

**Arctic GIS Planning Meeting Summary**  
Bell Harbor International Conference Center, Sound Room  
Seattle, Washington  
30 October 2003

The Arctic Research Support and Logistics (RSL) program in the Arctic Sciences Section of the Office of Polar Programs at NSF is interested in facilitating developments in Arctic Geospatial Information Infrastructure (Arctic GII) as a research support activity. In January 2001 the RSL program sponsored a workshop to discuss the need and potential for improved geospatial data infrastructure to benefit arctic research (<http://www.arcus.org/gis>). Several spatial data information projects have been sponsored by the RSL program since that meeting.

As a follow-on activity to mature the development of circumarctic GIS and other arctic information infrastructure, a meeting of opportunity was held on October 30, 2003 in conjunction with a larger arctic research conference (SEARCH Open Science Meeting). The meeting was to discuss important next steps in implementing improvements to Arctic GII. The following is a brief summary of the meeting discussion. For more information, please contact Renee Crain ([rcrain@nsf.gov](mailto:rcrain@nsf.gov)) or Helen Wiggins ([helen@arcus.org](mailto:helen@arcus.org)).

**Next steps and priorities**

1. Internet Map Server or other visualization tool for lower-end users
  - NSF project locations and descriptions searchable by several criteria
  - Decision support tool for planning future instrumentation, cruise scheduling, etc.
  - Eventually add other agencies and nation's projects
2. Circumarctic framework layer GIS server
  - Low resolution, big picture GIS to provide basic layers for users
  - Simple analysis tools available
  - Outreach and education purposes
  - Way to share data/imagery among broad set of users
3. Develop regional or topical GIS nodes for research
  - Link nodes through portal
4. More sophisticated visualization and analysis tool for science users
  - More available data layers
  - Map generation capability

**Develop in parallel**

1. Arctic Geospatial Portal
  - One starting point for all audiences
  - Link to web map servers, metadata clearing houses, data archives, etc.
  - Investigate possible linkages with Geospatial One-Stop
  - Investigate international collaborations for arctic GII
2. Distributed Metadata and Data Clearinghouses
  - PIs submit metadata formatted to FGDC standards to recognized data centers: searchable, archived
  - Concentrate on current and future rather than past metadata
  - Allows data to live close to source but be located by other users through metadata searches
  - Emphasize credit for data publishing—recognize those who publish data that are used by others

## **Key Discussion Points**

### Data Acquisition:

- More accurate DEMs for Alaska and elsewhere in the Arctic to detect change (2m resolution)
- More high-resolution imagery for circumarctic
- Collaborate with other federal agencies for purchase and distribution of imagery

### Data and metadata:

- Simplify the process for researchers to comply with NSF/OPP requirements and submit FGDC standard metadata to clearinghouses
  - Metadata template that is 'friendly' to use but complete enough for searches
- Data can be archived with data center as option to PIs who don't want the hassle, while others can keep their own data as long as metadata are accessible to others
- Clearinghouses should notify researchers when data are accessed by other users
- Simply way to keep data/metadata updated at clearinghouses
- Foster a culture that values data publishing by citing data used and crediting data published—careful to monitor for unacknowledged data
- Certain data will need to be password protected or time-delayed, depending on sensitivity

### Circumarctic web-based portal to Arctic Information Infrastructure:

- Design web portal that provides access and searchability to metadata at distributed nodes/repositories and also data when available that gives contact info for research to be contacted for information about the data
- Geospatial display of data that are available for the arctic
- Framework layers available for download
- Intuitive web-based operation for low-tech users to visualize information
- GIS application driven for high-end users to download layers for manipulation or manipulate online
- Managing and archiving metadata and data are key issues to resolve for a functional portal
- International connections to share data and information
- Avoid duplicating what others have done

### Improvements that would facilitate healthy Arctic Information Infrastructure:

- Ensure that PIs receive a letter notifying them of data standards requirements because it goes to the University and may never reach PI
- Develop simple instructions and templates for complying with FGDC metadata standards for projects and submitting them to repositories.
- Obtaining simple information like project locations can be arduous. Possibly ask for lat/long with annual reports, since locations often change dramatically from first proposal submission and many NSF projects do not have a spatial component

Anticipated outcomes:

- If one builds a robust system, people will want to join and contribute their data
- Even a simple visualization tool will help decision-makers, media, etc.
- An incremental approach can add functionality to the portal to eventually meet needs of entire user spectrum

Continuing development of Arctic Geospatial Information Infrastructure:

- Proposals to develop data nodes, acquire spatial data for broad use of the arctic research community, and develop circumarctic information infrastructure are currently entertained under the Arctic Research Opportunities program solicitation (NSF 03-574) within Arctic Research Support and Logistics
  - PIs are encouraged to submit proposals to NSF
  - Proposals will be reviewed and funded based on merit
- Information about developments in Arctic GII will be distributed through the ARCUS web site at <http://www.arcus.org/gis/index.html>.
  - Funding opportunities
  - New developments
  - Available data sets and links to related information