COMPILING A LITERATURE REVIEW: ATMOSPHERIC SCIENCES

AOS 405: CAPSTONE SEMINAR
FEBRUARY 2011

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Outline

• Search process
• Types of sources
• Peer review
• Evaluating what you find
• MadCat
• Finding journal articles with subject databases
• Searching Google
• Citation guides
• Recap
Why the literature review?

- Exposes main gaps in knowledge [and] identifies principal areas of dispute and uncertainty.
- Helps identify general patterns to findings from multiple examples of research in the same area.
- Juxtaposing studies with apparently conflicting findings helps explore explanations for discrepancies.
- Helps define your terminology or identify variations in definitions used by researchers or practitioners.
- Helps to identify appropriate research methodologies.
- Helps identify validated scales and instruments.

Credit: Andrew Booth and Mary Dixon-Woods.
Systematic literature search

• Formulate the research question(s): Select a topic and set criteria (inclusion/exclusion)
• Search the literature
• Gather, read, analyze and assess quality of results
• Search and refine
• Write and reference
Types of sources

- **Primary sources**: a report by the original researchers of a study
- **Secondary sources**: description or study by someone other than the original researcher (e.g. a review article)
- **Conceptual/theoretical**: papers concerned with analysis of theories associated with the topic
- **Anecdotal/opinion**: Views about the subject that are not research, review or theoretical in nature
Types of sources

- People: experts in the area
- Journals: current, scholarly work, review articles
- Major books or monographs: good overviews, good treatment of history
- Dissertations: literature reviews
- Encyclopedias: general reviews, usually by experts
- Web based material: overviews
- Collections of images or objects
Peer review

• Sometimes called “refereed”
• When was it established?
• Reasons for peer review
• How it works
• Telling the difference between “popular” and “reviewed”
• Criticisms of the process
Evaluating what you find

- **Accuracy**: examine references; thoroughness, documentation
- **Authority**: who created site?, “about” page, author qualifications
- **Objectivity**: purpose of site, representative of multiple viewpoints, is there bias?, Examine URL (.gov, .edu, .com, .org, country codes)
- **Currency**: dates listed and updates listed
Searching

- Plan your search
- Remember variant word endings, Boolean connectors and synonyms
- Limit search terms to specific fields (title, subject heading), within a certain proximity to each other, year ranges
- To narrow a search: limit by theoretical approach, one aspect of subject, by time, by geographic location
- To broaden a search: generalize your topic, check more databases, limit jargon, check Web or newspaper databases if topic is too new
- Note controlled vocabularies
- Perform search, review results, refine search, search again, refine search, search again, export results

Advantages, disadvantages of controlled vocabularies and key word. Maps variations in words to a single word or phrase words, e.g., rain, snow, drizzle might be mapped to precipitation.
MadCat overview

• The Library catalog, used to find books, government reports, journal titles and their locations

• Journal articles or contents of books (specific chapters) ARE NOT in MadCat – find them in appropriate database, then search for journal or book title in MadCat or use

• Schwerdtfeger Library holdings in MadCat
The Schwerdtfeger Library

Schwerdtfeger Library Resources
- Bibliographies (AMRC, ASPE, FTIR, GOES-R, McIDAS), Climate Data Sources, Current Contents, E-Journals, E-Resources in Atmospheric Sciences, ITAR, Library Communications, RefWorks, Research Databases Class, SSEC Publications

UW-Madison Library Catalog
- Research Databases

Schwerdtfeger Library Publications Database

Off-Campus Resources
- Atmospheric Science Libraries, Copyright Information, Madison Public Library, Organizations, Publishers, Reference, Science Sites, Standards and Specifications

Grants Information
- Agencies, Announcements, Databases

Digital Collections
- V.E. Strum Site, ATS-III Image Collection, Bentley Photomicrographs
Types of questions

• Prediction: What is the likely result of X?
• Historical: How have we gotten from A to B?
• Intervention: Is doing Y better than doing Z?
• Exploration: What are the possible explanations for A?
• Attitudes: How do people feel about B?
• Causation: What are the likely causes of C?
• Measurement: What is the size of X, how often does it occur etc?
• Characterisation: How can we understand and specify W?
Define research problem: Asking good questions

- There has been a lot in the news about receding glaciers. Are there papers (and data) that discuss a link between glacial melt and climate change?
- Synonyms:
  1) glacier(s), ice mass(es), ice sheet(s)
  2) recession, receding, melt(ing), erosion, retreat, mass loss
  3) climate change, climate variability, climate history
  4) mountain, high elevation, alpine

It’s harder than it looks to ask good research questions. Often the question with which we start is too vague or unfocused to offer much help for how we should go about answering it.
Research is an iterative and sequential process

- Search for primary documents
- Read scholarly literature
- Look for debates and uncertainties
- Talk with professors
- Can you look at your topic from the viewpoint of other theories
- Use review papers for access to more articles and books
- Look for correlations

Things to consider

- **Develop keywords**: Search by topic, by date range, by geography, by schools of thought, etc.
- **Use scientific names**: Remember that if you’re searching for information on hurricanes, you should probably also consider tropical cyclone, tropical depression, etc.
- **Current articles**: Make sure to check the references in current articles because they will provide a look at the history
- **Older articles**: Check older articles to look forward by looking at who is citing it/referencing it.
- **Review papers and dissertations**: Often provide great reviews of the literature
### MadCat search

**Catalog:** UW Madison

**Search Request:** Guided = (glacier?)[in Keywords Anywhere] AND (recession)[in Keywords Anywhere]

**Search Results:** Displaying 1 through 4 of 4 entries.

<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Author</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1983 recession of Columbia Glacier [microform] / by M.F. Meier ... [et al.]</td>
<td></td>
<td>1984</td>
</tr>
<tr>
<td></td>
<td>Library Location: Geology and Geophysics Library Microforms</td>
<td>Call Number: MNK O yr.1984 no.059 Status: Not Checked Out</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Library Location: US Government Information on the Internet</td>
<td>Call Number: Use Internet link(s) in this record. Status: Click on link for more information</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Recession of equatorial glaciers : a photo documentation / Stefan Hastenrath</td>
<td>Hastenrath, S.</td>
<td>2008</td>
</tr>
<tr>
<td></td>
<td>Library Location: Schwerdtfeger Library Stacks Call Number: GB2594.H37 2008 Status: Not Checked Out</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Library Location: Geology and Geophysics Library Map Cases Call Number: MNK HA no.583 Status: Not Checked Out</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recent workshops, general overview, researcher names**
Review records: Sponsored by NSIDC

Snow Watch 2002 Workshop (2002 : Camp Spring, Md.)
http://purl.access.gpo.gov/GPO/LPS54779

Boulder, CO : National Snow and Ice Data Center, World Data Center for Glaciology : Cooperative Institute for Research in Environmental Sciences, [2003]
Glaciological data ; report GD-32
Glaciological data ; rept. GD-32.
Snow Watch 2002 Workshop and Workshop on Assessing Global Glacier Recession
Title from title screen (viewed on Oct. 14, 2004).
"This issue contains the reports and recommendations from two workshops. The Snow Watch 2002 ... was hosted by NOAA in Camp Spring, MD, 31 October through 1 November 2002. The Workshop on Global Glacier Recession was held in Boulder, CO, 16-18 March 2003. Funding for the workshop was provided by NSF (EAR-0301144) through a grant to Roger Barry."
General overview of topic:
Check authors, references

**ASSESSING GLOBAL GLACIER RECESSION**
**WORKSHOP AGENDA**

**SUNDAY, MARCH 16, 2003**

**THE STATE OF WORLD GLACIERS**
Roger Barry

**CHALLENGES AND STRATEGIES FOR WORLDWIDE CLIMATE-RELATED GLACIER MONITORING IN THE 21ST CENTURY**
Wilfried Haeberli

**WHY ARE WE HERE? GLACIER VARIATIONS AND THEIR RELATION TO CLIMATE, SEA LEVEL, AND EVERYTHING**
Mark Meier

**OBSERVATIONAL EVIDENCE OF ACCELERATION IN GLACIER WASTAGE: UNCERTAINTY IN PREDICTION**
Mark Dyurgerov

**GLACIER MASS BALANCE TRENDS IN SVALBARD AND SCANDINAVIA**
Jon Ove Hagen

**TWO-MINUTE POSTER OVERVIEWS**
Place request

Catalog: UW Madison
Search Request: Guided = (glacier?) [in Keywords Anywhere] AND (recession) [in Keywords Anywhere]
Search Results: Displaying 2 of 3 entries

Author: Hastenrath, S.
Title: Recession of equatorial glaciers: a photo documentation / Stefan Hastenroth.

Publisher: Madison, Wis.: Sundog Publishing, c2008
Description: 1 v. (various pagings): ill., maps, photographs; 28 cm.
ISBN: 097290333X 9780972903332
OCLC: (OCoLC)ocn244414844
(0CoLC)244414844
Subjects: Glaciers -- Tropics.
Glaciers -- Africa, Eastern.
Glaciers -- New Guinea.
Glaciers -- Andes.

Permalink: http://madcat.library.wisc.edu/cgi-bin/Pwebrecon.cgi?BBID=7787502

Location: Schwerdtfeger Library Stacks
Log In to My MadCat Account or to Place Requests

- Use My MadCat Account to see items checked out, renew items, check library requests, and check fines and fees. For other requests, including outstanding ILL requests, see Library Express.
- To request individual journal volumes and other items from the UW-Madison Shelving Facility, login below and select Retrieve Madison Item. More Information.
- If the item is On Order or In Process use the On Order / In Process Inquiry Form.
- Logoff and Exit to ensure the privacy of your account.

UW ID Number: 
Last Name: 

Login  Reset
Finding journal articles

- UW-Madison Libraries have licensed many databases for your use
- Most information cannot be accessed using Google
- Emphasis is on finding literature related to the atmospheric and oceanic sciences
- After finding specific articles, search for the journal title in MadCat for location on campus
- Some databases may have links to full-text via [Find It](#)
- [Links to databases](#) from our home page from [E-Resource Gateway](#)
- [E-journals](#) by title with link to [campus e-journal list](#)
- Remote access: [http://www.library.wisc.edu/help/remote/remote-restrict.html](http://www.library.wisc.edu/help/remote/remote-restrict.html)
How to access databases

From the campus libraries page
http://www.library.wisc.edu/

From Schwerdtfeger Library
http://library.ssec.wisc.edu
Meteorological and Geoastrophysical Abstracts

- Updated weekly – 1960
- MGA covers meteorology, climatology, oceanography, remote sensing, atmospheric chemistry, hydrology, etc.
- Indexes journal articles, conference proceedings, books, technical reports. Includes abstract for most entries
- Includes links to full-text for AMS journals and other journals if the campus has a license
- Search MGA, Oceanic and NTIS simultaneously
- Pre-1960 literature can be found using print equivalent
NTIS Bibliographic Index

- Updated quarterly, 1964 –
- Contains descriptions of U.S. government sponsored sci/tech research from DOD, DOE, EPA, NASA, NOAA…
- Covers astronomy, atmospheric science, biotechnology, computers, energy, engineering, etc.
- Included are: reports on contracts/grants, technical memoranda, technical reports, dissertations, etc.
- Pre-1964, consult Government Reports and Announcements Index in print
- Same interface as MGA
Georef

• 1963-
• Earth sciences literature
• Includes: journal articles, conference papers and abstracts, guidebooks, maps, reports, theses and some monographs
• Includes links to full-text if campus has a license
Web of Science

- Updated weekly, 1965 –
- Combination of three databases
- Indexes peer-reviewed journal literature and now includes conference proceedings
- Known for its currency and meticulous indexing
- Used to do general, cited reference or author searching
- Journal Citation Reports is companion database
Web of Science: Initial key word search needs refinement

A good search will include some combination of natural language and controlled language. Getting few results is worse than getting too many or even zero results.
Search for:

- glacier* OR ice sheet* OR ice mass* in Title
  Example: oil spill* mediterranean

- recession OR reced* OR melt* OR erosion OR retreat* in Title
  Example: oil spill* mediterranean

- climate chang* OR climate variability OR climate history in Topic
  Example: oil spill* mediterranean

Add Another Field >>

Searches must be in English

Current Limits: [Hide Limits and Settings] (To save these permanently, sign in or register.)

Timespan:
- All Years (updated 2010-10-08)
- From 1965 to 2010 (default is all years)
Results

Title=(glacier* OR ice sheet* OR ice mass*) AND Title=(recession OR reced* OR melt* OR erosion OR retreat*) AND Topic=(climate chang* OR climate variability OR climate history)
Timespan=All Years. Databases=SCI-EXPANDED, SSCI, A&HCI.

Results: 120

1. Title: Reduced North Atlantic Central Water formation in response to early Holocene ice-sheet melting
   Source: GEOPHYSICAL RESEARCH LETTERS  Volume: 37 Article Number: L17705  Published: SEP 10 2010
   Times Cited: 0

2. Title: Visual perception of changes in a high mountain landscape: the case of the retreat of the Evettes Glacier (Haute-Maurienne)
   Author(s): Moreau M
   Source: GEOMORPHOLOGIE-RELIEF PROCESSUS ENVIRONNEMENT  Issue: 2  Pages: 165-174  Published: APR-JUN 2010
   Times Cited: 0
The future of ice sheets and sea ice: Between reversible retreat and unstoppable loss

Author(s): Notz D (Notz, Dirk)

Source: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA  Volume: 106  Issue: 49  Pages: 20590-20595  Published: DEC 8 2009

Abstract: We discuss the existence of cryospheric "tipping points" in the Earth's climate system. Such critical thresholds have been suggested to exist for the disappearance of Arctic sea ice and the retreat of ice sheets. Once these ice masses have shrunk below an anticipated critical extent, the ice-albedo feedback might lead to the irreversible and unstoppable loss of the remaining ice. We here give an overview of our current understanding of such threshold behavior. By using conceptual arguments, we review the recent findings that such a tipping point probably does not exist for the loss of Arctic summer sea ice. Hence, in a cooler climate, sea ice could recover rapidly from the loss it has experienced in recent years. In addition, we discuss why this recent rapid retreat of Arctic summer sea ice might largely be a consequence of a slow shift in ice-thickness distribution, which will lead to strongly increased year-to-year variability of the Arctic summer sea-ice extent. This variability will render seasonal forecasts of the Arctic summer sea-ice extent increasingly difficult. We also discuss why, in contrast to Arctic summer sea ice, a tipping point is more likely to exist for the loss of the Greenland ice sheet and the West Antarctic ice sheet.

Document Type: Article

language: English

Author Keywords: Greenland; West Antarctic; climate change; tipping point; Arctic

Keywords Plus: BALANCE CLIMATE MODELS; ALBEDO FEEDBACK; THICKNESS DISTRIBUTION; OCEAN CIRCULATION; ARCTIC-OCEAN; LEVEL RISE; GROWTH; DEGLACIATION; INSTABILITY; STABILITY

Find It for fulltext and other locations
Find It Results

<table>
<thead>
<tr>
<th><strong>Title:</strong></th>
<th>The future of ice sheets and sea ice: Between reversible retreat and unstoppable loss</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source:</strong></td>
<td>Proceedings of the National Academy of Sciences of the United States of America [0027-8424] Notz yr:2009 vol:106 iss:49 pg:20590 -20595</td>
</tr>
</tbody>
</table>

**Get Full Text Online** - Highwire Press National Academy of Sciences

Available from 1915
The future of ice sheets and sea ice: Between reversible retreat and unstoppable loss

Dirk Notz

Edited by Hans Joachim Schellnhuber, Environmental Change Institute, Oxford, United Kingdom, and approved September 22, 2009 (received for review March 3, 2009)

Abstract

We discuss the existence of cryospheric “tipping points” in the Earth’s climate system. Such critical thresholds have been suggested to exist for the disappearance of Arctic sea ice and the retreat of ice sheets: Once these ice masses have shrunk below an anticipated critical extent, the ice-albedo feedback
Review and refine

- Use [Find It] to locate full-text
- Use MadCat to search for titles where there is no full text online
- Refine Results
- Check KeyWords Plus for more terms
- Check “Cited by”
- Check “Related Records”
- Check “References”

Find a key reference and find all the papers that cite it to track its importance, relevance, validity.
Saving records

- Save, Print, E-mail records
- Export to bibliographic management tool like RefWorks or EndNote
- Make sure you have complete references
- Take and keep notes
- Document your search: Take and keep notes, helps to avoid duplication and allows replication (include search date, sources used, strategy implemented)
- **Compare your work to that of others (you are probably not the first person to be interested in your topic). Where does your idea rest in the body of knowledge on the topic?**
Georef, MGA, NTIS

Search Tips: e.g., wildcar*, exact phrase; use Keywords for a single search of Title, Abstract, Descriptors

Now Selected: Multiple Databases (Hide)
- GeoRef
- Meteorological & Geophysical Abstracts
- NTIS

Change: Subject Area or Specific Databases

Date Range: Earliest to 2011
Results by file and type

1. Rain driven by receding ice sheets as a cause of past climate change
   Eisnerman, Ian; Bitz, Cecilia N; Tipperman, Eld
   The Younger Dryas cold period, which interrupted the transition from the last ice age to modern conditions in
   Greenland, is one of the most dramatic incidents of abrupt climate change reconstructed from paleoclimate proxy
   records. Changes in the
   [View Record] | [Find It]

2. Climate change effects on glacier recession in Himalayas using multitemporal SAR data and automatic
   weather station observations
   Kumar, V; Singh, S K; Venkataraman, G
   [View Record] | [Find It]

View descriptors for additional or related terms
Satellite-derived surface type and melt area of the Greenland ice sheet using MODIS data from 2000 to 2005

Robert S. FAUSTO,¹ Christoph MAYER,² Andreas P. AHLSTRØM¹

¹Geological Survey of Denmark and Greenland, Øster Voldgade 10, DK-1350 Copenhagen, Denmark
E-mail: rsf@geus.dk
²Commission for Glaciology, Bavarian Academy of Sciences and Humanities, Aliensa-Goppelstrasse 11,
D-80539 Munich, Germany

ABSTRACT. A new surface classification algorithm for monitoring snow and ice masses based on data from the moderate-resolution imaging spectroradiometer (MODIS) is presented. The algorithm is applied to the Greenland ice sheet for the period 2000–05 and exploits the spectral variability of ice and snow reflectance to determine the surface classes dry snow, wet snow and glacier ice. The result is a monthly glacier surface type (GST) product on a 1 km resolution grid. The GST product is based on a
### Search history:

**Edit, save, set up alert**

| #2 | Search Query #2: `KW=(glacier* or ice mass*) or (ice sheet*) and KW=(recession or history)`  
|    | 1794 Published Works results found in Multiple Databases  
|    | 24 Tables & Figures results found in Multiple Databases  
|    | 4 Web Sites results found in Web Resources Related to Natural Sciences  
|    | Date Range: Earliest to 2011  

| #3 | Search Query #3: `DE=(glacier* or ice mass*) or (ice sheet*) and DE=(recession or history)`  
|    | 704 Published Works results found in Multiple Databases  
|    | 0 Tables & Figures results found in Multiple Databases  
|    | 3 Web Sites results found in Web Resources Related to Natural Sciences  
|    | Date Range: Earliest to 2011  

| #4 | Search Query #4: `TI=(glacier* or ice mass*) or (ice sheet*) and TI=(recession or history)`  
|    | 23 Published Works results found in Multiple Databases  
|    | 19 Tables & Figures results found in Multiple Databases  
|    | 0 Web Sites results found in Web Resources Related to Natural Sciences  
|    | Date Range: Earliest to 2011  

| #5 | Search Query #5: `TI=(glacier* or ice mass*) or (ice sheet*) and TI=(recession or history)`  
|    | 23 Published Works results found in Multiple Databases  
|    | 19 Tables & Figures results found in Multiple Databases  
|    | 0 Web Sites results found in Web Resources Related to Natural Sciences  
|    | Date Range: Earliest to 2011  

- **Edit**: Edit search query
- **Save OR Alert**: Save or set up alert for search results
Newspaper Source Plus

- 1985-

Why newspapers? What is being reported, who is being interviewed and quoted, are there new (or old) studies cited that you should look at, etc.
Newspaper Source Plus: NYT

Searching: **Newspaper Source Plus** | Choose Databases

**glacier* and melt* and climate and change**

Basic Search | Advanced Search | Visual Search | Search History

14 Results for...

Boolean/Phrase:
**glacier* and melt* and climate and change**

Source Types

- [x] US Newspapers

Publication

- [x] New York Times
Review results:
Email, cite, export

5. *Melting* Pace Of *Glaciers* Is Quickening, Study Finds.
   Subjects: GLACIERS; RIVERS; CLIMATOLOGY; UNIVERSITIES & colleges; UNITED Nations
   Database: Newspaper Source Plus

   ![Add to folder](image) | Relevancy: ........

   ![HTML Full Text](image)
   ![Check for Full Text from ProQuest](image)
Check article, related subjects, names and World Glacier Monitoring Service

Title: Melting Pace Of Glaciers Is Quickening, Study Finds. By: Revkin, Andrew C., New York Times, 03624331, 03/18/2008

Database: Newspaper Source Plus

**Melting Pace Of Glaciers Is Quickening, Study Finds**

Section: Foreign Desk
Most of the world’s mountain glaciers, many of which feed major rivers and water supplies, are shrinking at an accelerating pace as the climate warms, according to a new report.

The report charts changes through 2006. It was issued Monday by the World Glacier Monitoring Service, which is based at the University of Zurich and supported by the United Nations Environment Program.

"The latest figures are part of what appears to be an accelerating trend with no apparent end in sight," said Wilfried Haeberli, the director of the glacier service.

The study included data from 30 glaciers spread around nine mountainous regions.

What organizations are involved in research and monitoring?
Welcome to the
world glacier monitoring service

under the auspices of: ICSU (FAGS), IUGG (IACS), UNEP, UNESCO, WMO

NEWS

General Assembly of the National Correspondents

Preliminary mass balance data 2007/08 now available!

GMBB No. 10 (2006-2007) is now available!


Joint UNEPAWGMS report on global glacier changes!
Searching Google or Google Scholar

- **Title**: intitle:glacier melt and intitle:climate
  Returns 4,210 hits
- **Top level domain**: intitle:glacier melt and intitle:climate
  site:edu
  Returns 85 hits
- **Top level domain**: intitle:glacier and intitle:climate
  site:gov
  Returns 75 hits
- **Specific site or subdomain**: Use “quotes“ around terms to group them together
National Snow and Ice Data Center: http://nsidc.org/

NSIDC did not show up in Google search
Cold Regions Bibliography Project: http://www.coldregions.org/

Another information service of the American Geological Institute

Recent Highlights

**Antarctic Bibliography**

View the February Antarctic Alert which highlights bibliographic citations recently added to the Antarctic Bibliography database.

**Bibliography on Cold Regions Science and Technology**

View the most recent Cold Regions Alert highlighting current literature from the Cold Regions Research and Engineering Laboratory's Virtual Library.

**International Polar Year 2007-2008 Publications**

View International Polar Year 2007-2008 publications added to the Bibliography on Cold Regions Science and Technology and the Antarctic Bibliography that are based on International Polar Year 2007-2008 projects, or view all IPY 2007-2008 publications by visiting the International Polar Year Publications Database.
Search the Antarctic Bibliography

Search All Fields
- **AND** glacier

Options:
- **Title**: climate change
- **Author**: 
- **Source**: 

Quick Search Tips: For AND use "&"; for OR use "/"; for NOT use "!"; for truncation wildcard use "*"
<table>
<thead>
<tr>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Climate change and recent water level variability in Patagonian proglacial lakes, Argentina</td>
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</tr>
<tr>
<td>Digging up the weather; climate change lessons from the past</td>
<td></td>
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<tr>
<td>Long-term sea surface temperature and climate change in the Australian-New Zealand region</td>
<td></td>
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<tr>
<td>Monitoring of small glaciers as indicators of climate change in the Antarctic Peninsula region [Monitoring malyi indikatorov izmenenii klimata v rayone Antarkticheskogo poluostrova]</td>
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<tr>
<td>Antarctic coastal polynya response to climate change</td>
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<tr>
<td>Inter-hemispheric linkages in climate change; paleo-perspectives for future climate change</td>
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<tr>
<td>Modelling glacier response to climate change</td>
<td></td>
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<tr>
<td>Glacial retreat heralds climate change in Antarctica</td>
<td></td>
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</tbody>
</table>
Other avenues of inquiry

- Is there a cross over between your topic and medicine, law, art, social sciences, environmental sciences, agriculture? If you think there could be, check those databases for articles that may not be indexed in atmospheric science databases.

- MGA in print for older papers, late 1800s – 1960 (in library)
- Proquest Historical Newspapers
- History of Science, Technology and Medicine
- JSTOR
- Historical Abstracts
- Antarctic and Cold Regions Bibliography
- WorldCat
Books

- *Compendium of meteorology*, prepared under the direction of the Committee on the Compendium of Meteorology, edited by Thomas F. Malone
- *History of meteorology to 1800*, by H. Howard Frisinger
- *Oxford guide to library research*, by Thomas Mann
- *The art and craft of research*, by Wayne C. Booth
Government Documents Databases

• NTIS
• NASA Technical Report Server
• GrayLIT Network
• DOE Information Bridge
• National Archives and Records Administration
Dissertations and Libraries

• Proquest Dissertations (>1861 for N. American Universities):
  http://www.library.wisc.edu/dissertations/search-other.html
• John Crerar Collection of Rare Books in the History of Science and Medicine (U. Chicago)
  http://www.lib.uchicago.edu/e/spcl/crerar.html
• NOAA Central Library: http://www.lib.noaa.gov/
• NASA History Division: http://history.nasa.gov/
• Weathering the Weather: The Origins of Atmospheric Science:
  http://orpheus.ucsd.edu/speccoll/weather/fulltext.html (for early and important works on meteorology)
Citation guides

- American Meteorological Society

- American Institute of Physics
  http://www.aip.org/pubservs/style/4thed/toc.html

- American Geophysical Union
  http://www.agu.org/pubs/authors/manuscript_tools/journals/pdf/AGU_author_guide.pdf

- Citing References in Your Paper (Writing Center, UW-Madison): Chicago/Turabian, MLA, APA…
Citation managers

- RefWorks:  http://www.refworks.com
- EndNote:  https://www.myendnoteweb.com/EndNoteWeb/2.5/release/EndNoteWeb.html
- Overview:  http://library.wisc.edu/citation-managers
Recap

• Determine search criteria and keep a notebook detailing what you’ve done and where you’ve looked
• Select database(s) to be searched
• Check MadCat for availability and location
• Resources in the Atmospheric Sciences [http://library.ssec.wisc.edu/resources/eresources/](http://library.ssec.wisc.edu/resources/eresources/)
• Learning to do Historical Research (William Cronon): [http://www.williamcronon.net/researching/index.htm](http://www.williamcronon.net/researching/index.htm)
• Questions: Ask a librarian