Arctic LCC Progress Report

1. PROJECT INFORMATION

Title:	Data rescue and inventory of hydrology-related data in Arctic Alaska
Report period	*Oct 1, 2012-Sept 30, 2013*
Report submission date	*September 12, 2013*
Author of Report	Jessica Cherry

Principal Investigator(s), Co-Principal Investigators and Recipient Organization(s):
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2. PROJECT OVERVIEW

a. Briefly (4-5 sentences) describe both the research purpose and the underlying need for this research.

This project was designed to inventory, capture, and make available hydroclimate data to use in support of network planning, monitoring, and research. These data have historically been dispersed among multiple agencies and investigators and have not been available to the general public in a single searchable database. The inventory portion of the project helped support planning of future networks. The data capture and distribution has made it possible to archive and serve data for other Arctic LCC projects.

b. List the objective(s) of the project, exactly as described in your Statement of Work.

Overall Project Objectives (Phase 1):

- Inventory and acquisition of hydrologic and related data held by entities such as the USFWS, BLM, USGS, NSF, DOE, MMS, UAF, ADNR, ADFG, ADEC, other state and federal agencies, and the private sector. The focus of this inventory will be datasets that can be used to model how hydrologic processes may change and potentially affect fish and wildlife habitat under different climate scenarios
- Design a public database that will house data and metadata related to hydrology, water quality, climate and aquatic ecosystems in arctic Alaska and begin to populate with metadata
- Design and host a simple webpage with metadata, project description, and access to a geodatabase with station locations from the inventory
- Participate in FWS-or agency discussions on North Slope hydrology and hydrologic data

Overall Project Objectives (Phase 2):

- Archive arctic climate, hydrology and ecosystem data by other Arctic LCC funded projects and agency partners
- Use retrospective analyses of network data to aid the Arctic LCC and partners in efforts to refine conceptual models, select climate change indicators, and develop dynamic predictive models
- Prioritize the locations and parameters for future watershed monitoring efforts that most efficiently answer management questions and reduce the uncertainty associated with predictive modeling

Overall Project Objectives (Phase 3):

- Collaborate with another ALCC project led by Glen Liston of CSU to expand the spatial extent of the database and provided value-added data layers to that project
- Work with GINA project partners to design a web interface to the database

Overall Project Objectives (Phase 4):

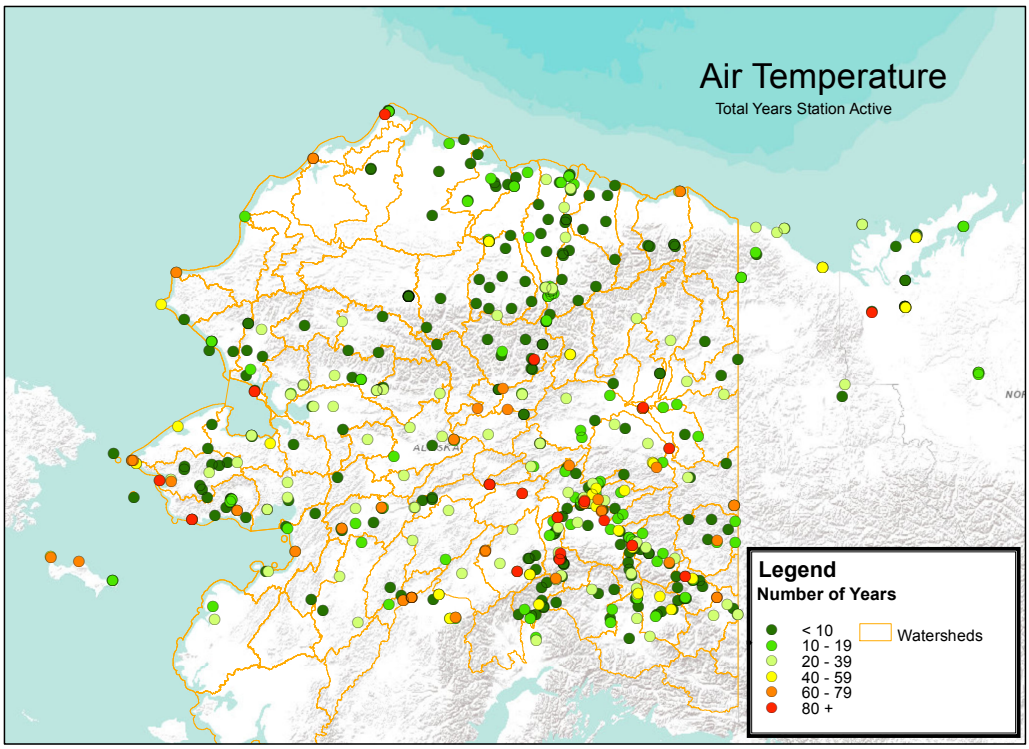
- Migrate the database to an open source format
- Collaborate with GINA partners to make full database available on the web

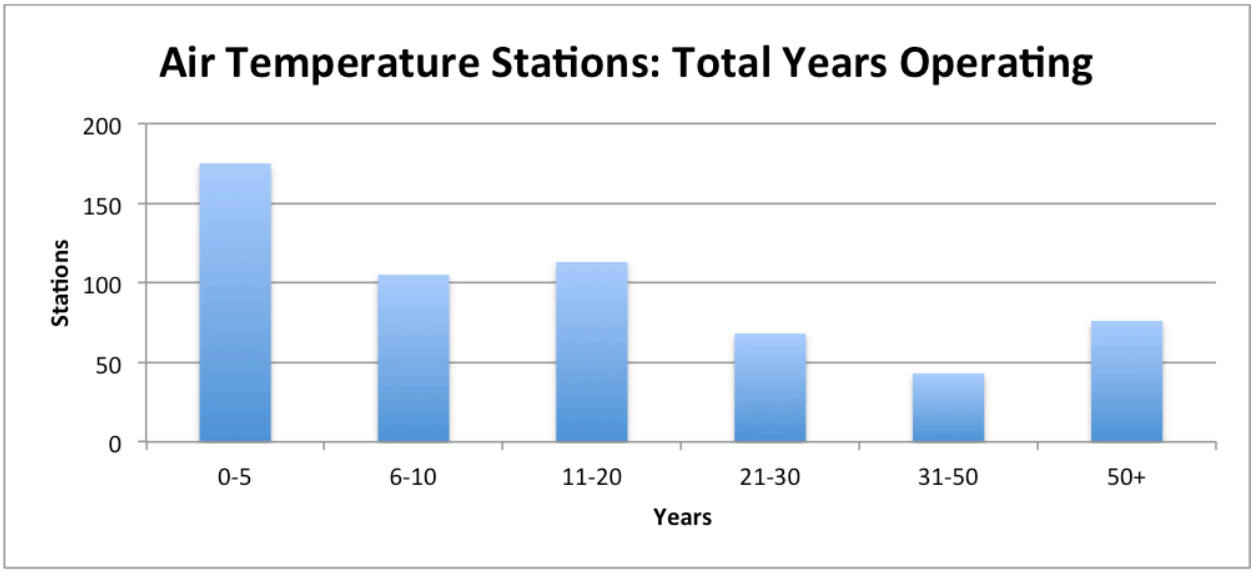
3. PROGRESS SUMMARY

a. Describe report period progress.

The report period covered the end of Phase 2 and Phase 3.

- *Data were archived (Phase 2)*
- *Retrospective data analysis was used in the published report (Phase 2)*
- *Priority areas were identified and recommended based on network analysis (Phase 2)*
- *We collaborated with Liston's group at CSU to expand the spatial extent of the database and provided value added layers (see example below, Phase 3)*
- *We are working with GINA project partners to design a web interface to the database (see attached status and work plan, Phase 3)*


Air Temperature
Total Years Station Active
Legend
Number of Years
< 10
10 - 19
20 - 39
40 - 59
60 - 79
80 +
Watersheds


Air Temperature Stations: Total Years Operating
Stations
200
150
100
50
0
0-5
6-10
11-20
21-30
31-50
50+
Years

Imiq - Hydro/Climate Database: Migration Status

Period of Performance: May 1, 2013 - September 1, 2013

PI: Tom Heinrichs, University of Alaska Fairbanks GINA
Co-Is: Jessica Cherry, UAF IARC; Jess Grunblatt, UAF GINA
proposed: March 26, 2013

Current status:
Funding-- not awarded/setup; all work to date has been performed on previous round of funding.
Technical status, talking points:

- Cheryl worked with Amy to establish an automated conversion from MSSQL to PostgreSQL of entire database
- This conversion is being performed weekly against most up to date database
- Development and Test databases are set up
- Waiting on award of funding to start work on web programming and interfaces

Next steps (first phase):

- Create simple, public-facing web interface
- Convert stored procedures and ingest tools to new, non-SSIS versions
- Gather feedback from developers and users

Tasks and Timeline

Below are the tasks from the SOW that are completed:

First 6 May 1st to September 1, 2013:

- ✓ Collecting the scripts, documentation, tools, and later applications built around Imiq.
    - ✓ Collect existing documentation (placed into Basecamp)
    - ✓ Create a project in the Pivotal Tracker project management system to start capturing and tracking user stories (aka requirements)
- ✓ Finish reviewing storage differences between Microsoft SQL Server & PostgreSQL
- ✓ Create a development database & separate development environment for testing.
- ✓ Automate the loading of the Microsoft SQL Server to PostgreSQL to allow Amy to continue working on HydroMET while GINA becomes familiar with the structure and stored procedures.
- ✓ Standalone Postgres database of “frozen” IMIQ MSS database.
    - Specs for delivery to Josh need to be investigated
- ✓ Weekly imports of IARCOD Microsoft SQL Server database into IMIQ PostgreSQL database.

b. Describe preliminary results.
Example results are shown above. Complete results available upon request. Other results available in the report on http://ine.uaf.edu/werc/projects/lccdatalibrary/index.html

c. Publications, conference papers, and presentations.
The published report is available on the website above.

d. Education and outreach.
Nothing to report

e. Other products resulting from the project.
The Imiq database is the major deliverable from this project and its metadata are currently available on the website above.

f. Describe any concerns you may have about your project's progress.
Delays in contracting of the final phase are the only concerns for this project's progress.

4. PROGRESS STATUS

Good progress has occurred in this project and the objectives of Phases 1-3 have all been completed. Once the No Cost Extension was processed, we have been able to stay on our timeline. We anticipate being able to meet the Phase 4 goals on time if our project partners meet their adjusted timeline, once the project is contracted.

Approximately 10 months remain in the contract period. In a meeting with the program manager on September 11, 2013 we agreed that the remaining project time will be spent on ingesting additional datasets from the Arctic domain, as well as ingesting major datasets from the remaining part of the state (predominantly Southern Alaska). We will continue to collaborate with GINA team members to develop the web access to the database.