a recent NSF workshop convened by Peter McCartney (NSF OCI) on Shared CI for Environmental Observatories. LNO provided web hosting and logistical support for this workshop. NSF is seeking community input on ways to enhance collaboration on CI development for EOs and foster re-use of existing NSF-funded technology to reduce the number of overlapping proposals and redundant technology development efforts. Participants recognized the need to work together, and identified organizational coordination and shared standards as critical, followed by adoption of shared CI. Service level systems for establishing shared code and data repositories were also considered critical, and discussions are planned with DataNet. An RCN proposal is also under discussion. A workshop report will be available at the end of April 2008.

NIS Development Projects Report – Mark Servilla reported that about 70% of NIS development effort is focused on the EcoTrends dynamic web site, which leverages other NIS efforts including the PASTA framework (providence-aware synthesis architecture) and EML-based dynamic data loader, as well as new dynamic plotting programs. Christine Laney is re-factoring data structures and source data to resolve changes to site information systems since the project began. 960 data sets have been registered so far, but this is expected to increase to over 20,000 after census data acquired by CWT are incorporated. NISAC will provide an initial review of the dynamic EcoTrends web site technology, then broad community feedback will be solicited after all content is in place. Other initiatives include testing the Data Access Server architecture for standardizing access to site data based on the network data access policy, and preparing a request for comments by the IMC on web service models for computer-to-computer network data exchange.

IM Committee Training Workshop – Kristin Vanderbilt reported that an IM Committee training workshop will be conducted in the computer training lab at LNO on May 20-22, 2008. Topics will include XML/EML authoring, XSLT style sheet development, agile web interface development with XForms, and cyber-security. Participation is limited to 20 people. Logistics are currently being finalized.

Network Outreach Projects and Proposal Report – Bill Michener reported on the status of several network outreach proposals, including an NSF INTEROP proposal involving LTER and about six other institutions that is currently pending, and DataNet, a large scale data preservation and curation architecture proposal involving several large corporate partners (IBM, Intel) and multiple academic partners across 3 continents. The DataNet pre-proposal was approved, and the full proposal has made it to the final round, with an NSF site visit schedule in early May 2008. Future discussions with National Lambda Rail and Internet-2 are also planned regarding enhancement of Internet connectivity to LTER sites.

Genomics Metadata Interoperability Report – Based on discussions with Tom Schmidt (KBS) following a post-ASM workshop on microbial genetics research in LTER, Inigo San Gil (LNO) was selected to represent LTER to the Genomics Standard Consortium to foster collaboration on metadata standards development. Inigo attended the GSC meeting in November 2007 and presented an overview of EML. Inigo agreed to advise the GSC on development of a metadata standard for describing environmental genomics data, and to collaborate with developers on metadata editors. Inigo, Wade Sheldon and others also published a paper describing potential

linkages between EML and GCDML (the GSC metadata standard) in OMICS: A Journal of Integrative Biology.

IM Committee Projects and Priorities Report – Corinna Gries (CAP, IMExec co-chair) reported on current IMExec projects and priorities. IMExec is currently revisiting governance issues to improve how decisions are made in IMExec and IMC. Currently decisions are consensus-based, but this is viewed as unsatisfactory. A working group is exploring potential rules and bylaws. An environmental information management conference is planned for September 2008 in conjunction with the annual IMC meeting. This conference will provide opportunities for IMC members to present peer-reviewed papers and interact with other informatics professionals and researchers. (NISAC members Wade Sheldon, James Brunt and Bill Michener are also on the program committee). A minor revision of the EML schema is also planned to correct validation issues with recent XML parsers and editing programs. A new IMC website is also available at LNO, and a section was included for reporting NISAC committee news.

The need for an overall framework to guide CI development in LTER was also discussed. CI development at LNO and sites is currently not well coordinated, and working groups do not have well-defined mechanisms for "plugging in" products to larger CI initiatives. This will require better definition of technical specifications, development of shared network code repositories, and new governance models to task and evaluate working groups collaborating with LNO on CI development. Fully engaging IMs and IMC working groups in network CI development projects will require better recognition and support of network-level participation by sites, development of evaluation and feedback mechanisms, and novel funding mechanisms to support sustained engagement of IMs and LNO developers.

CI Implementation Plan Feedback from IMExec – Wade Sheldon presented a report on feedback from a set of CI implementation questions presented to IMExec during a Feb 2008 VTC meeting.

1. How can we enhance and support these efforts to ensure that products are delivered as needed to support network CI (and contributors are rewarded and recognized)?

- Establish criteria for workgroup meetings and mini sabbaticals
  - Have work group proposals submitted and evaluated by IMExec etc.
  - Ask for timelines, milestones, outcomes, products etc. to evaluate
- Establish mechanism for evaluating training session success
- Establish mechanism for establishing new training sessions
- Example: the unit dictionary has been singled out as a project with good use cases which make application obvious.
  - However, it has become enough of a 'product' for the people involved, that they are no longer putting effort into it
  - Need to finish it and the web application
  - Should evaluate unit dictionary project - both the process and product

2. LNO/IM collaboration on software and standards development will be critical for CI implementation, so what specific strategies can we propose to overcome these barriers for future collaborations?

- Discussed in 2007 IM Meeting working group (Eda Melendez)

- Use dotProject to track status of LNO/NIS project online (LNO scheduling tool)
- Sites need to recognize importance of network activities (free up IM time)

3. What strategies or metrics should be established to ensure that sites use these new resources as intended (i.e. rather than to augment site-based activities)?

- Metrics could document completion of milestones of network projects
- If more support is available for additional personnel, then IMS Review Criteria should be re-visited to ensure it reflects work on network CI that supports network science
- In addition, functionality level should be included in the review criteria as our functionality must change to support science as well (eg, cyber-security)
- Encourage anticipation in new scientific and CI initiatives

4. What process should be used to select the components of a common baseline system? Would a packaged solution, such as the "point of presence node" described in the CI plan be sufficient to meet this need, or should sites be encouraged to migrate towards more consistent IT implementations?

- Define management framework, which includes people, procedures.
- Define technical framework, which includes standards, protocols, IT
- An integrated framework should meet well-defined functions

5. What potential funding mechanisms would be most effective for increasing IM participation in network activities (e.g. additional FTEs, site supplements, funded sabbaticals, mini-grants, product-oriented workshops, NCEAS proposals, etc.)?

- All of the above - encourage including IM in supplemental proposals and seeking other sources of funding, such outside agencies, foundations, etc.
- Locate other sources of funding for funding of applied projects (e.g. Common data products, as ClimDB was)
- Should expect assessment of how the funding was applied and how successfully

IM Committee Working Group Status Reports – Wade Sheldon reported on active IMC working groups, based on information from IMExec:

- Training: Kaplan (SGS), Vanderbilt (SEV), Michener (LNO)
- Unit Registry: Ackerman (NWT), Garritt (PIE), San Gil (LNO), O'Brien (SBC)
- EML Best Practices: Gries (CAP), O'Brien (SBC), Ramsey (JRN), Sheldon (GCE), Brunt (LNO)
- IMC/LNO Partnerships: Melendez-Colom (LUQ), Brunt (LNO)
- Governance: Collins (CWT), Brunt (LNO)

The CI Implementation Plan should discuss how the goals of the working groups may fit into the overall plan and how their activities should be directed. For example, NISAC may review goals, technical aspects, and milestones, then IMexec and LNO receive the technical review from NISAC authorize or request resources to support the working group and manage the project and products.

NSF Conference Call with Peter McCartney and Henry Gholz –

Henry Gholz:
- We seem to entering a totally new phase with IM, and creating and developing a new context: EcoTrends, migrating web services to the network office, network level functionality, sociology of doing IM
- EONs are in the same situation that we are. Language sounding similar to LTER.
- Other EONs are in various stages of planning and approval - need representation at high level in this process.
- In times of level funding, must think down the road to look for possibilities to get funding. Who knows what's going to happen in next few years – there won't be increases next year, probably. We're a couple of years down the road from anything new.

Peter McCartney:
- Held workshop on shared CI for environmental observatories, bringing together CI and research people to foster dialog
  - Cost to develop large-scale CI staggering, and comes out of research funding.
  - Discussion areas:
    - What are some things that are common across all CI plans and how can we think about doing things in leveraged way across observatories? Data archiving emerged as common need. Back end, long term storage. Group felt a proposal about this would be good.
    - Combined single-login type security system
    - More compatibility and identifying areas of standardization (e.g. attribute measurement ontologies). Scientists want to pull data from multiple programs, but they are stymied by different syntaxes. Measurement ontologies could be point of articulation among observatories.
    - Mechanisms for maintaining organization - something like TDWG, OGS
  - Outcomes: report being drafted. Working group with grant to NCAR will have meeting in May to reprise the same discussion there. Will come up with concrete plans to keep organization persistent (e.g. RCN grant). Mostly the workshop was about what people want to do, and less about how to fund it.
- Need way to buy-down cost of CI. Need to move these costs to part of foundation that have money for CI (e.g. OCI), but without guidance, OCI will put money into wherever they get strongest signal it's needed. Strong signal now is from petascale computing world, which is not the scale we need. We need a consortium that represents whole observatory network to have voice at a comparable scale.
- Can't expect OCI to fund "LTER this or that" but we could work with other observatories, identify common threads, and figure out how a limited number of awards can be made that benefit ALL observatories (critical middleware and glue investments needed to get components connected)
- Recognition that coordination activity needs to take place at the science and CI level. Need more science interaction between observatories. Get synergies at science and CI levels

CI Implementation Plan Discussion – Extensive discussions were held on how to move forward with the CI Implementation Plan. Various strategies were debated, including approaches used in emerging environmental research networks and information system approaches to developing strategic vision and implementation plans. In order to make tangible progress, we created a matrix of specific CI Initiatives listed in the CI Strategic Plan document:

- Service-oriented architecture

- Site Level CI
- CI for discovery, access, and integration
- CI for modeling and analysis
- CI for Collaboration
- Integrate CI into socio-ecological research, education, and training
- Collaboration with other observatories

We then began to identify specific activities that would advance each of these initiatives. Activities were prioritized into near-term, mid-term and long-term categories based on logical succession and funding required. Specifically, activities that are already planned or could be pursued with existing resources (e.g. by re-prioritization) were considered near-term, activities that could be pursued with additional funding already including in the LNO renewal or in the interim CI funding estimates provided to NSF by Corinna Gries et al. were considered mid-term, and activities that would require entirely new lines of funding be developed were considered long-term priorities. Based on these discussions 43 specific activities were identified, and these activities were further prioritized within time-line categories.

The following structure was then proposed for the CI Implementation Plan document:

1. Reiterate challenge
2. Revisit strategies for CI Process
3. Prioritize
    a. Criteria used to prioritize based on data types/science question
    b. Other group activities
4. All tasks by initiative
    a. Overview/Gant chart with color-coding
    b. Per task:
        i. Dictate responsibilities
        ii. Activities
        iii. Timeline Rationale
        iv. Intro including ties to science question (how would enhance ease, scale)
5. Conclusion
    a. Funding strategy discussion (need short-term IM funding for network activities;
    b. Governance considerations
        i. Standards/protocol approval process
        ii. Compliance enforcement/reporting mechanisms

Work is currently under way to complete this draft based on the prioritized CI activities. When complete, the draft document will be vetted through IMExec and then submitted to the EB for consideration.

NISAC Co-Chair election and membership rotations – Deb Peters is scheduled to rotate off of NISAC in May 2008, and Will Pockman will take over her position as science co-chair. Discussion of other membership changes was deferred to a post-Science Council VTC in late May 2008 due to the low attendance at this meeting.

Attendance Notes: Deb Peters, Chuck Hopkinson, and Alan Knapp were not able to attend the meeting due to prior commitments. Libe Washburn, John Vande Castle, and Linda Powell were also not able to attend in person, but participated in portions of the meeting remotely via Polycom VTC or conference call as possible. Corinna Gries (IMExec co-chair), Peter McCartney (NSF OCI) and Henry Gholz (NSF BIO) also participated by conference call.