

# ACADIS

## Advanced Cooperative Arctic Data & Information Service

**NSF Review Panel Meeting  
for the Advanced Cooperative Arctic Data and  
Information Service (ACADIS) project**

**May 6-7, 2014  
Boulder, CO**



# Wednesday

Time	Presentation/Discussion	Participants	Location
<b>Wednesday, May 7th</b>			
7:45am to 8:15am	<i>Coffee and morning refreshments</i>		Center Green Cafeteria
8:15am to 9:30am	NSF Review Panel Executive session	NSF Review Panel	Center Green Room 2503
9:10am to 9:30am	NSF Review Panel meet with Karen Anderson	NSF Review Panel/Karen Anderson	Center Green Room 2503
9:30am to 10:15am	Follow-up questions with the NSF Review Panel	Jim Moore/NSF Review Panel	Center Green Board Room
10:15am to 10:45am	Metrics – community service contacts and website statistics	Eric <a href="#">Nienhouse</a> , Lynn Yarmey	Center Green Board Room
10:45am to 11:30am	Summary of Year 4 plans and future directions	Jim Moore	Center Green Board Room
11:30 am to 12:00pm	Polar Community / <a href="#">EarthCube</a> / Cyberinfrastructure collaboration	Don Middleton	Center Green Board Room
12:00pm to 1:00pm	<i>Business lunch for NSF Review Panel members</i>		Center Green Room 2503
12:20pm to 12:40pm	NSF Review Panel Meet with Mark <a href="#">Serreze</a>	NSF Review Panel/Mark <a href="#">Serreze</a>	Center Green Room 2503
1:00pm to 1:45pm	Demo of Rosetta, ADE, and ACADIS Gateway	Sean Arms, Lynn Yarmey, Eric <a href="#">Nienhouse</a>	Center Green Board Room
1:45am to 3:30pm	NSF Review Panel executive session	NSF Review Panel	Center Green Room 2503
3:30pm to 4:30pm	Recommendations from the NSF Review Panel	NSF Review Panel members with Jim Moore and Mark <a href="#">Serreze</a>	Center Green Board Room

# ACADIS High Level Requirements - Current System

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- Handle long-tail data coming from NSF funded PLR/ARC Investigators
- Provide a system to address certain key components of the data “lifecycle”
- A team collaboration to meet and achieve goals
- Implement efficient methods to upload data and metadata
- Education and training
- Stakeholder involvement (questionnaire, direct contact)
- Be interoperable with other archives (e.g. services)
- Support special requirements datasets
- Ensure long-term stewardship of collections
- Proven technologies for operational software tools and interfaces

# Future High Level Requirements

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- Considerations for Supporting Arctic Data
  - Handle long-tail data coming from NSF funded PLR/ARC Investigators
  - A team collaboration to meet and achieve goals
  - Education and training (webinars, etc.)
  - Interoperability with other archives (e.g. services)
  - Enable efficient data reuse and integration (e.g. common formats)
  - User experience and outreach
  - Long term access and stewardship of the data
  - Listen to the science community (ADAC)
  - Maintain a high level of service for multi-disciplines
  - Address real time data handling

## Responses to Panel Questions

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- *The panel would like 2 sets of minutes from the PI higher level meetings (monthly) and the cross cutting minutes.*

Information will be posted to the EOL Read Ahead web site for the Panel

# Cross Cutting Notes

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## Cross-cutting Team mtg - Feb 12, 2014

Karen, Eric, Sean, Linda, Don S., Lynn

Top 6 priorities for the May meeting - discussion and planning

- self publishing interface and workflow
- search and ADE integration
- integrate Rosetta data conversion tool
- citation & DOI tools
- use metrics and reporting
- metadata

on metadata - present as stats

roadmap with focus on clarity

watch budgets, budget processes

ACADIS as a govt project wrt documentation, mission, etc

Intro to project management basics from Karen (see document sent to team)


Next steps for the new team

TO DO -





- Create a list of tools we use, and why we chose them over other tools (IRODS, noSQL, SPARQL)
- Give Karen Admin rights to Basecamp
- Schedule next CC mtg






# Cross Cutting – Create the Team

From Me  Reply Reply All Forward Archive Junk Delete

Subject **ACADIS Cross Cutting Team** 2/10/2014 7:25 AM

To Lynn Yarmey , Don Stott , eric nienhouse , sean arms 

Cc linda cully , jim moore , serreze@kryos.colorado.edu  Other Actions

Lynn, Don, Eric, Sean,

I would like to create a cross cutting group with one (or more, potentially) from each of these four groups, NSIDC, CISL, UNIDATA, EOL, who are leading the teams that are doing the day-to-day work. My preference would be to meet this Wednesday, Feb 12th, at 10:00am. NSIDC was suggested as a convenient location since it is somewhat in-between the other locations. Lynn, will this work?

If you are in the TO: line, please reply with your confirmation. If you are unable to attend, please suggest an alternate person. Since not everyone uses MeetingMaker, please add this to your calendars.

The purpose of this group will be to make sure each team understands what the other teams are doing at the day-to-day working level, and do discuss how the work fits into the project as a whole. We need to start documenting the project benefits to the Arctic community in preparation for the May NSF meeting. Frequency of future meetings will be decided in this meeting.

Best regards,  
Karen

--  
Karen Andersen  
Project Manager  
Advanced Cooperative Arctic Data & Information Service  
~ sponsored by the National Science Foundation ~  
Earth Observing Laboratory  
National Center for Atmospheric Research  
Boulder, CO  
[kanderse@ucar.edu](mailto:kanderse@ucar.edu)  
303-497-2010 office

# Cross Cutting Notes

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# Cross Cutting Notes – Basics of Project Management

## Basics of Project Management

A project, as defined for any organization, is a temporary effort to create a product, service, or result. Projects have a beginning and an end. The end of the project concludes with objectives that have been met, or, in some cases, the project is terminated early because the project is no longer required or the objectives cannot be met. A Project Manager is the person assigned with the responsibility to achieve project objectives.

The figure below illustrates the basic project management sub-processes that all projects experience.



Basic Project Management Process

### Initiate

Initiating a project is the process by which authorization exists to start a project. Scope is defined and financial and contractual obligations are defined. At this point, stakeholders should be identified. These are all people and organizations impacted by the project and who have an impact on project success.

Steps to initiate a project may include:

- Enlist a sponsor or customer
- Secure funding
- Name the stakeholders
- Complete contractual paperwork

### Plan

Planning for the project and creating the Project Plan is the most critical part of project management. A well-defined plan will prevent many unexpected issues related to costs, schedule, and risks. Lessons learned from previous similar projects, if available, are an integral part of creating a new project plan.

Steps to create a project plan may include:

- Collect and document requirements
- Define scope
- Create work breakdown structure
- Estimate cost and determine budgets
- Define and execute subcontracts
- Identify risks and a plan for risk management
- Draft a schedule
- Determine quality control requirements and process
- Draft a communication plan
- Determine technical requirements
- Determine metrics to be collected
- Instigate Configuration Management (CM)

### Execute

The execution phase of a project involves implementing the plan and completing the work.

This may include:

- Develop and manage the project team
- Distribute information
- Purchases if required
- Quality assurance
- Managing stakeholder expectations

### Monitor

Monitoring a project closely is essential to decreasing risks, staying on track with the project plan and key milestones, and ensuring adequate resources are available to carry out the work.

Monitoring elements may include:

- Budget/Performance Metrics
  - Earned Value Management (EVM), if required
- Schedule, milestone, and resource risks
- Technical risks
- Verifying and monitoring changes in scope
- Possible changes to the contract

### Close

Closing a project is the process to complete a project and gather and archive records of the project. This should include:

- Sign-off and acceptance from the customer or sponsor
- Archiving the documentation related to the project
- Conduct a review of the project with the customer or sponsor
- Document lessons learned
- Finalize accounting and procurements

#### References:

A Guide to Project Management Body of Knowledge (PMBOK Guide) 4<sup>th</sup> Edition, Project Management Institute (PMI®)

Fast Forward MBA in Project Management 3<sup>rd</sup> Edition, 2008, Eric Verzuh

*Created for the National Center for Atmospheric Research by Karen Andersen, February 2014*

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# Cross Cutting – Discussion of Priorities

A	B
	updated by KA, Feb 12, 2014

## ACADIS Project Priorities and Tasks

Self Publishing Interface & Workflow

Search & ADE Integration

Integrate Rosetta Data Conversion Tool

Citation & DOI Tools

Use Metrics and Reporting

Metadata

## NSF Review Panel Recommendations

need coordinated system design and system engineering process

need requirements, configuration management at the project level incorporate separate projects

evaluation process that led to software engineering practices

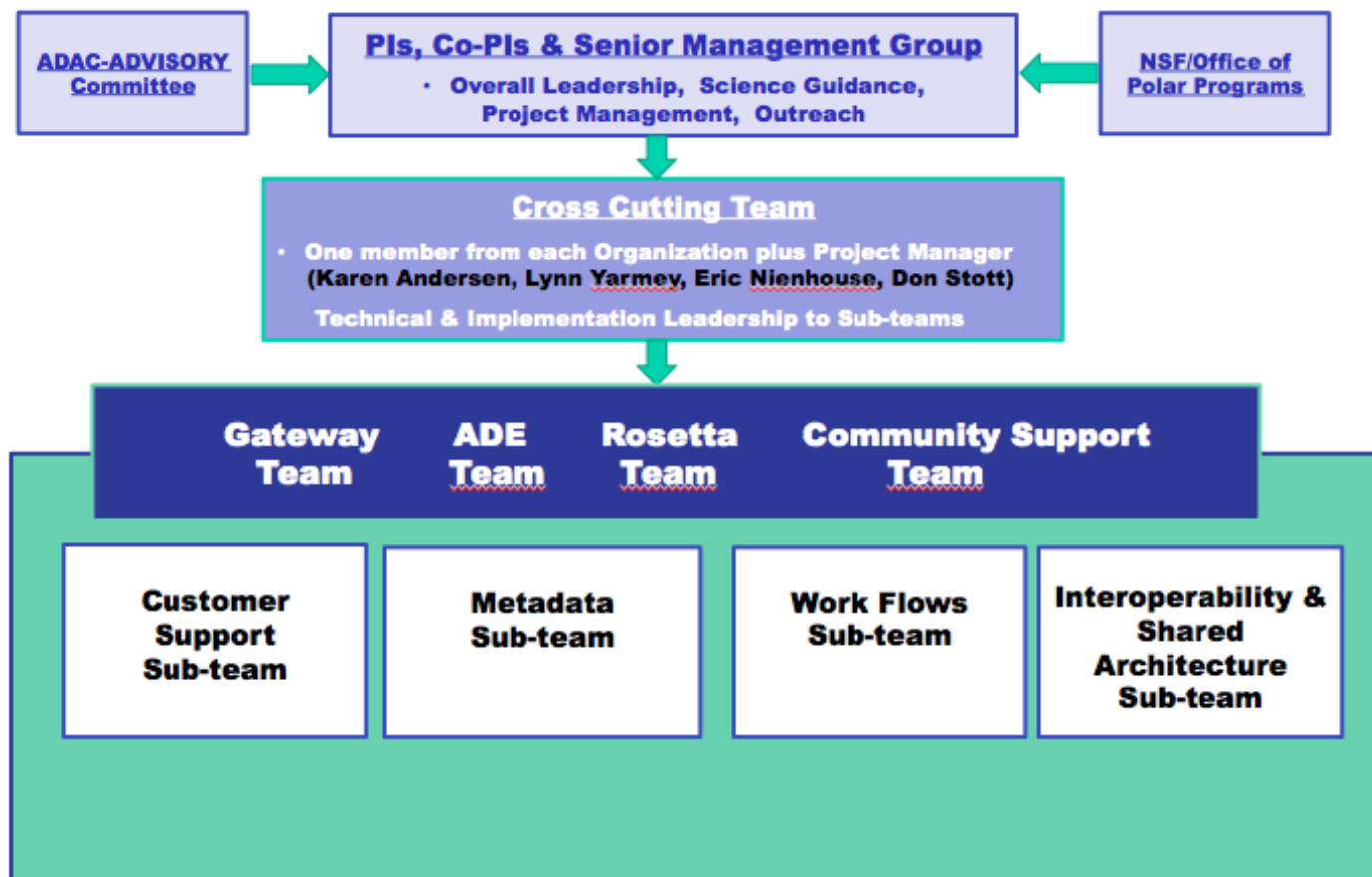
assign responsibilities for user services including phone number

A	B
	<b>ACADIS Advisory Panel Recommendations, June 2013</b>
	road map or workflow that describes how the individual pieces (completed, prototyped, and planned) will all come together and the timeframe and respective ACADIS partner roles and responsibilities for achieving respective milestones.
	number one priority from our perspective is that as many data as possible are available, easily discoverable – the capacity to download data in a universal format is less important. .
	year 3, end-to-end product potential must be developed. Again, seeing how all the various pieces (e.g. data ingest involving Rosetta, metadata entry, etc.; Arctic Data Explorer; ACADIS search) work together is the main goal here
	Automated interconnectivity of data and information through web services with other data centers and information brokers is an important issue that needs to be addressed. Is the ACADIS project taking advantage of new technology as much as possible?
	setup an automated web service with the ARMAP team
	One note of concern is that web searches for terms that are included in ACADIS metadata, and also in project descriptions, do not find the ACADIS web site.
	the ADAC meeting and NSF review, separate the meetings at least by a few days.
	suggest systematic approach to find PIs and contact them, determine correct archive, and determine plan for preservation
	explain why netCDF is being used under ACADIS and not under other funding
	strong relationship with community of data providers is essential for the feeling of ownership. identify contacts early in the project

# Responses to Panel Questions

- The panel would like to see a clearer organization chart

## ACADIS Teams, Responsibilities, & Decision Making



# Responses to Panel Questions

- *The panel would like to see a clearer organization chart*

## NSIDC

(Science Guidance, ADE Development, Customer Support, Metadata cleanup and maintenance, etc.)

**Mark Serrese**

**Lynn Yarmey**

Toni Rosati

Ruth Duerr

Lisa Booker

Stuart Reed

Luis Espinosa

Teri Hoyer

Siri Jodha Singh Khalsa

Brendan Billingsley

Gloria Hicks

Pamela Wyatt

Jane Beitler

Agnieszka Gautier

J. Reeves

*Michael Brandt – Student*

## NCAR

### EOL (FL1)

(PM, Special Req Datasets, Metadata cleanup, Customer Support, etc.)

**Jim Moore**

Karen Andersen

Steve Williams

Amy Honchar

Don Stott

Linda Cully

Janet Scannell

Scot Loehrer

Amanda Orin

Linda Echo-Hawk

C. Brooks Snyder

*Yuan Sui – Student*

*Eric Dattore - Student*

### CISL (ML)

(Gateway Development)

**Don Middleton**

Eric Nienhouse

Nathan Hook

Jason Cunnings

Christy Grant

Brian Bonnlander

### UNIDATA (FL4)

(Rosetta Development)

**Mohan Ramamurthy (Director)**

Sean Arms

Jennifer Oxelson Ganter

Jeff Weber

## Responses to Panel Questions

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- *(Combined) The panel would like to see some traceability to the requirements. The panel would like information on how high level management tasks are connected to the actual programming tasks.*

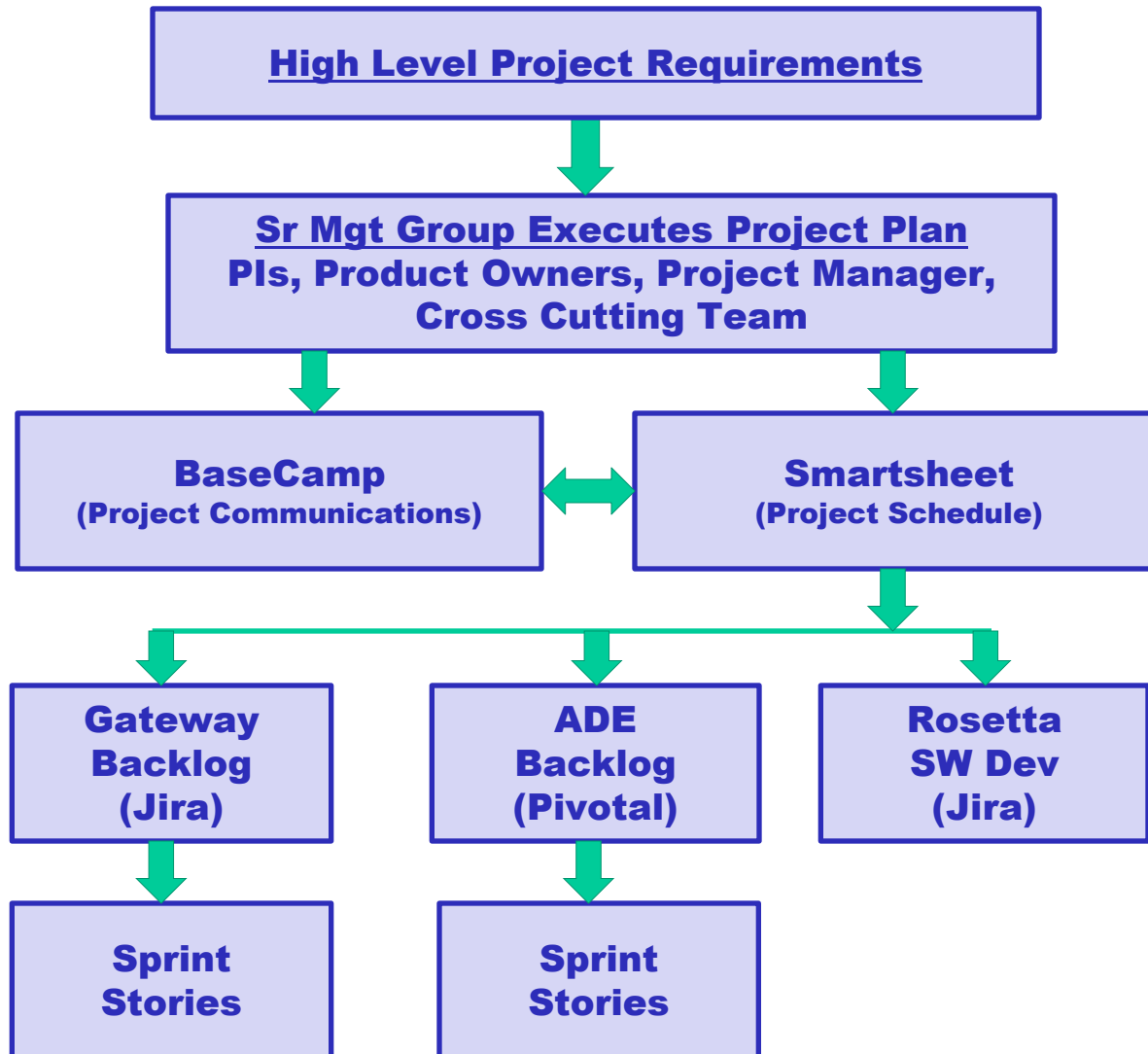
# ACADIS High Level Requirements - Current System

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# ACADIS Core Requirements to Software Development

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## Responses to Panel Questions

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- *The panel would like to see up to date information regarding the level of commitment (to other projects and to ACADIS) for the senior personnel and PI.*

### UCAR Team

EOL -

Jim Moore, PI: 30%

Karen Andersen, Project Mngr: 100%

Don Stott, Software Eng: 70%

Amanda Orin, Software Eng: 90%

Student Assistant II: 2 at 50% each

Janet Scannell, Software Eng: 25%

Steve Williams, Associate Scientist: 15%

Brooks Snyder, Software Eng: 10%

Linda Cully, Software Eng: 8%

Linda Echo-Hawk, Software Eng: 5%

Scot Loehrer, Associate Scientist: 5%

CISL -

Don Middleton, Co-PI: 10%

Software Developers: 2.25 FTE

(this funding goes to a software team, and not to specific individuals)

Eric Nienhouse, Gateway

Product Owner: 20%

UNIDATA -

Mohan Ramamurthy, Co-PI: 5%

Sean Arms, Software Engineer: 40%

Jennifer Oxelson, Software Eng: 10%

Jeff Weber, Project Manager: 10%

# Responses to Panel Questions

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- *The panel would like to see up to date information regarding the level of commitment (to other projects and to ACADIS) for the senior personnel and PI.*

## **NSIDC Team**

M. Serreze, PI: 10% (approx. 1 month, summer, Serreze is CU Teaching Faculty)

Lynn Yarmey, CO-PI and Data Curator: 100%

Toni Rosati, Data Curator: 100%

Software Developers: 2.0 FTE (this funding goes to software teams, and not to specific individuals)

Student Developer: 50% GRA

Lisa Booker, User Services: 10%

Systems Administrator: 5%

Terri Hoyer (Web Designer): 10%

## Responses to Panel Questions

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- *The panel would like information on how user feedback impacts your agile process in the form of a serious case study. This may include 2 examples of use cases 1) success story from a PI.*

The ACADIS Team has not had sufficient time to fully address this request. However, an appropriate example is our response to criticisms raised by the PI of the “O-Buoy” project (Arctic Ocean drifting buoys). This project had a series of special requirements, including handing near real time data and data updates. Requirements derived from deep conversation with technical members of the O-Buoy project prompted us to implement an automated and secure publishing service immediately. While O-Buoy is still engaged in integrating the service into their existing systems and workflow, it has since been used to publish other data saving the scientists’ time. Total time to address the issue was 2 months, including a month of technical analysis and 2 development sprints, 2 weeks each.

## Responses to Panel Questions

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- *The panel would like to understand how ACADIS has chosen members of their advisory committee; what's the turnover policy; how do new members get elected?*

Assembling the ADAC was primarily done by NSIDC PI M. Serreze, with input from other ACADIS Senior Management. Based on his close familiarity with the Arctic science community, Serreze nominated ADAC members from diverse disciplines who are known to work closely with data and would hence be familiar with data-related impediments to their research. As of today, there has been no turnover in ADAC membership because we wanted stability over the 4 year grant period. If new members need to be elected, Serreze would discuss potential candidates with ACADIS Senior Management and then contact the candidate(s) to assess their willingness to serve. Karen Andersen has recommended a candidate for the ADAC, in case an alternate is required at some point in the future.

ADAC Extranet site

<http://extranet.nsidc.org/nsf/adac/index.html>

## Responses to Panel Questions

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- *The panel would like to see communication loop from the project management part of the project to the executive leadership portion of the project.*

Key project milestones and deliverables are set by the Senior Management Team at their monthly meetings. The Project Manager attends these meetings, and makes sure that all are in agreement regarding milestones and deliverables. The project manager tracks progress on milestones and deliverables through the cross cutting teams and subteams; product owners integrate tasks into their Agile schedules. This information is currently being compiled as an integrated project schedule in Smart Sheet, a cloud-based project management tool. Documents and notes are stored on our collaborative tool, Basecamp. The project manager contacts Senior Management as needed to obtain clarification and provide updates, preferably by telephone or face-to-face to ensure accurate communication.

## Responses to Panel Questions

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- *[W]hat are related projects and how these projects have influenced ACADIS and will influence their 4th year plan.*

### **Present**

EarthCube (heavy involvement, possible RCN formation)

NCAR Community Data Portal (early on)

EOL CODIAC (EOL Data Management System)

UN World Meteorological Organization Information System  
(WMO-WIS, federation)

NASA's Global Change Master Directory (GCMD, federation)

NCAR Data Citation Working Group (DOIs)

NSIDC DAAC

Chronopolis Digital Preservation Network

NCAR Research Data Archive (NCAR/RDA)

Earth Science Information Partners (ESIP)

Unidata Technology (e.g. LDM, THREDDS)

Open Geospatial Consortium (OGC)

Agile Software Engineering Community

A2DC Collaboration

# Responses to Panel Questions

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- *[W]hat are related projects and how these projects have influenced ACADIS and will influence their 4th year plan.*

## **Future**

EarthCube

Academic PLR-funded R&D (e.g. ASU and PolarHub)

Research Data Alliance (RDA) (metadata, multidisciplinary data, standards)

National Data Service (NDS, nascent)

NOAA Metadata Rubric Process

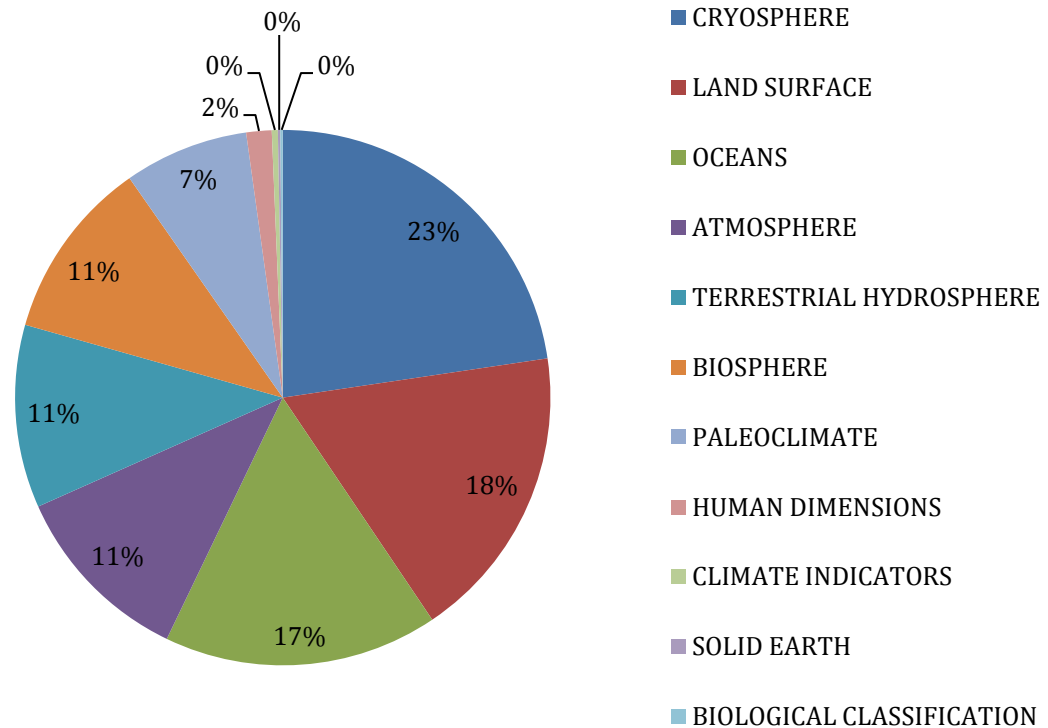
Further Agile advances

Open Geospatial Consortium (OGC)



# Metrics and Community Service

## Self Published Datasets by GCMD Science Keyword Topic

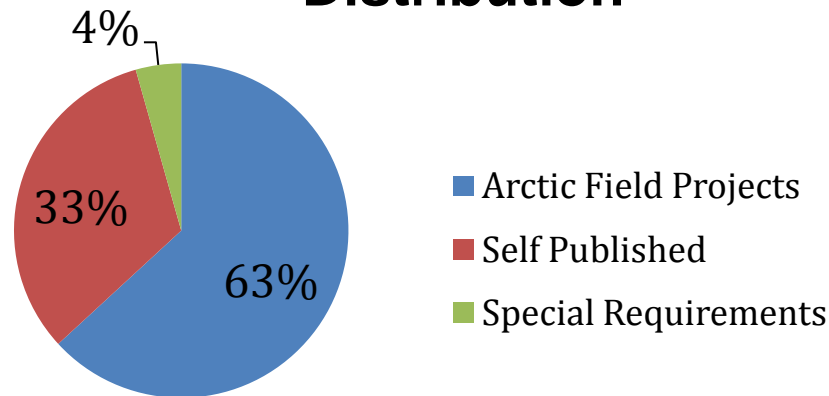


# Metrics and Community Service

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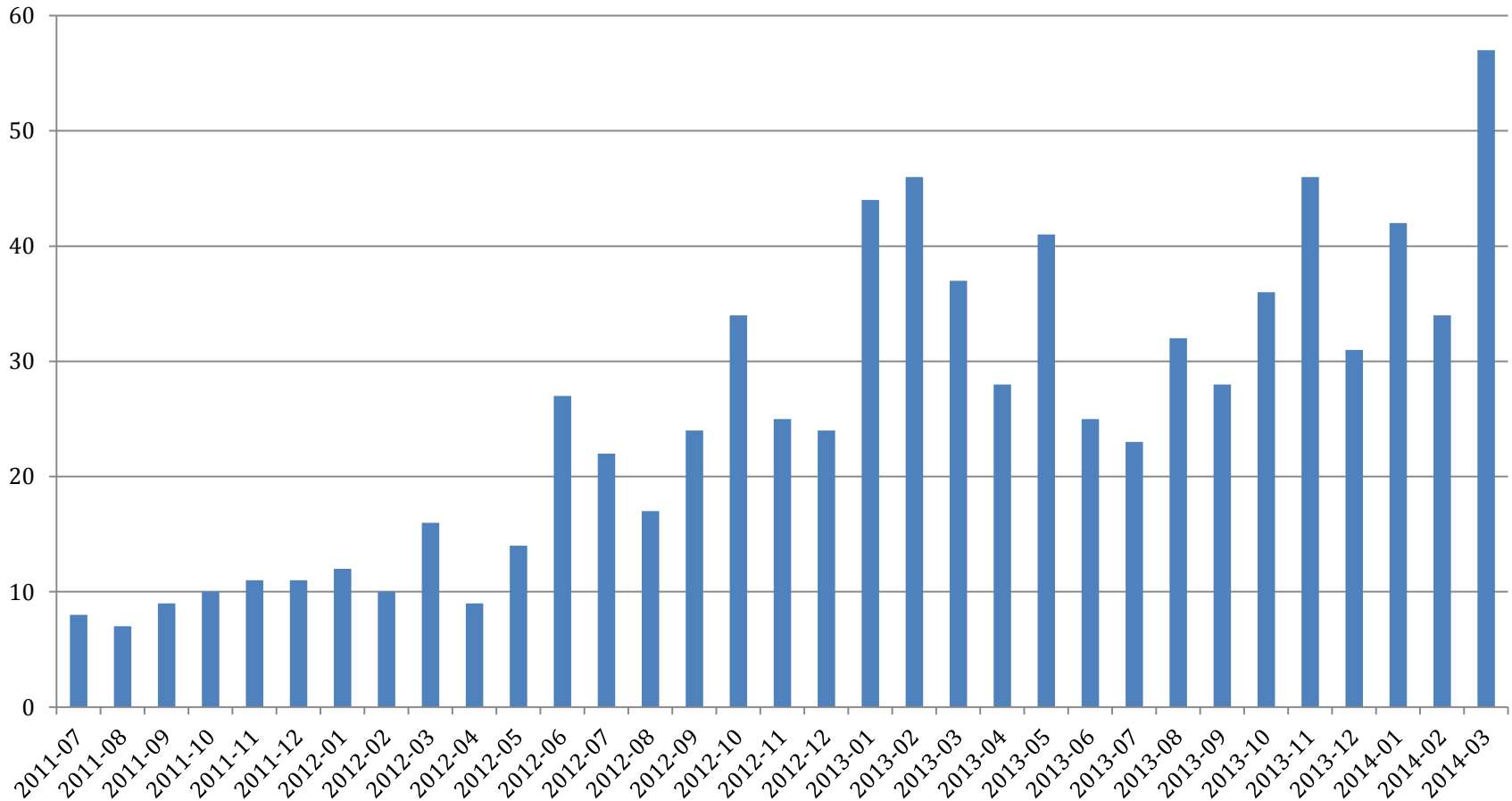
- 3000 Arctic Datasets
- 190 Contributing PIs
- 140 Projects
- 500 Visitors Monthly
- 50 Download Visitors Monthly

## ACADIS Dataset Distribution



# Metrics and Community Service

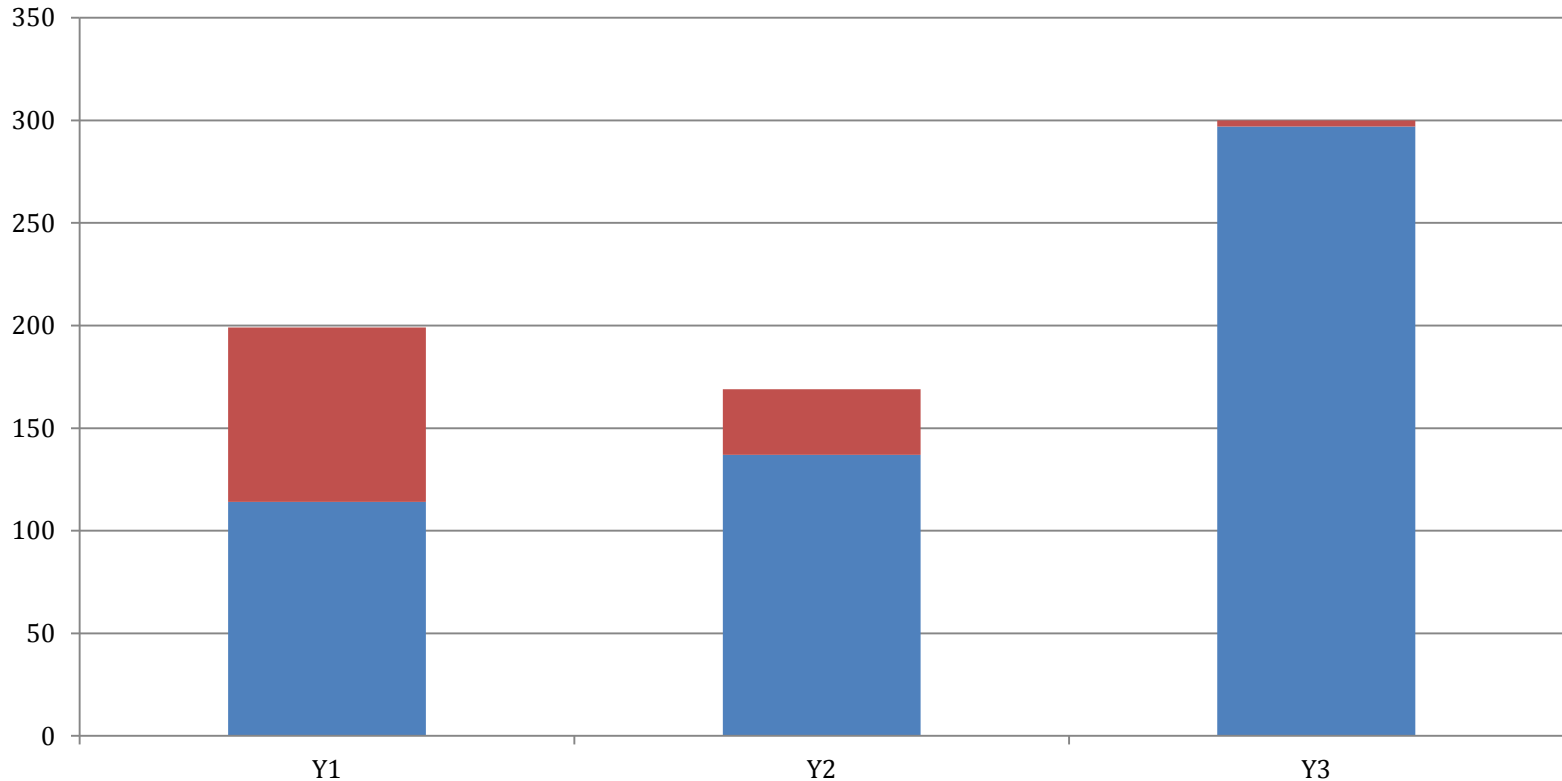
## Repository Download Users Monthly



# Metrics and Community Service

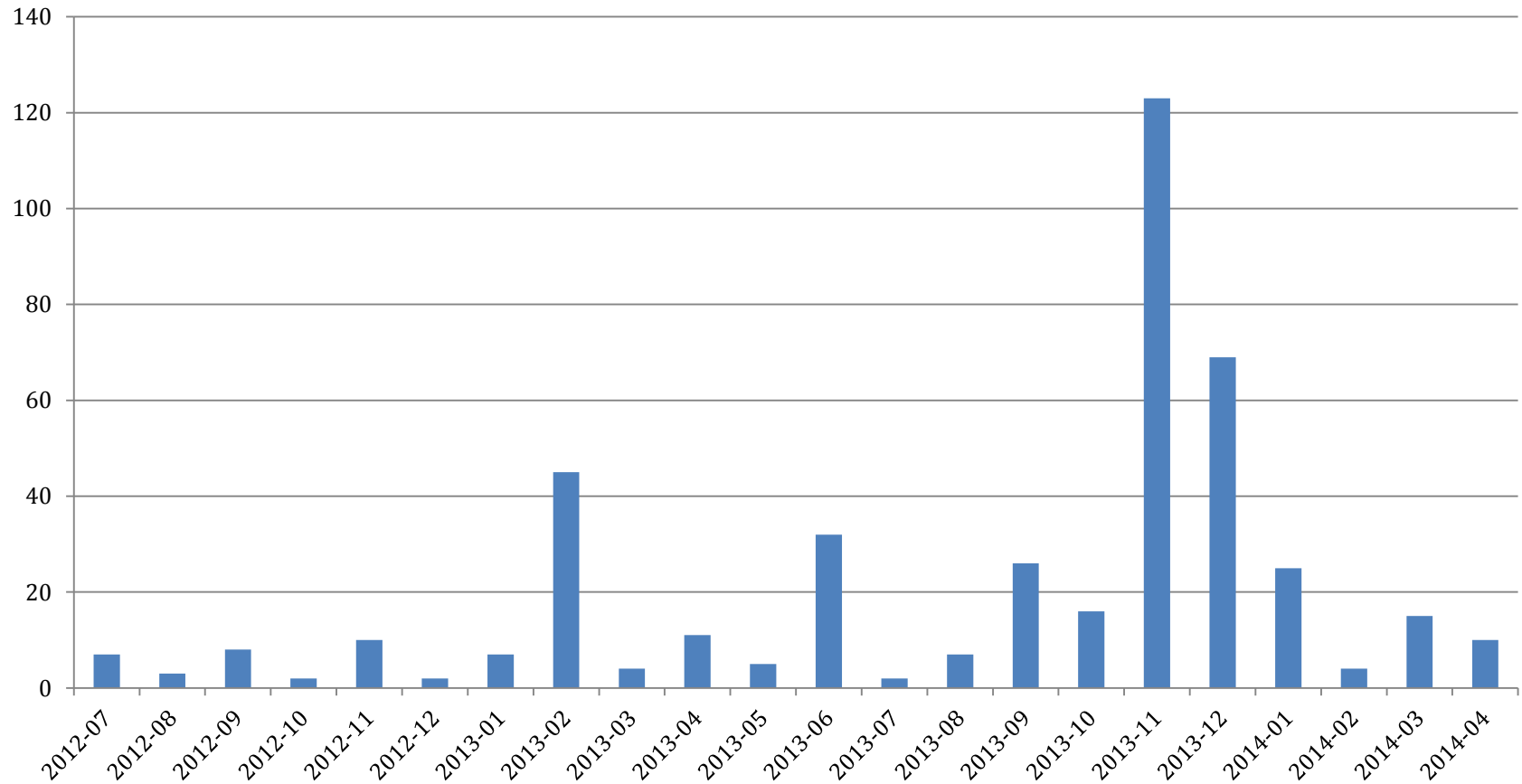
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**Repository Datasets Published Yearly**  
Red: Special Requirements Data Collections    Blue: Self Published



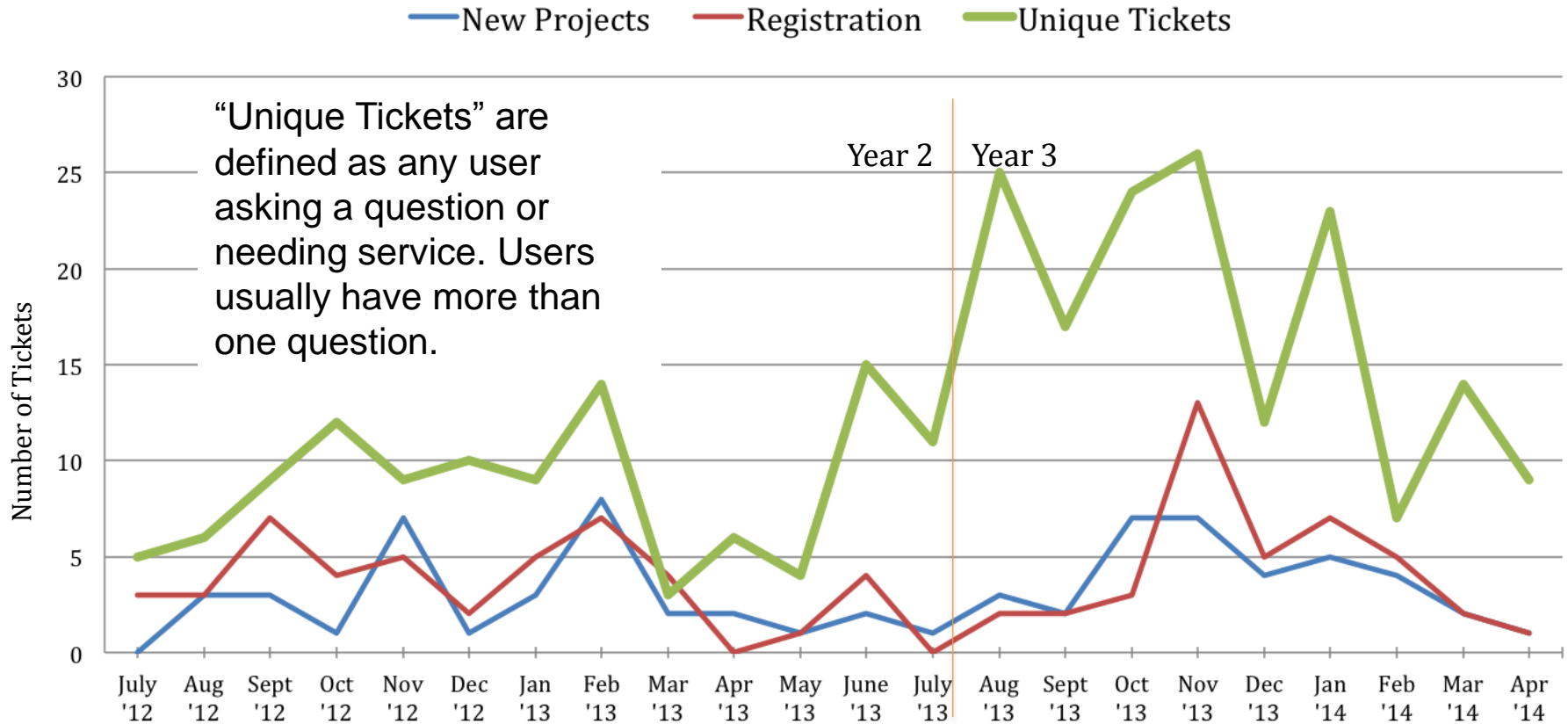
# Metrics and Community Service

## New Self Published Datasets Monthly

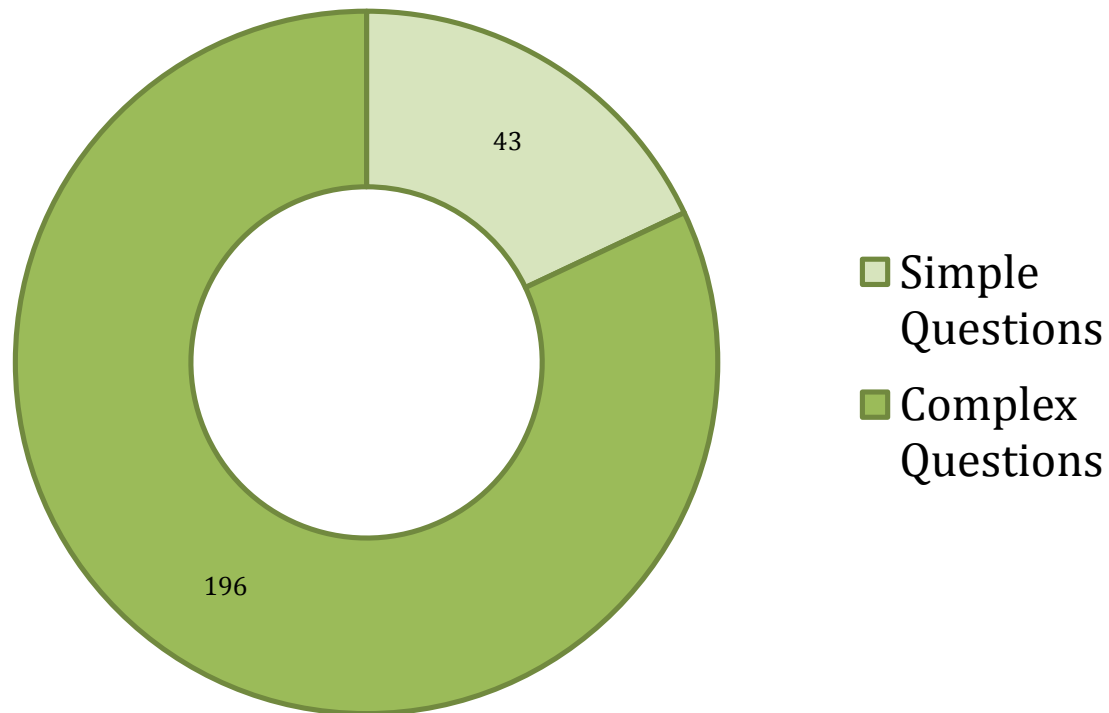


# Metrics and Community Service

## Community Support Tickets Over Time



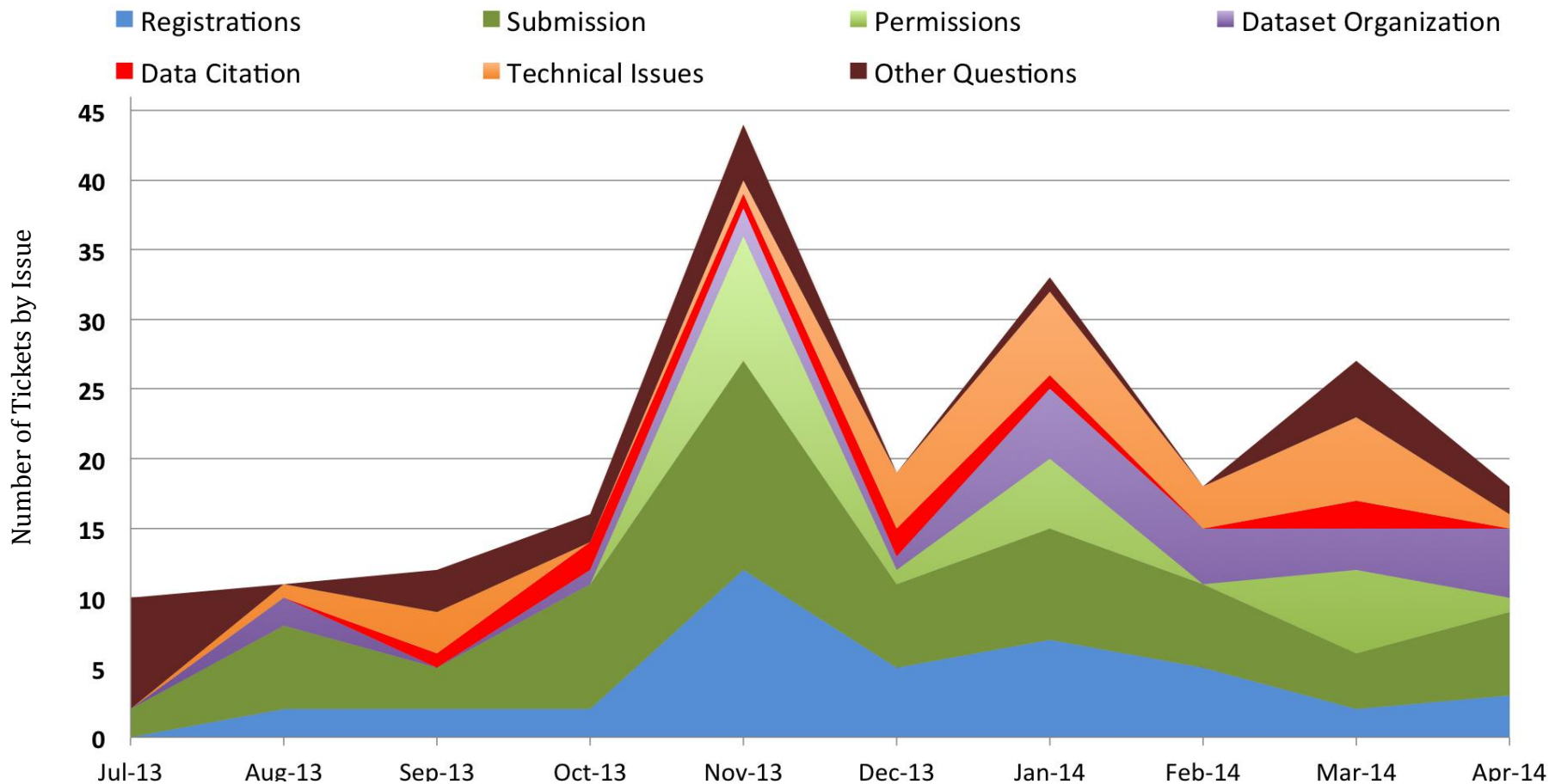
## Support Level for Year 3





# Metrics and Community Service

## Community Support Tickets by Issue - Year 3



## Strategic Look Forward

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- Focused Support for PLR/ARC PIs, including Arctic Observing Network Investigators
  - Provide continuing support to the ARC community for metadata, data, documentation submission (from proposal to archive—data lifecycle support)
  - Develop longer term data stewardship approach for all PLR/ARC data
  - Support special projects and field deployments as requested
  - Maximize data, metadata and documentation self-publishing in the community
  - Data Management Workshop/web based training tools for young scientist/student training in data management best practices and utility of ACADIS to meet grantee DM requirements.
  - Develop a collaboratory for arctic data information services (an intellectual commons)
  - Work towards unification of PLR Arctic and Antarctic data center activities and support (conforming metadata, semantic search)
  - Coordination with SEARCH on other archive access and special dataset preparation

# Strategic Look Forward

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- Continue Technical Improvements and Improved User Experience
  - Emphasis on self publishing and dynamic access to the diverse arctic data holding in ACADIS
  - Increase interoperability of ACADIS and other Arctic archives
  - Complete metadata records for all ACADIS datasets
  - Plan for Permanent Archive with Chronopolis
  
- Additional and Continued Collaboration Beyond Arctic Observing Network Investigators such as other Arctic, Antarctic Research, EarthCube, etc.
  - Develop relationships in Earthcube Research Coordination Networks
  - Work with SEARCH for support to focus research areas

# Strategic Look Forward

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- Engage larger community of interest (e.g., NASA, NOAA, Coast Guard, DHS, DoD) and international coordination
  - Establish new relationships with agencies, archives and scientists in pursuit of improved data access and data management protocols
  - Improved international data exchange protocols (free and open access, semantic search across archives)

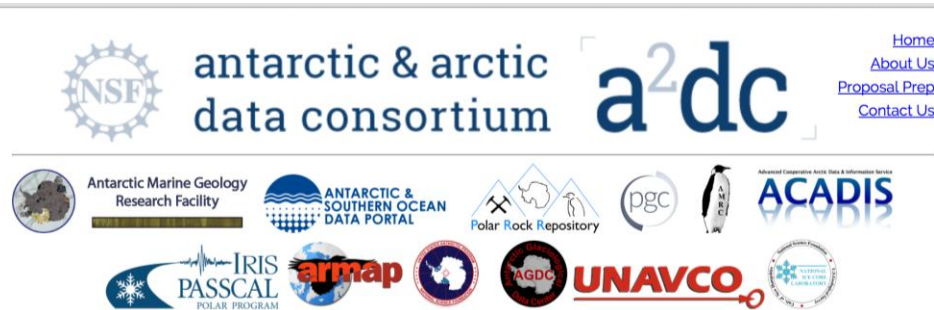
## **Polar Community/EarthCube Collaboration**

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ACADIS Team Members are heavily engaged in the NSF EarthCube Program, and in developing a more integrated Polar Data Community cyberinfrastructure that will be part of that. ACADIS also participates in cyberinfrastructure collaboration whenever possible.

# Polar Community/EarthCube Collaboration

June 2013: Moore and Middleton attended the Antarctic Data Consortium Meeting at NSF HQ. This led to the formation of the Antarctic and Arctic Data Consortium: the “a2dc” initiative.



The NSF Antarctic and Arctic Data Consortium (a<sup>2</sup>dc) is a collaboration of research centers and support organizations that provide polar scientists with data and tools to complete their research objectives. From searching historical weather observations to submitting geologic samples, polar researchers utilize the a<sup>2</sup>dc to search and contribute to the wealth of polar scientific and geospatial data.

Click on [About Us](#) to learn more about our tools and services.

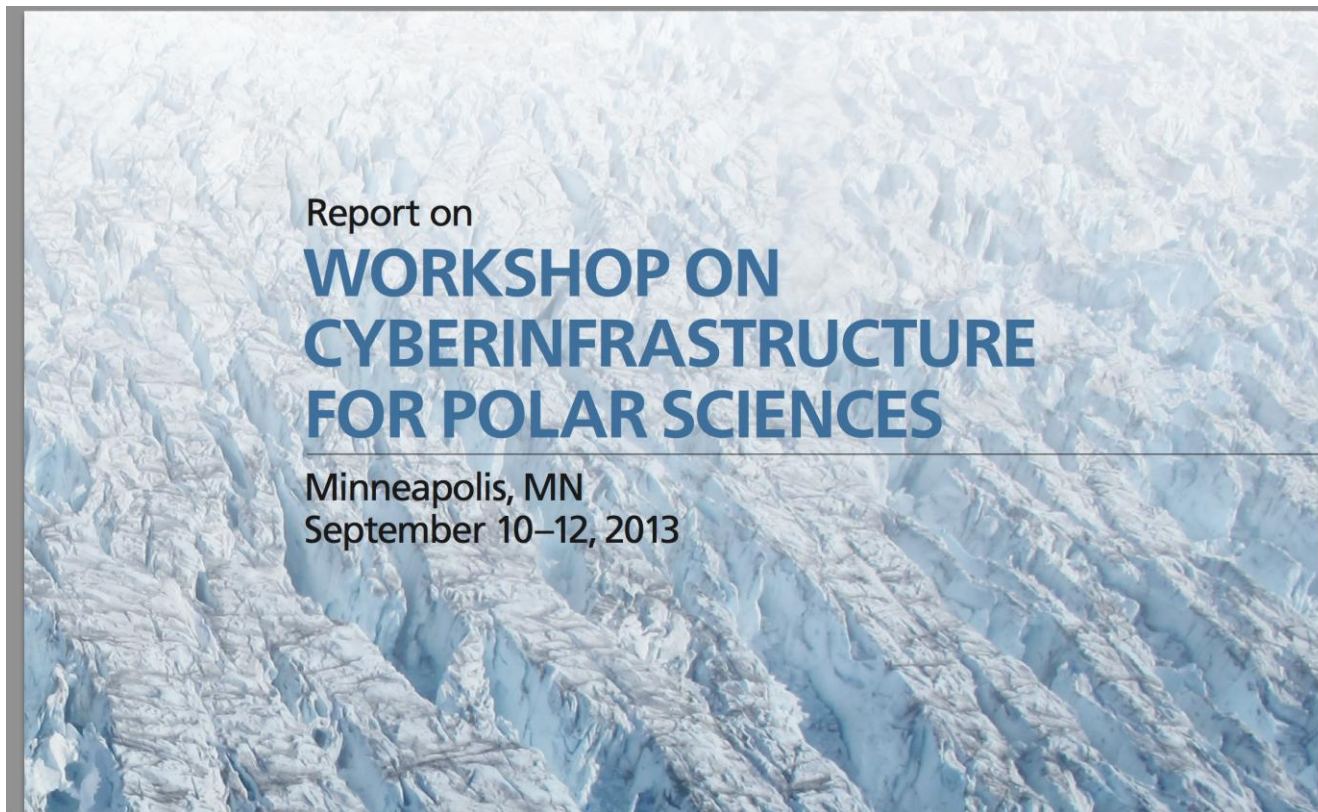
Hosted as part of the US Antarctic Program Data Coordination Center (USAP-DCC)  
by Marine Geoscience Data System at Lamont-Doherty Earth Observatory of Columbia University



# Polar Community/EarthCube Collaboration

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September 2013: Moore, Stott, and Yarmey attended Workshop on Cyberinfrastructure for Polar Sciences





# Polar Community/EarthCube Collaboration

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March 2014: Building on these events and interactions, participants in the *A2DC* activity submitted a proposal to form an NSF EarthCube Research Coordination Network (RCN) for the Polar Sciences.

While working to build this important collaboration and project, several ACADIS team members were heavily engaged in developing the overall NSF EarthCube program.



## Polar Community/EarthCube Collaboration

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August 2013: Middleton gave an invited presentation on data management and citation at the EarthCube Summer Institute, held at SDSC/UCSD. ACADIS was highlighted in slides and live demonstrations to an audience of mostly early-career scientists.

August 2013: At the EarthCube End-User Workshop, Tucson, Ramamurthy and Middleton introduced ACADIS strategies and directions in the plenary discussions of requirements and approaches.

# Polar Community/EarthCube Collaboration

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January 2014: Ramamurthy and Middleton served on the organizing committee for a large NSF EarthCube Workshop on Data Facilities. Williams also attended. Middleton highlighted ACADIS in plenary. Middleton and Ramamurthy led a sub-group in developing the EarthCube Council of Data Facilities (CDF), with ACADIS as a charter member.



# Polar Community/EarthCube Collaboration

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April 2014: The EarthCube Test Governance program organized a small-group EarthCube Assembly Summit, aimed at developing an architecture and a charter for the next phase of EarthCube Governance. Middleton was invited to the meeting, wearing multiple hats including ACADIS, CDF, etc.



# Polar Community/EarthCube Collaboration

October 2013:

Moore attended the International Polar Data Forum in Tokyo. His invited presentation was “The Arctic Cooperative Data and Information System: Data Management Support for the NSF Arctic Research Program”.

Siri Jodha Singh Khalsa also attended the Forum to present on the Arctic Data Explorer, “Building on the IPY: Discovering Interdisciplinary Data through Federated Search”.

The screenshot shows the website for the International Forum on Polar Data Activities in Global Data Systems, held from October 15-16, 2013, at the National Museum of Nature and Science in Tokyo, Japan. The page features a navigation menu with links for Home, Programme, Registration, Venue, Abstract Submission, Organizing Committees, Practical Information, and Contact Form. A yellow banner at the top of the main content area states "Preprint of Forum Proceedings available". Below this, a section titled "International Polar Data Forum Communiqué" announces the release of a document highlighting recommendations and observations from the forum. It includes a link to download the communiqué in PDF format. To the right of the text is a thumbnail image of the communiqué document. The right sidebar contains logos for SCAR, IASC, and ICSU World Data System, along with a "Related documents" section listing an "Excursion Schedule as of 08/10".



# ACADIS Metadata Harvested by PolarHub



PolarHub: A Large-scale Web Crawler for Polar Data Discovery

Sign Up · Sign In

Crawler Dashboard Search Miscellaneous Crawlers

Miscellaneous Task List

Create Start/Update Show All crawled

<input type="checkbox"/>	Item ID	Task Name	Website	Last update Time	Creation Time
<input checked="" type="checkbox"/>	1	ACADIS	https://www.aoncadis.org/home.htm	1397659285838	1390238740875
<input type="checkbox"/>	2	NSIDC	http://nsidc.org/	1390242486585	1390238794698

Full Extent

Leaflet | Map data © Open

Services Found

File name	Id	Title
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	14332	active_layer_arcsec_grid_barrow_alaska_2011
	14333	ucarncareoldataset106_247
	14334	12hourly_interpolated_surface_position_from_buoys
	14335	arctic_alaska_population_electricity_climate

polar.geodacenter.org/polarhub/get...

This XML file does not appear to have any style information associated with it. The document tree is shown below.

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      <citeinfo>
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        <pubdate>2009-11-18 16:01:50</pubdate>
      </citeinfo>
      <title>
        12 Hourly Interpolated Surface Air Pressure from Buoys
      </title>
      <pubinfo>
        <pubplace>Boulder, Colorado USA</pubplace>
      </pubinfo>
      <publish>
        ACADIS : Advanced Cooperative Arctic Data and Information
        Service
      </publish>
      </publishinfo>
      <onlink>
        https://www.aoncadis.org/dataset/12_hourly_interpolated_surface
      </onlink>
    </citation>
  </idinfo>
</metadata>
```

# Outreach Statistics

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Outreach Log has 40 events on it from June 2013 to May 2014, some entries included participation from more than one ACADIS staff member  
Example outreach events include:

## **National Meetings**

- American Meteorological Society (AMS)
- American Geophysical Union (AGU)
- Geological Society of America (GSA)
- American Association for the Advancement of Science (AAAS)
- Ocean Science Meeting (OSM)
- American Association of Geographers (AAG)
- Research Data Access and Preservation Summit (RDAP)

## **International Meetings**

- International Polar Data Forum

## **Targeted Events**

- EarthCube workshops
- Cyberinfrastructure for Polar Science

## **Domain Science Events**

- Ocean sciences, snow remote sensing, Arctic ecology and geology, etc.

# Cyberinfrastructure Collaboration

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ACADIS collaborates with other federated data systems, NSF R&D projects, and leverages existing cyberinfrastructure whenever possible.

- NASA's Global Change Master Directory (GCMD)
- World Meteorology Organization Information System (WIS)
- Via the ADE, we are leveraging brokering/federation technology supported by the NSF BCube Project (led by NSIDC)
- Spent two days with Dr. Wenwen Li, who is funded by NSF/PLR to develop a polar data discovery hub, and is harvesting ACADIS metadata. ACADIS members also attended a presentation given by Dr. Li. This is another way ACADIS collaborates with the academic community.



## Cyberinfrastructure Collaboration - What does the Future Hold?

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- Traditional Stakeholders (science community, archives, etc.)
- New Stakeholders (regional citizen population, NGO, foundations, private companies, policy makers)
- In an ideal world, polar researchers will
  - Share, deposit and cite data
  - They are rewarded for integrity, science achievements and better science
  - Use archive data as the base level for new science
- In an ideal world, the polar archives will
  - Provide broad search to data of interest
  - Search capabilities, regardless of entry point
  - Long term stewardship and access

# Cyberinfrastructure Collaboration

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- In an ideal world, Funders will
  - Require a data management plan
  - Fund and monitor data management requirements
  - Recognize data and science research output
  - Fund cyberinfrastructure in order to
    - Maximize return on investment
    - Facilitate science research
    - Provide training for scientists and students
    - Increase the efficiency of research
    - Respond to societal needs

# Rosetta

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## Rosetta: A general purpose data format converter

- **Vision**

Reduce data friction through the use of data format / metadata standards to add efficiency to the data discovery and use portion of the scientific process.

- **Goal**

Convert various “flavors” of ASCII based data\* found in the ACADIS Gateway into a standard format.

## Rosetta: A general purpose data format converter

### ▪ **Why?**

Enhance reusability:

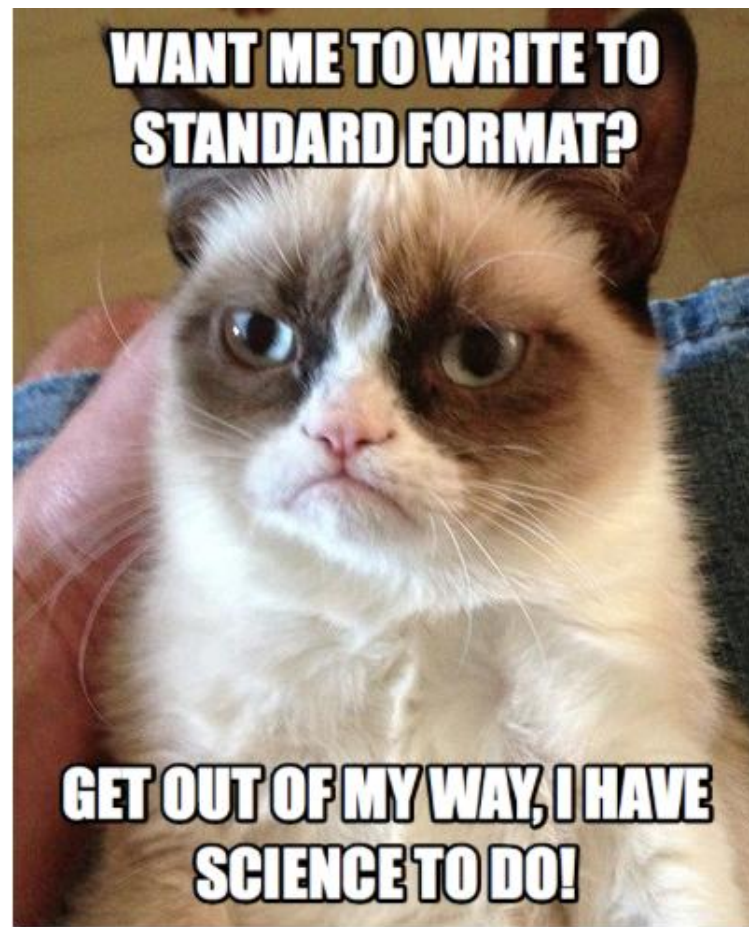
- Enable scientific analysis and sharing across widely disparate data holding
  - Saves time and makes investigators (and students) lives easier
- Standard formats enable enhanced, end user focused data services:
  - Data sub-setting (spatial, temporal, and variable), aggregation, visual data “previews”, Interoperability, etc.

# Rosetta

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## ▪ How?

- Enable data producer!
  - They know their dataset the best, so keep the power with them
- Get out of their way quickly!
  - Critical!
  - At submission time, data are in a format that the PI can readily use – they don't want to spend extra time converting to another format



# Rosetta

## How?

- Web based guided interface
  - No coding involved!
  - No need to completely understand the Climate and Forecast (CF) conventions.
- Leverages years of development behind
  - netCDF
  - netCDF-Java /THREDDS Data Server
  - CF conventions

The screenshot shows the Rosetta web interface at [rosetta.unidata.ucar.edu/createAcadis](http://rosetta.unidata.ucar.edu/createAcadis). The main panel is titled "Specify Variable Attributes" and contains a table with columns for "column 0" and "column 1". The table data is as follows:

	column 0: D	column 1	
12	2007	1188777600	2.10
13	2007	1188864000	3.63
14	2007	1188950400	4.21
15	2007	1189036800	2.00
16	2007	1189123200	4.57
17	2007	1189209600	5.32
18	2007	1189296000	4.27
19	2007	1189382400	3.39
20	2007	1189468800	2.29
21	2007	1189555200	0.26
22	2007	1189641600	1.21

The "Enter Variable Attributes" dialog box is open, showing the following configuration:

- What would you like to do with this column of data?**
  - Assign a variable name (text input: "time")
  - Do not use this column of data
- Is this variable a coordinate variable? (examples: latitude, longitude, time)**
  - Yes
  - No
- What type of coordinate variable?**
  - Relative time (i.e. days since 1970-01-01) (dropdown: "seconds since 1970-01-01")
- Specify variable data type:**
  - Integer
  - Float (decimal)
  - Text
- Required Metadata:**
  - Variable Description: "Time from datalogger"
  - Units: "seconds since 1970-C"
  - show unit builder
- What type of data are we building units for?**
  - relative date/time (dropdown)
- unit prefix: (dropdown) unit: (dropdown)
- seconds since 1970-01-01 (dropdown)

**Recommended Metadata:**

- CF Name: "time" (text input)

**Additional Metadata:**

- Calendar Type (dropdown)

Buttons: "done", "cancel"

# Rosetta

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## Datasets addressed by Rosetta

- Rosetta is designed for datasets that fit into the six Climate and Forecast Discrete Sampling Geometry (CF-DSG) types
  - Point, time series, trajectory, profile, time series of profiles, trajectory profiles (borehole data, meteorological station observations, buoy platforms, CDAT, etc.)
- Some datasets accessed through the ACADIS gateway are not amenable to a standard format
  - A few examples: field notes, photographs, biological distributions and categorizations, survey results



# Demos

NSIDC National Snow & Ice Data Center

HOME DATA PROGRAMS RESEARCH NEWS ABOUT THE CRYOSPHERE ABOUT US

## Arctic Data Explorer

A service of **ACADIS**

**Text Search:**

**Spatial Coverage:**

**Temporal Coverage:**  to

## ACADIS Gateway

An Arctic Data Repository

A Service Of **ACADIS**

Home Get Data Contribute Data About Contact

*Find, Download and Contribute Arctic Science Data*

## Rosetta

A Data Format Translation Tool

A Service Of **ACADIS**

**Please choose a file to convert**

- Select Observation Platform
- Specify Header Lines
- Specify Delimiters
- Specify Variable Attributes

**Please choose a file to convert**

**Project Inventory:**

Restore metadata from template (if available)



## Wrap Up

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**The ACADIS Team thanks you for time and attention!**



## Additional Slides

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Backups after this one

# Polar Community/EarthCube Collaboration

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## A Summary of Additional ACADIS Presentations and Posters

- Jan 2013, 93<sup>rd</sup> AMS Meeting: Arms presented Arms, S. C., J. O. Ganter, J. Weber, and M. K. Ramamurthy, 2013: A Web-based Tool for Translating and Unstructured Data from Dataloggers into Standard Formats.
- July 2013, University of Colorado Boulder Data Librarians Meeting: Yarmey gave an invited presentation: 'ACADIS: Select Services and Systems'.
- August 2013, XSEDE Gateways Webinar: Nienhouse, Wilhelmi, and Middleton gave an invited presentation "Science Gateways and Big Data", and used ACADIS in live demonstrations.
- Dec 2013, Fall AGU: Moore gave an invited presentation entitled The Arctic Cooperative Data and Information System: Data Management Support for the NSF Arctic Research Program

# Polar Community/EarthCube Collaboration

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## A Summary of Additional ACADIS Presentations and Posters

- Dec 2013, Fall AGU: Yarmey presented paper: “Metadata Standards in Theory and Practice: The Human in the Loop”, served as an invited panelist for: “AGU Cryosphere Career Development Mentor Panel”; and presented the poster “Building an International Polar Data Coordination Network”
- Jan 2014, 94<sup>th</sup> AMS: Arms presented presented one paper: S. C., J. O. Ganter, J. Weber, and M. K. Ramamurthy, 2014: Rosetta - Unidata’s Web-based Translation Tool: Progress and Future Plans.
- Feb 2014, NASA Distributed Active Archive Center Manager's Meeting: Serreze and Yarmey demonstrated the Arctic Data Explorer and discussed ACADIS metadata experience and challenges.

# Polar Community/EarthCube Collaboration

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## A Summary of Additional ACADIS Presentations and Posters

- March 2014, INSTAAR Arctic Workshop: Yarmey Presented a poster: “To understand the Arctic's new normal, you first need to find old data”
- March 2014, Research Data Access and Preservation Summit: Yarmey presented a talk entitled “Data Discovery and Access through Metadata Brokering”.
- April 2014, UIUC Graduate School of Library and Information Science Data Curation: Invited panelist - presented a short bio highlighting my ACADIS work to showcase opportunities for future Data Curators.
- May 2014, ESRL Workshop: Rosati presented a poster on “Bridging Field Science with the Needs of Data Re-users - promotion of ACADIS tools and services”