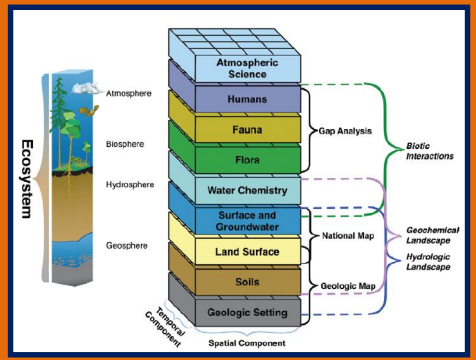
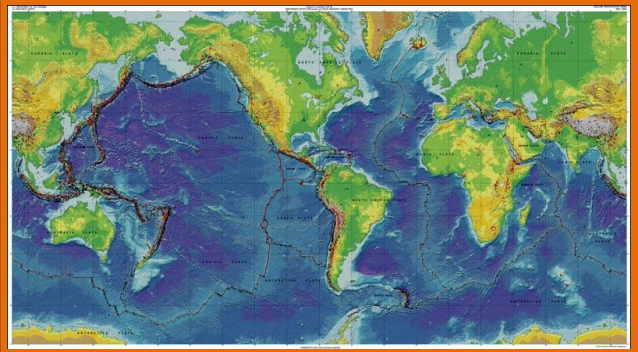
Princeton University LIBRARY

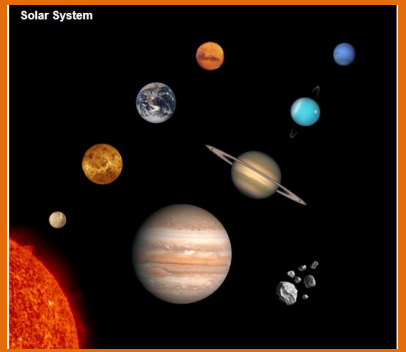
Introduction to Geosciences Library Research

January 23, 2020

Emily C. Wild, Chemistry, Geosciences and Environmental Studies Librarian
ewild@princeton.edu 609-258-5484







PRINCETON UNIVERSITY

Career Path

Emily C. Wild
Lewis Science Library
Princeton University
ewild@princeton.edu
609-258-5484

Help Schedule:
9:00 am – 5:00 pm , Eastern
Monday – Friday

- **Princeton University Library, 2018-Present**

Chemistry, Geosciences and Environmental Studies Librarian
https://library.princeton.edu/staff/ewild
ORCID: https://orcid.org/0000-0001-6157-7629

- **U.S. Geological Survey, Denver, Colorado : 2008-2018**

Librarian (Physical Scientist) : Water, Minerals, Energy & Hazards research services, instruction, and outreach

- **U.S. Geological Survey, NH-VT & MA-RI: 1996-2008**

Hydrologist: Water Use, Surface Water, Groundwater, Water Quality, Bibliographic Databases, NWIS Groundwater Database Administrator

- **Reference Desk at Providence College (2005-7), University of Rhode Island (1998-2000), and Hartwick College (1995)**
- **Environmental Law Intern at New York State Department of Conservation (NYSDEC), 1994**
- **Education: MLIS, University of Rhode Island ; BA Geology, Hartwick College ; Paralegal Certificate & Legal Investigations Certificate, and currently taking classes in legal studies**

Past GPO Sessions

Internet Archive WayBackMachine https://archive.org/web/

March 27, 2018 - " U.S. Geological Survey Library Materials for Natural Hazards (and Land Change" presentation for the U.S. Government Publishing Office (GPO), FDLP Federal Agency Webinars

March 27, 2018 - "USGS Library Materials for Water Resources Information" presentation for the U.S. Government Publishing Office (GPO), FDLP Federal Agency Webinars

March 6, 2018 - "USGS Library Materials for Earth's Age" presentation for the U.S. Government Publishing Office (GPO), FDLP Federal Agency Webinars

September 19, 2017 - "USGS Library - Indexes, Catalogs, and Other Bibliographic Tools, A day in the life of a reference librarian" presentation for the U.S. Government Publishing Office (GPO), FDLP Federal Agency Webinars

August 3, 2017 - "USGS Library - Oil, Gas, Coal, Uranium, and Minerals Maps and Data" presentation for the U.S. Government Publishing Office (GPO), FDLP Federal Agency Webinars

May 10, 2017 - "USGS Library - Using USGS Image, Map, and Data Products for Information Inquiries" presentation for the U.S. Government Publishing Office (GPO), FDLP Federal Agency Webinars

December 7, 2016 - "USGS Library: Geoscience Outreach and Instruction" presentation for the U.S. Government Publishing Office (GPO), FDLP Federal Agency Webinars

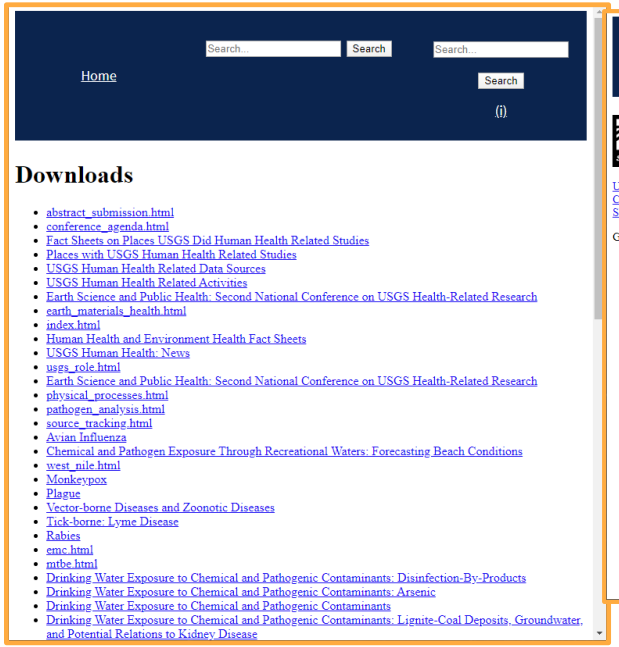
August 2014 - U.S. Government Printing Office (GPO) Federal Depository Library Program (FDLP), "Tricks and Tips for Finding and Using USGS Topographic Maps" : http://www.fdlp.gov/all-newsletters/community-insights/2045-tricks-and-tips-for-finding-and-using-usgs-topographic-maps

May 2014 - "U.S. Geological Survey Library: Access and Outreach," presentation for the U.S. Government Printing Office (GPO), FDLP Federal Agency Webinars

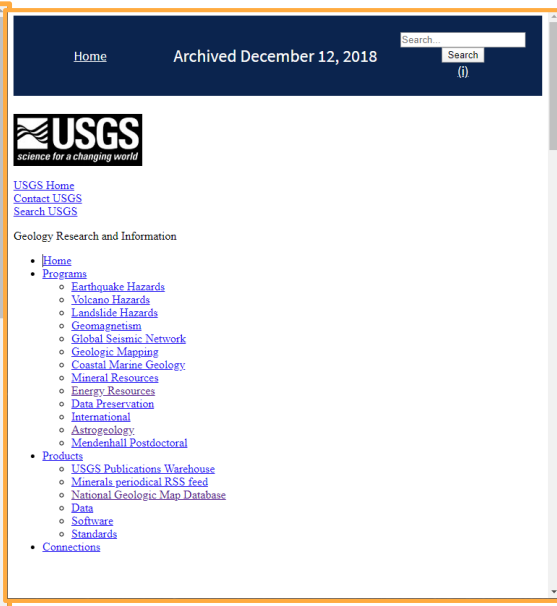
Research Tip

U.S. Geological Survey Archive: December 2019 WRET

https://archive.usgs.gov/

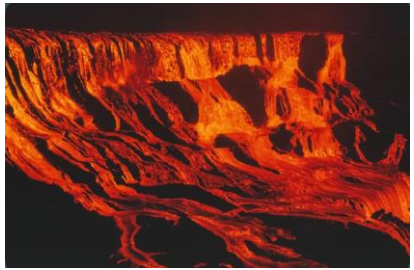


https://archive.usgs.gov/archive/sites/health.usgs.gov/downloads.html



https://archive.usgs.gov/archive/sites/geology.usgs.gov/data.htm

Introduction to Geosciences Library Research



Part 1. The Geosciences

- What is Geoscience?
- Who is a Geoscientist?
- Geological Surveys & Societies
- Geosciences Publication Databases

Part 2. Princeton University Library (Geosciences) and the U.S. Geological Survey Library

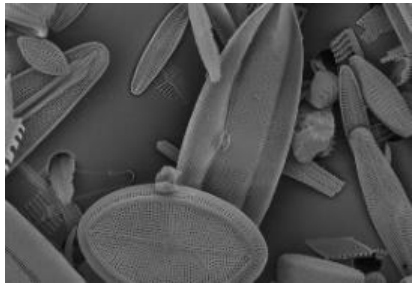
Part 3. Future In-Depth Library Research Presentations

What is Geoscience?

From American Geosciences Institute (AGI) :
https://www.americangeosciences.org/critical-issues/faq/what-is-geoscience

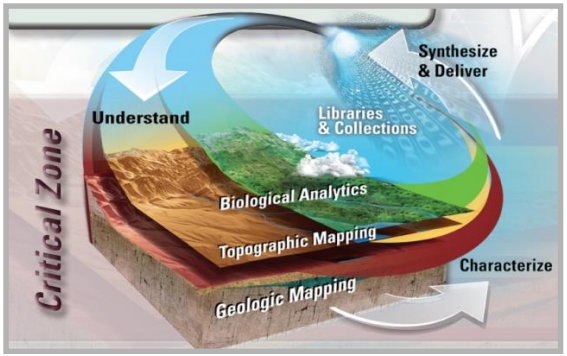
Geoscience is the study of the Earth - its oceans, atmosphere, rivers and lakes, ice sheets and glaciers, soils, its complex surface, rocky interior, and metallic core. This includes many aspects of how living things, including humans, interact with the Earth. Geoscience has many tools and practices of its own but is intimately linked with the biological, chemical, and physical sciences.

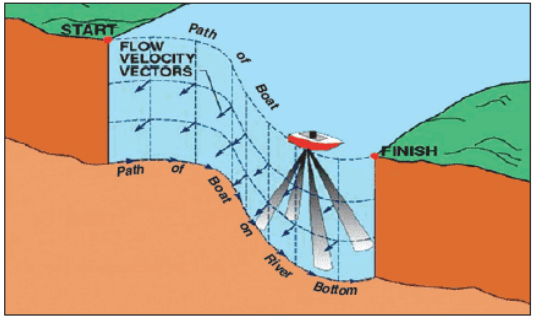
Geoscience investigates the past, measures the present, and models the future behavior of our planet. But it also involves the study of other planets, asteroids, and solar systems, both to better understand the Earth and to expand our knowledge of the universe.



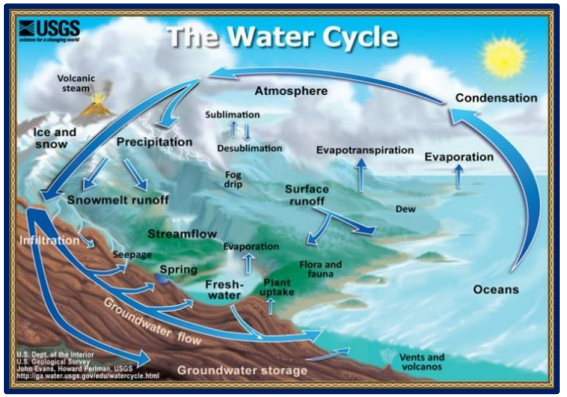


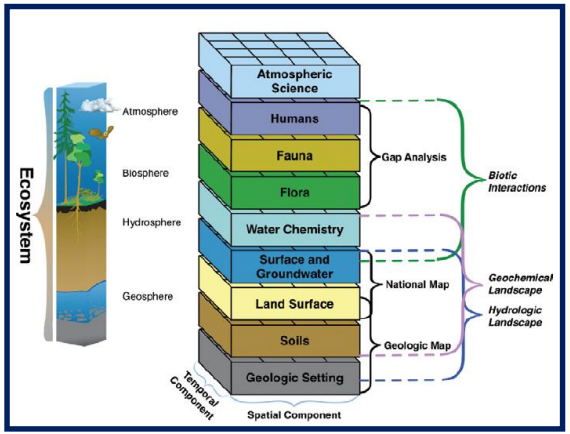
Geoscience is the study of the Earth - its oceans, atmosphere, rivers and lakes, ice sheets and glaciers, soils… = Atmospheric Science, Biology, Hydrology & Oceanography

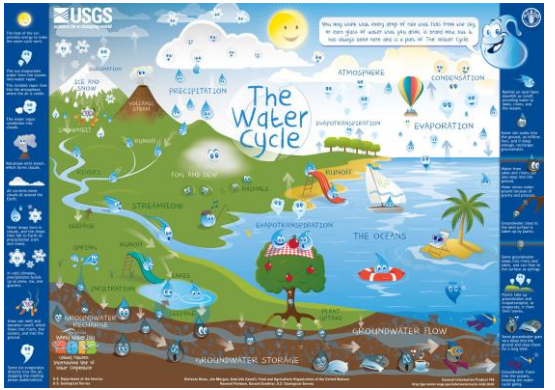




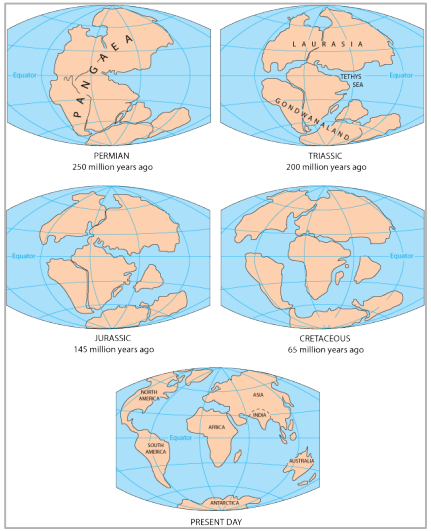
Acoustic Doppler Current Profiler (ADCP) mounted in a small watercraft, is used for measuring the discharge of a river. The ADCP acoustic beams are directed down into the water as it is guided across a river channel.

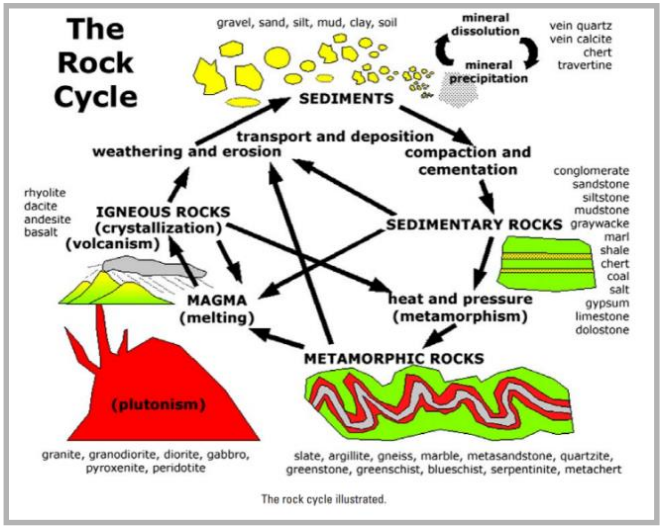


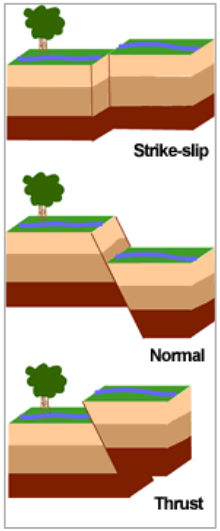


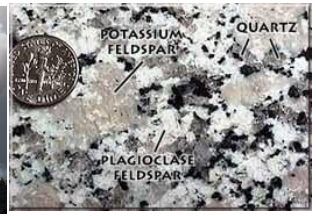


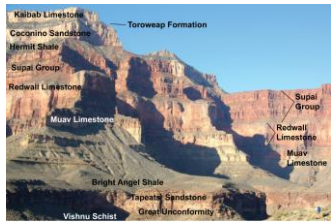
Geoscience is the study of the Earth - …its complex surface, rocky interior, and metallic core… = structural, earthquakes, mineralogy, petrology, geomagnetism, geochemistry, and geophysics



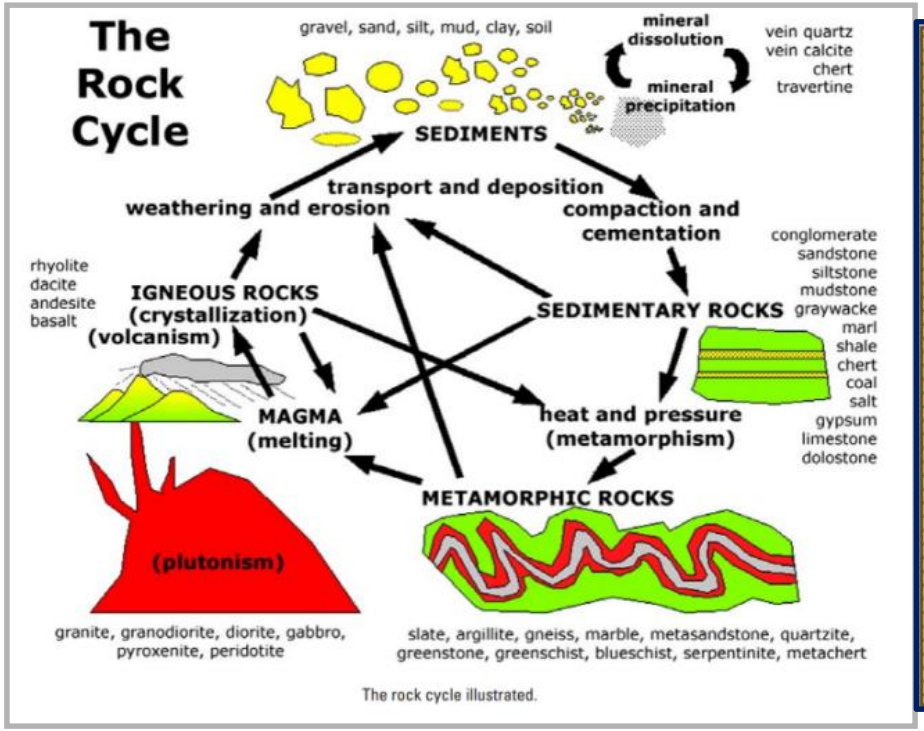




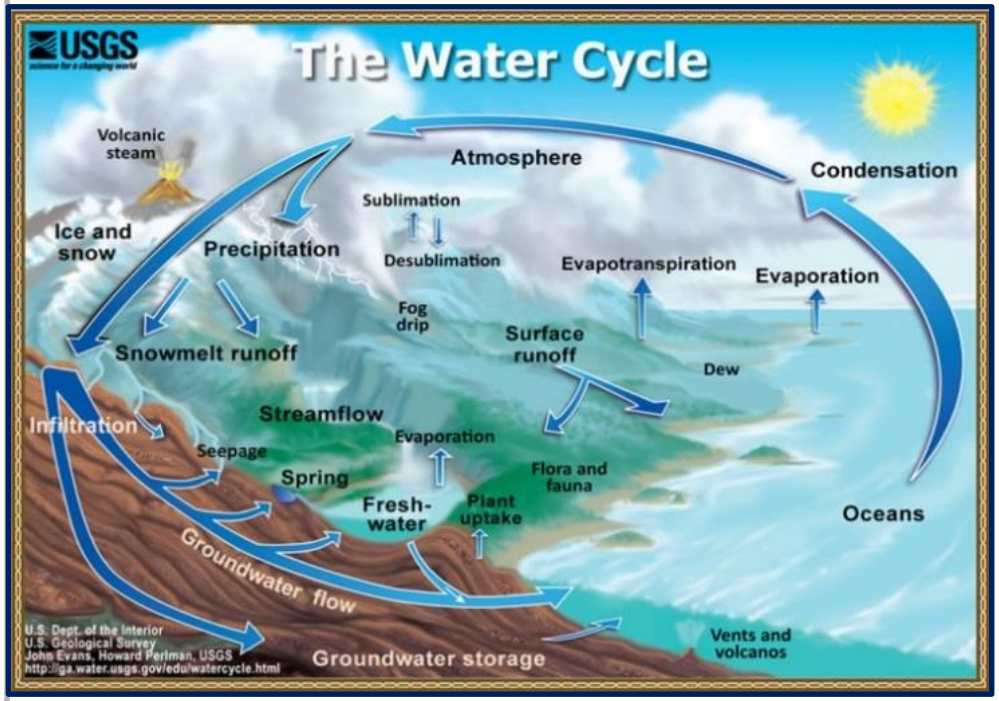




Rock Cycle & Water Cycle



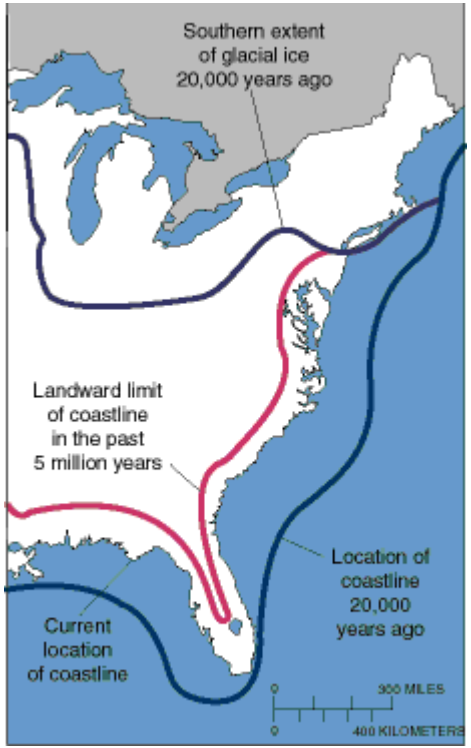
The rock cycle illustrated.



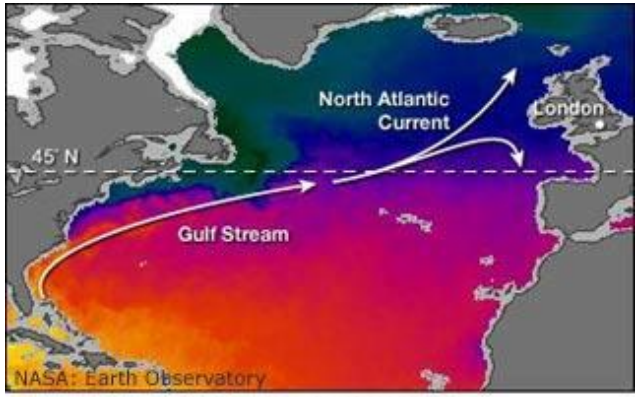
https://www.usgs.gov/special-topic/water-science-school/science/water-cycle-components

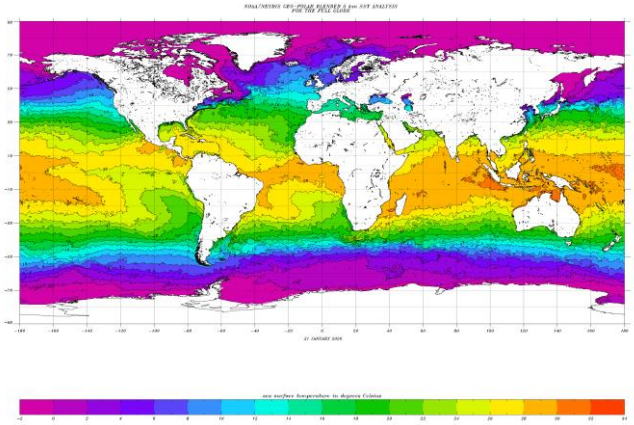
Oceans

Cretaceous Western Interior Seaway
https://pubs.usgs.gov/pp/1561/report.pdf



https://www.usgs.gov/special-topic/water-science-school/science/oceans-and-seas-and-water-cycle?qt-science_center_objects=0#qt-science_center_objects





https://www.ospo.noaa.gov/Products/ocean/sst/contour/

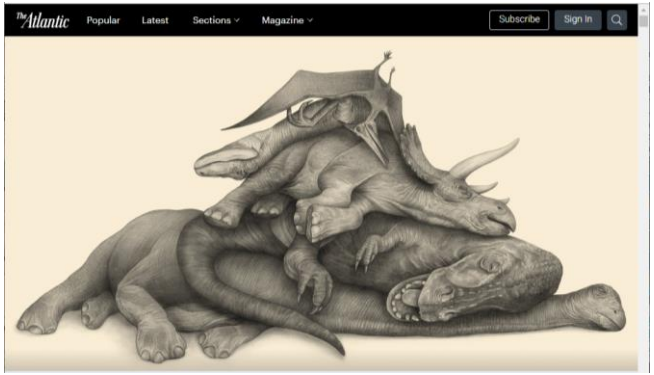
Who is a Geoscientist?

Example: Princeton University:
[Department of Geosciences]

[Climate scientist Gabriel Vecchi: Climate crisis contributes to intensity of storms]

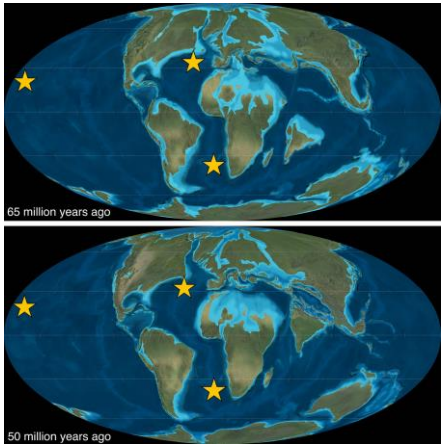
[How Has Climate Change Affected Hurricane Dorian?]

[Princeton University/Geophysical Fluid Dynamics Laboratory]



[The Nastiest Feud in Science]
[A Princeton geologist has endured decades of ridicule for arguing that the fifth extinction was caused not by an asteroid but by a series of colossal volcanic eruptions. But she's reopened that debate.]

When the landmass that is now the Indian subcontinent slammed into Asia about 50 million years ago, the collision changed the configuration of the continents, the landscape, global climate and more. Now a team of Princeton University scientists has identified one more effect: the oxygen in the world's oceans increased, altering the conditions for life.



[Princeton geoscientists find new fallout from 'the collision that changed the world']

Who is a geoscientist?

- Biologists
- Biogeochemists
- Cartographers
- Chemists
- Engineers
- Geologists
- Hydrologists
- IT Specialists
- Librarians
- Mathematicians
- Physicists
- Physical Scientists
- Seismologists
- Volcanologists
- And more!

https://www.usgs.gov/staff-profiles/susan-m-hall

https://pubs.er.usgs.gov/search?q=susan+hall

Critical analysis of world uranium resources
https://pubs.er.usgs.gov/publication/sir20125239

Is this citation in GeoRef? Yes
Web of Science? No
Scopus? No
GeoscienceWorld? No
AAPG Datapages? No
Princeton University Library? Yes with link!
USGS Library? No (in Pubs Warehouse)

https://www.usgs.gov/staff-profiles/peter-george-chirico

https://pubs.er.usgs.gov/search?q=Peter+Chirico

The Central African Republic Diamond Database—A geodatabase of archival diamond occurrences and areas of recent artisanal and small-scale diamond mining
https://pubs.er.usgs.gov/publication/ofr20181088

Is this citation in GeoRef? Yes
Web of Science? No
Scopus? No
GeoscienceWorld? No
AAPG Databases? No
Princeton University Library? No
USGS Library? No (in Pubs Warehouse)

Geological Surveys & Societies

U.S Geological Survey (USGS)
http://www.usgs.gov

American Association of State Geologists (AASG)
http://www.stategeologists.org/

Geological Survey of Japan's Directory of Geoscience Organizations of the World
https://www.gsj.jp/en/gsj-link/directory/index.html

American Geosciences Institute (AGI)
https://www.americangeosciences.org/

Member Societies
https://www.americangeosciences.org/member-societies

Geological Society of America (GSA)
http://www.geosociety.org/

American Geophysical Union (AGU)
https://sites.agu.org/

Geoscience Information Society (GSIS)
http://www.geoinfo.org/

U.S. Geological Survey (USGS) Coalition:
http://www.usgscoalition.org/

The Member Societies of AGI

AASP - The Palynological Society
American Association of Geographers
American Association of Petroleum Geologists
American Geophysical Union
American Institute of Hydrology
American Institute of Professional Geologists
American Meteorological Society
American Rock Mechanics Association
Association for the Sciences of Limnology and Oceanography
Association for Women Geoscientists
Association of American State Geologists
Association of Earth Science Editors
Association of Environmental & Engineering Geologists
Clay Minerals Society
Council on Undergraduate Research
Geo-Institute of the American Society of Civil Engineers
Geochemical Society
Geological Association of Canada
Geological Society of America
Geological Society of London
Geoscience Information Society
History of Earth Sciences Society
International Association of Hydrogeologists/U.S. National Chapter
International Medical Geology Association
Karst Waters Institute
Mineralogical Society of America
Mineralogical Society of Great Britain and Ireland
National Association of Black Geoscientists
National Association of Geoscience Teachers
National Association of State Boards of Geology
National Cave and Karst Research Institute
National Earth Science Teachers Association
National Ground Water Association
National Speleological Society
Paleobotanical Section of the Botanical Society of America
Paleontological Research Institution
Paleontological Society
Petroleum History Institute
Seismological Society of America
SEPM (Society for Sedimentary Geology)
Society for Mining, Metallurgy & Exploration
Society of Economic Geologists
Society of Exploration Geophysicists
Society of Independent Professional Earth Scientists
Society of Mineral Museum Professionals
Society of Vertebrate Paleontology
Soil Science Society of America
The Society for Organic Petrology
United States Permafrost Association

Geological Society of America (GSA) Associated Societies

1. AASP - The Palynological Society
2. American Association of Petroleum Geologists (AAPG)
3. American Geophysical Union (AGU)
4. American Institute of Professional Geologists (AIPG)
5. American Quaternary Association (AMQUA)
6. American Rock Mechanics Association (ARMA)
7. Association for the Sciences of Limnology and Oceanography (ASLO)
8. American Water Resources Association (AWRA)
9. Asociación Geológica Argentina (AGA)
10. Association for Women Geoscientists (AWG)
11. Association of American State Geologists (AASG)
12. Association of Earth Science Editors (AESE)
13. Association of Environmental & Engineering Geologists (AEG)
14. Association of Geoscientists for International Development (AGID)
15. Blueprint Earth (BE)
16. The Clay Minerals Society (CMS)
17. Colorado Scientific Society (CSS)
18. Council on Undergraduate Research Geosciences Division (CUR)
19. Cushman Foundation (CF)
20. Environmental & Engineering Geophysical Society (EEGS)
21. European Association of Geoscientists & Engineers (EAGE)
22. European Geosciences Union (EGU)
23. Geobiological Society (GBS)
24. Geochemical Society (GS)
25. Geologica Belgica (GB)
26. Geological Association of Canada (GAC)
27. Geological Society of Africa (GSAF)
28. Geological Society of Australia (GSAus)
29. Geological Society of China (GSC)
30. Geological Society of London (GSL)
31. Geological Society of South Africa (GSSA)
32. Geoscience Information Society (GSIS)
33. Geoscience Society of New Zealand (GSNZ)
34. German Geological Society (GV)
35. Groundwater Resources Association of California (GRA)
36. History of Earth Sciences Society (HESS)
37. International Association for Geoscience Diversity (IAGD)
38. International Association for Promoting Geoethics (IAPG)
39. International Association of Emergency Managers (IAEM)
40. International Association of GeoChemistry (IAGC)

Geological Society of America (GSA) Associated Societies

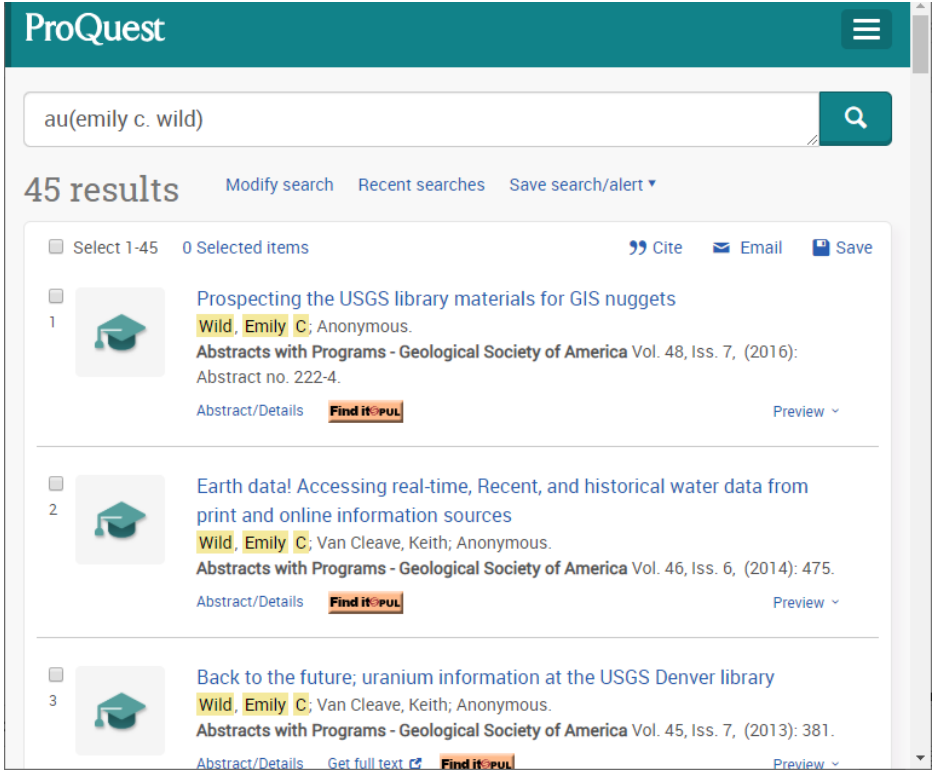
41. International Association of Hydrogeologists (IAH)
42. International Association of Limnogeology (IAL)
43. International Medical Geology Association (IMGA)
44. International Society for Aeolian Research (ISAR)
45. Israel Geological Society (IGS)
46. Karst Waters Institute (KWI)
47. Microanalysis Society (MAS)
48. Mineralogical Association of Canada (MAC)
49. The Mineralogical Society (MS)
50. Mineralogical Society of America (MSA)
51. Minnesota Ground Water Association (MGWA)
52. National Association of Black Geoscientists (NABG)
53. National Association of Geoscience Teachers (NAGT)
54. National Association of State Boards of Geology (ASBOG®)
55. National Cave and Karst Research Institute (NCKRI)
56. National Earth Science Teachers Association (NESTA)
57. National Ground Water Association (NGWA)
58. National Speleological Society (NSS)
59. Nepal Geological Society (NGS)
60. Nigerian Society of Physical Sciences (NSPS)
61. Paleontological Research Institution (PRI)
62. Paleontological Society (PS)
63. Seismological Society of America (SSA)
64. Sigma Gamma Epsilon (SGE)
65. Sociedad Geológica Mexicana, A.C. (SGM)
66. Società Geologica Italiana (SGI)
67. Society for American Archaeology (SAA)
68. Society for Environmental Geochemistry and Health (SEGH)
69. Society for Mining, Metallurgy & Exploration (SME)
70. SEPM (Society for Sedimentary Geology)
71. Society for the Preservation of Natural History Collections (SPNHC)
72. Society of Economic Geologists (SEG)
73. Society of Exploration Geophysicists (SEG)
74. Society of Vertebrate Paleontology (SVP)
75. Soil Science Society of America (SSSA)
76. Western Interior Paleontological Society (WIPS)

Geosciences Publication Databases

GeoRef (AGI):
https://www.americangeosciences.org/information/georef
The GeoRef database covers the geology of North America from 1666 to the present and the geology of the rest of the world from 1933 to the present. The database includes references to all publications of the U.S. Geological Survey. Masters' theses and doctoral dissertations from U.S. and Canadian universities are also covered.

Princeton University Library, GeoRef via Proquest

USGS Library, GeoRef via Ebsco



USGS Bibliographies and Indexes, 1785-1970

USGS Bulletin 746: Geologic literature on North America, 1785-1918; Part I, Bibliography https://pubs.er.usgs.gov/publication/b746

USGS Bulletin 747: Geologic literature on North America, 1785-1918; Part II, Index https://pubs.er.usgs.gov/publication/b747

USGS Bulletin 823: Bibliography of North American geology, 1919-1928 https://pubs.er.usgs.gov/publication/b823

USGS Bulletin 937: Bibliography of North American geology, 1929-1939 https://pubs.er.usgs.gov/publication/b937

USGS Bulletin 1049: Bibliography of North American geology, 1940-1949 https://pubs.er.usgs.gov/publication/b1049

USGS Bulletin 1195: Bibliography of North American geology, 1950-1959 https://pubs.er.usgs.gov/publication/b1195

USGS Bulletin 1196: Bibliography of North American geology, 1960 https://pubs.er.usgs.gov/publication/b1196

USGS Bulletin 1197: Bibliography of North American geology, 1961 https://pubs.er.usgs.gov/publication/b1197

USGS Bibliographies and Indexes, 1785-1970

USGS Bulletin 1232: Bibliography of North American geology, 1962 https://pubs.er.usgs.gov/publication/b1232

USGS Bulletin 1233: Bibliography of North American geology, 1963 https://pubs.er.usgs.gov/publication/b1233

USGS Bulletin 1234: Bibliography of North American geology, 1964 https://pubs.er.usgs.gov/publication/b1234

USGS Bulletin 1235: Bibliography of North American geology, 1965 https://pubs.er.usgs.gov/publication/b1235

USGS Bulletin 1266: Bibliography of North American geology, 1966 https://pubs.er.usgs.gov/publication/b1266

USGS Bulletin 1267: Bibliography of North American geology, 1967 https://pubs.er.usgs.gov/publication/b1267

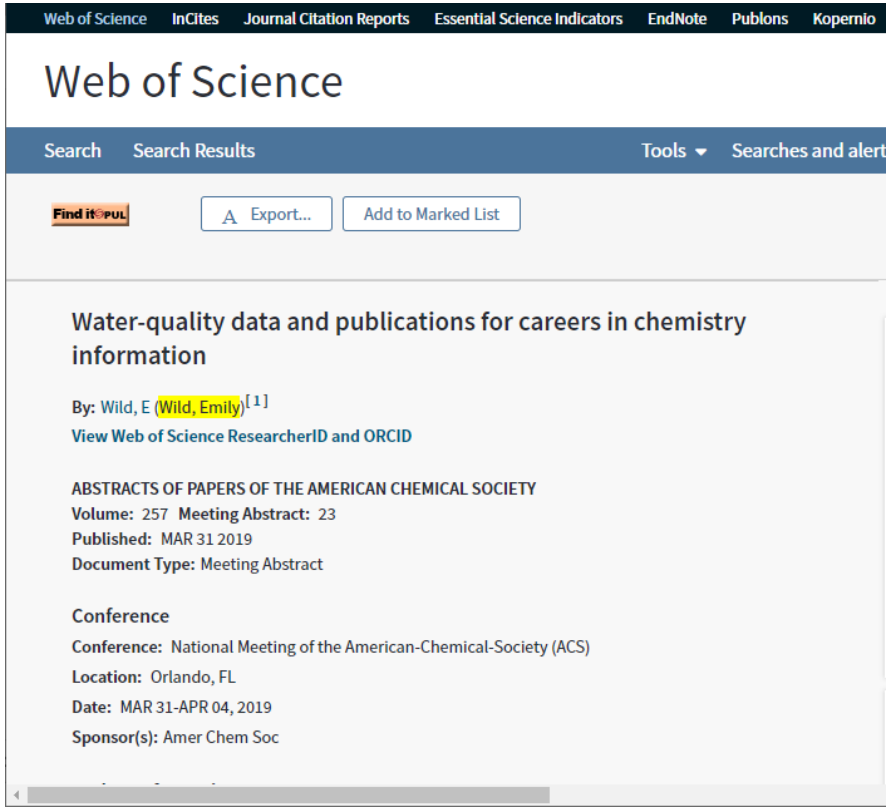
USGS Bulletin 1268: Bibliography of North American geology, 1968 https://pubs.er.usgs.gov/publication/b1268

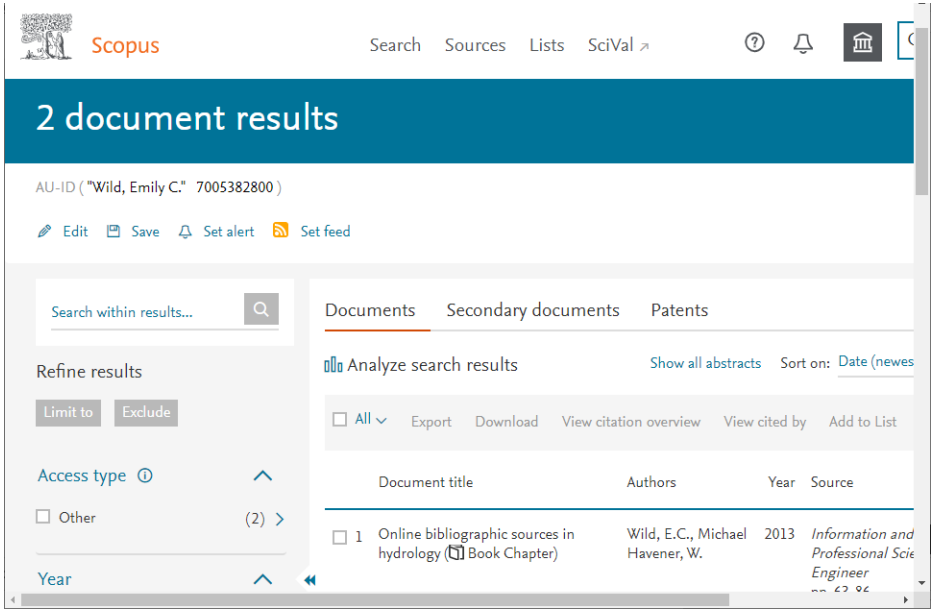
USGS Bulletin 1269: Bibliography of North American geology, 1969 https://pubs.er.usgs.gov/publication/b1269

USGS Bulletin 1370: Bibliography of North American geology, 1970 https://pubs.er.usgs.gov/publication/b1370

Geosciences Publication Databases

Web of Science & Scopus





Geosciences Publication Databases

GeoScienceWorld & AAPG Datapages

GSW Publishers

AASP -The Palynological Society

American Association of Petroleum Geologists

Association of Environmental & Engineering Geologists

Cambridge University Press

Canadian Institute of Mining, Metallurgy & Petroleum

Canadian Science Publishing

Canadian Society of Petroleum Geologists

Clay Minerals Society

Cushman Foundation for Foraminiferal Research

E. Schweizerbart'sche Verlagsbuchhandlung Science Publishers

Environmental & Engineering Geophysical Society

European Association for Geochemistry

Geological Society of America

Geological Society of London

Geological Society of South Africa

Gulf Petrolink

Micropaleontology Press

Mineralogical Association of Canada

Mineralogical Society of America

Mineralogical Society of Great Britain and Ireland

Paleontological Society

Seismological Society of America

SEPM Society for Sedimentary Geology

Societa Geologica Italiana

Société Géologique de France

Society of Economic Geologists

Society of Exploration Geophysicists

Soil Science Society of America

University of Wyoming

Reference Books

Glossary of Geology:
http://glossary.agiweb.org/dbtw-wpd/glossary/search.aspx
(mobile app available)
Catalog record:
https://catalog.princeton.edu/catalog/5183178

Standard Methods for the Examination of Water and Wastewater
https://www.standardmethods.org/

Example searches, library catalog:
Encyclopedias for Geophysics

Handbooks Geochemistry

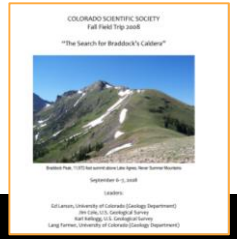
Handbooks Mineralogy

Manuals Hydrology

Geologic Guidebooks of North America Database
https://www.americangeosciences.org/information/geologic-guidebooks-north-america-database

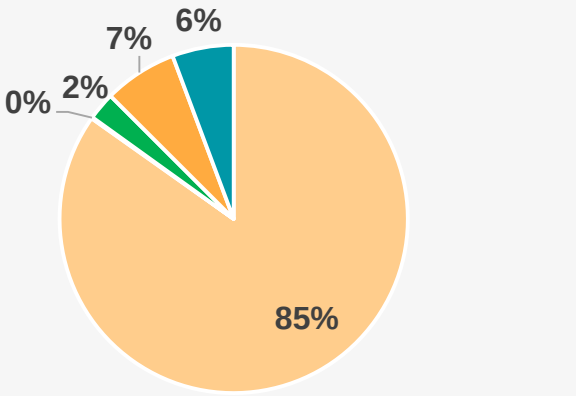
Ivy Plus Libraries Confederation launches Geologic Field Trip Guidebooks Web Archive
https://library.princeton.edu/news/general/2019-09-09/ivy-plus-libraries-confederation-launches-geologic-field-trip-guidebooks-web

Title: Search for Braddock's Caldera: a Guidebook for **Colorado** Scientific Society Fall 2008 Field Trip, Never Summer Mountains, **Colorado**
URL: https://pubs.usgs.gov/of/2008/1360/pdf/OF08-1360_508.pdf

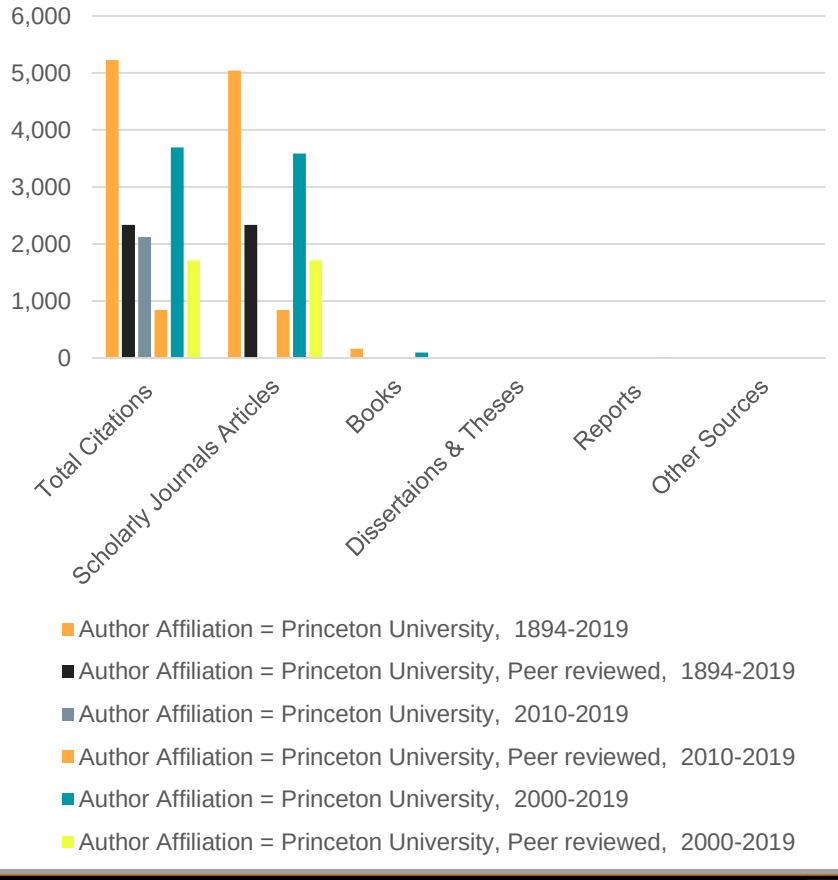


Collection Development Research

GeoRef Citation Analysis, 1660-2019

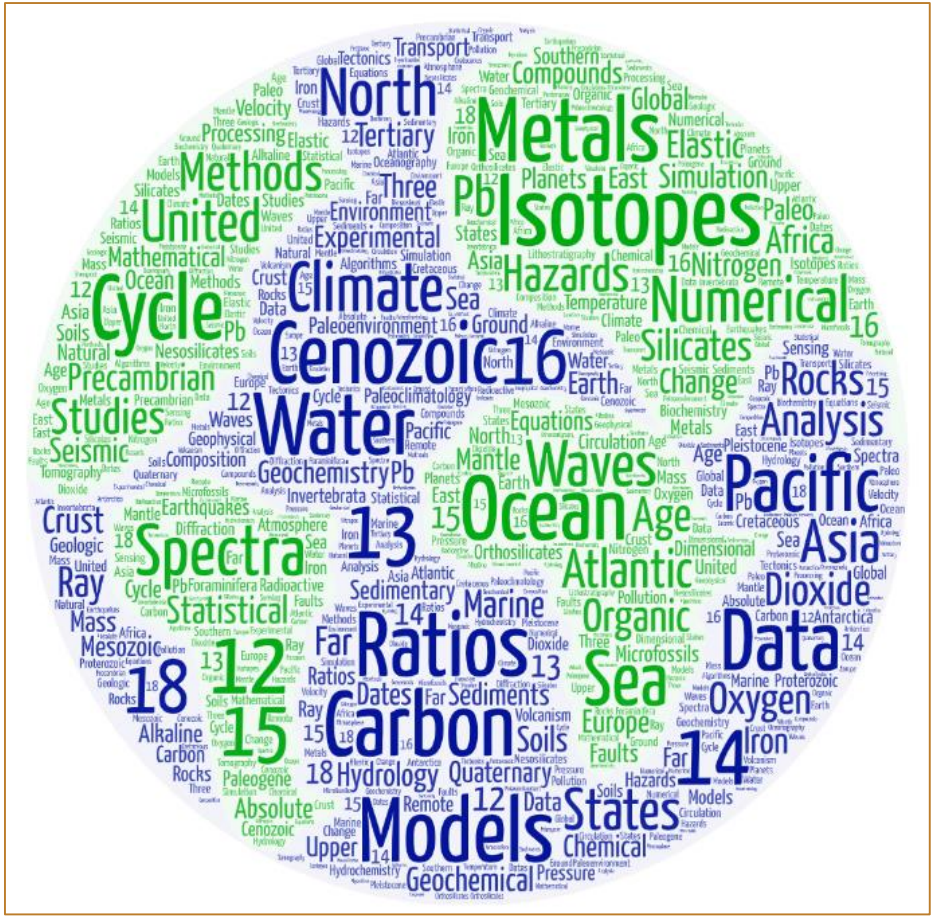


Citation Analysis of GeoRef

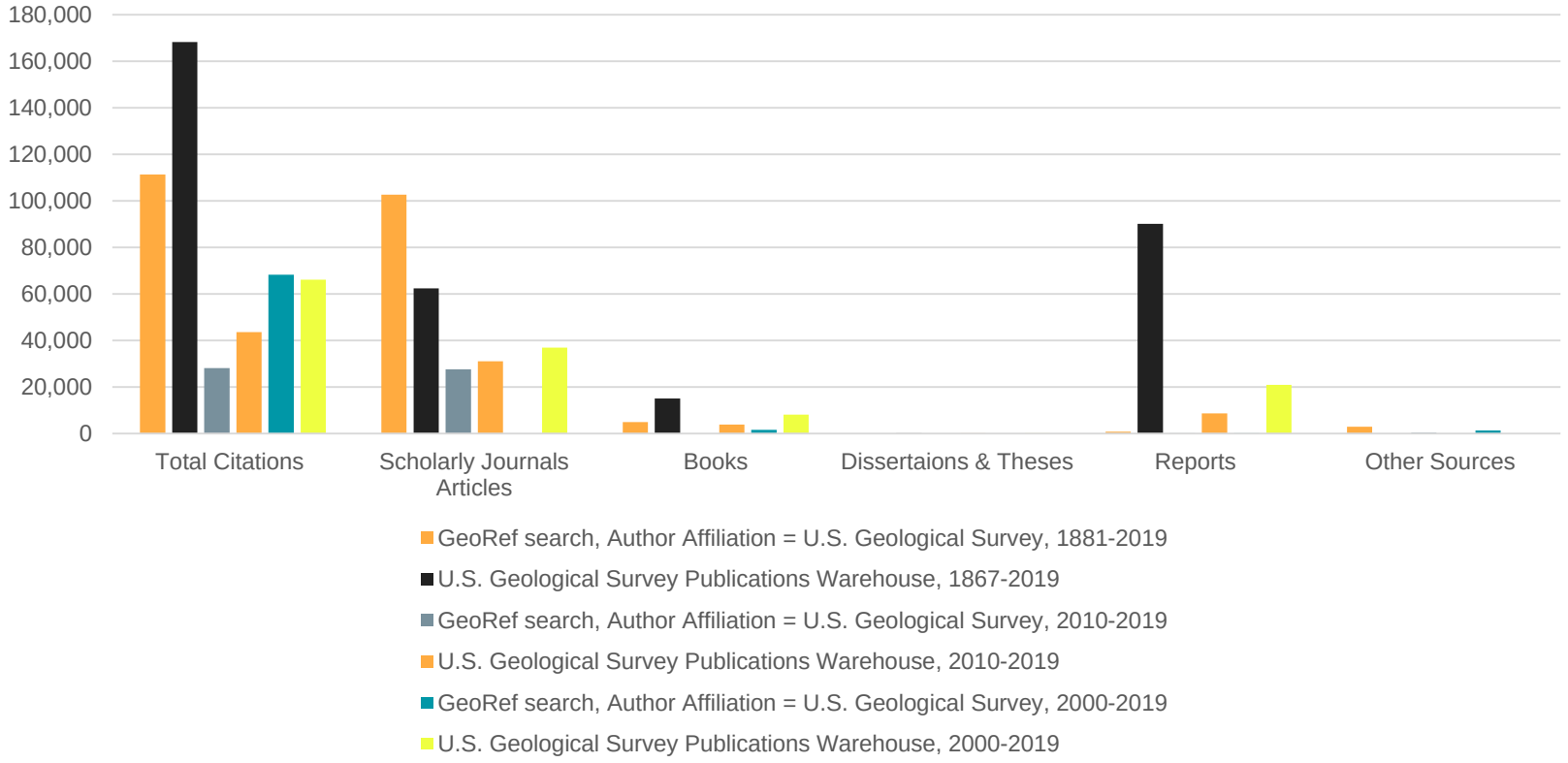


Collection Development Research

In order to better understand the research materials currently being used by Princeton University, subjects within the geosciences from 2010 to 2019 for all peer-reviewed citations where Princeton University is the affiliation and are presented as a word cloud. These subjects were compared to the Collection Development Plans (CDPs) within the Ivy Plus Confederation and the libraries of large geosciences research institutions.



Discovery of USGS Publications by Affiliation in GeoRef vs. the USGS Publications Warehouse (Official Government Database for USGS Publications)



Search Terms	Total Citations	Scholarly Journals Articles	Books	Dissertations & Theses	Reports	Other Sources
GeoRef search, Author Affiliation = U.S. Geological Survey, 1881-2019	111,306	102,651	4,960	0	777	2,918
U.S. Geological Survey Publications Warehouse, 1867-2019	**168,370**	**62,384**	**15,072**	**151**	**90,115**	**0**
GeoRef search, Author Affiliation = U.S. Geological Survey, 2010-2019	28,164	27,554	214	0	2	394
U.S. Geological Survey Publications Warehouse, 2010-2019	**43,602**	**31,064**	**3868**	**12**	**8,658**	**0**
GeoRef search, Author Affiliation = U.S. Geological Survey, 2000-2019	68,305	65,165	1,620	0	157	1,363
U.S. Geological Survey Publications Warehouse, 2000-2019	**66,109**	**36,994**	**8099**	**54**	**20,962**	**0**

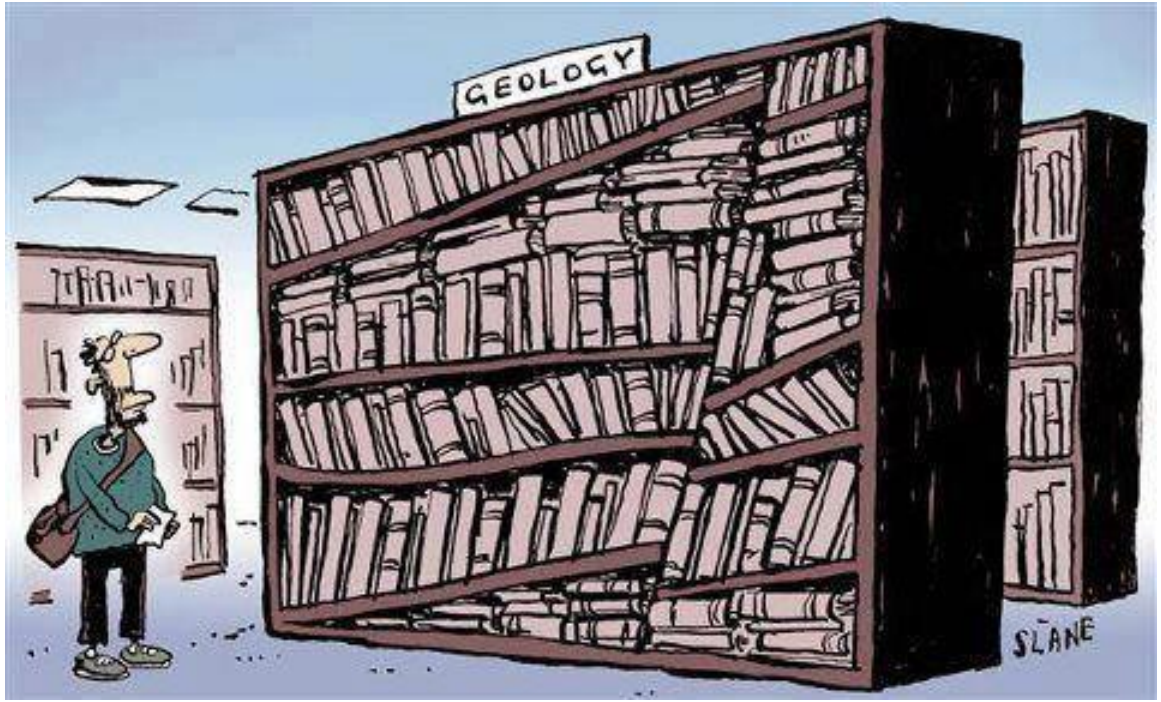
USGS Publication Warehouse Downloads - 2018

Title	Year	Citation page URL	PDF URL	# of downloads
Topographic map symbols	2005	https://pubs.er.usgs.gov/publication/70039164	https://pubs.usgs.gov/gip/TopographicMapSymbols/topomapsymbols.pdf	121,540
Summary of hydrogeologic controls on ground-water flow at the Nevada Test Site, Nye County, Nevada	1996	https://pubs.er.usgs.gov/publication/wri964109	https://pubs.usgs.gov/wri/wri964109/Plate4.pdf	119,068
Challenge theme 5: Current and future needs of energy and mineral resources in the Borderlands and the effects of their development: Chapter 7 in United States-Mexican Borderlands: Facing tomorrow's challenges through USGS science	2013	https://pubs.er.usgs.gov/publication/cir13807	https://pubs.usgs.gov/circ/1380/downloads/Chapter7.pdf	90,826
Map scales	1992	https://pubs.er.usgs.gov/publication/70039582	https://pubs.usgs.gov/unnumbered/70039582/report.pdf	58,584
2018 update to the U.S. Geological Survey national volcanic threat assessment	2018	https://pubs.er.usgs.gov/publication/sir20185140	https://pubs.usgs.gov/sir/2018/5140/sir20185140.pdf	49,964
Features shown on topographic maps	1955	https://pubs.er.usgs.gov/publication/cir368	https://pubs.usgs.gov/circ/1955/0368/report.pdf	43,950
Minerals of Washington, D.C. and vicinity	1976	https://pubs.er.usgs.gov/publication/ofr76849	https://pubs.usgs.gov/of/1976/0849/report.pdf	37,407
Map showing lava-flow hazard zones, Island of Hawaii	1992	https://pubs.er.usgs.gov/publication/mf2193	https://pubs.usgs.gov/mf/1992/2193/mf2193.pdf	34,466
Map projections: A working manual	1987	https://pubs.er.usgs.gov/publication/pp1395	https://pubs.usgs.gov/pp/1395/report.pdf	33,519
Ground water and surface water; a single resource	1998	https://pubs.er.usgs.gov/publication/cir1139	https://pubs.usgs.gov/circ/circ1139/pdf/circ1139.pdf	30,417

USGS Publication Warehouse Downloads - 2019

Title	Year	Citation page URL	PDF URL	# of downloads
Glaciers of Asia	2010	https://pubs.er.usgs.gov/publication/pp1386F	https://pubs.usgs.gov/pp/p1386f/pdf/F4_Pakistan.pdf	181,334
Contributions to economic geology, 1910, Part II, Mineral fuels--The Little Powder River coal field, Campbell County, Wyoming	1912	https://pubs.er.usgs.gov/publication/b471F	https://pubs.usgs.gov/bul/0471f/report.pdf	151,119
Topographic map symbols	2005	https://pubs.er.usgs.gov/publication/70039164	https://pubs.usgs.gov/gip/TopographicMapSymbols/topomapsymbols.pdf	100,233
Summary of hydrogeologic controls on ground-water flow at the Nevada Test Site, Nye County, Nevada	1996	https://pubs.er.usgs.gov/publication/wri964109	https://pubs.usgs.gov/wri/wri964109/Plate4.pdf	67,152
Challenge theme 5: Current and future needs of energy and mineral resources in the Borderlands and the effects of their development: Chapter 7 in United States-Mexican Borderlands: Facing tomorrow's challenges through USGS science	2013	https://pubs.er.usgs.gov/publication/cir13807	https://pubs.usgs.gov/circ/1380/downloads/Chapter7.pdf	54,209
Map scales	1992	https://pubs.er.usgs.gov/publication/70039582	https://pubs.usgs.gov/unnumbered/70039582/report.pdf	38,815
Ground water and surface water; a single resource	1998	https://pubs.er.usgs.gov/publication/cir1139	https://pubs.usgs.gov/circ/circ1139/pdf/circ1139.pdf	27,260
It is raining plastic	2019	https://pubs.er.usgs.gov/publication/ofr20191048	https://pubs.usgs.gov/of/2019/1048/ofr20191048.pdf	26,509
Features shown on topographic maps	1955	https://pubs.er.usgs.gov/publication/cir368	https://pubs.usgs.gov/circ/1955/0368/report.pdf	23,673
2018 update to the U.S. Geological Survey national volcanic threat assessment	2018	https://pubs.er.usgs.gov/publication/sir20185140	https://pubs.usgs.gov/sir/2018/5140/sir20185140.pdf	22,969

Part 2: Libraries



Princeton University Library: http://library.princeton.edu
U.S. Geological Survey Library: http://library.usgs.gov

Princeton University – GPO FDLP since 1884

FDLP
Federal Depository Library Program

CATALOG OF U.S. GOVERNMENT PUBLICATIONS (CGP)

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  - Search FDLD Profiles
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FDLD PROFILE SEARCH

SEARCH RESULTS: 23 profiles for **State=New Jersey**

	Depository Library Number	Depository Type	Parent Institution of Library	Library Name	City	State
VIEW	0363	Selective depository library		New Jersey State Library	Trenton	New Jersey
VIEW	0363A	Selective depository library	Monmouth County	Monmouth County Library - Eastern Branch	Shrewsbury	New Jersey
VIEW	0363B	Selective depository library	County College of Morris	Masten Learning Resources Center	Randolph	New Jersey
VIEW	0364	Selective depository library	Rutgers University, New Brunswick	Archibald S. Alexander Library	New Brunswick	New Jersey
VIEW	0365A	Selective depository library	New Jersey City University	Guarini Library	Jersey City	New Jersey
VIEW	0365B	Selective depository library		Phillipsburg Free Public Library	Phillipsburg	New Jersey
VIEW	0366A	Selective depository library	Rutgers University, Newark	John Cotton Dana Library	Newark	New Jersey
VIEW	0367	Selective depository library	Rutgers University, Camden	Paul Robeson Library	Camden	New Jersey
VIEW	0367B	Selective depository library	Stockton University	Richard E. Bjork Library	Galloway	New Jersey
VIEW	0369A	Selective depository library	Free Public Library of Woodbridge	Main Library	Woodbridge	New Jersey
VIEW	0370	Selective depository library	Princeton University	Firestone Library	Princeton	New Jersey
VIEW	0370B	Selective depository library	Rider University	Franklin F. Moore Library	Lawrenceville	New Jersey
VIEW	0371	Selective depository library	Drew University	Library	Madison	New Jersey
VIEW	0371A	Selective depository library	Rutgers University, Camden	Law Library	Camden	New Jersey
VIEW	0372	Selective depository library		Free Public Library of Elizabeth	Elizabeth	New Jersey
VIEW	0373	Selective depository library	Monmouth University	Library	West Long Branch	New Jersey
VIEW	0373A	Selective depository library	Ocean County College	Library	Toms River	New Jersey
VIEW	0374	Selective depository library		Johnson Public Library	Hackensack	New Jersey
VIEW	0376	Regional depository library		Newark Public Library	Newark	New Jersey
VIEW	0378A	Selective depository library	Rutgers University, Newark	Law Library	Newark	New Jersey
VIEW	0378B	Selective depository library	Seton Hall University School of Law	Peter W. Rodino Jr. Law Library	Newark	New Jersey
VIEW	0379A	Selective depository library		Jersey City Free Public Library	Jersey City	New Jersey
VIEW	0380A	Selective depository library	Montclair State University	Harry A. Sprague Library	Montclair	New Jersey

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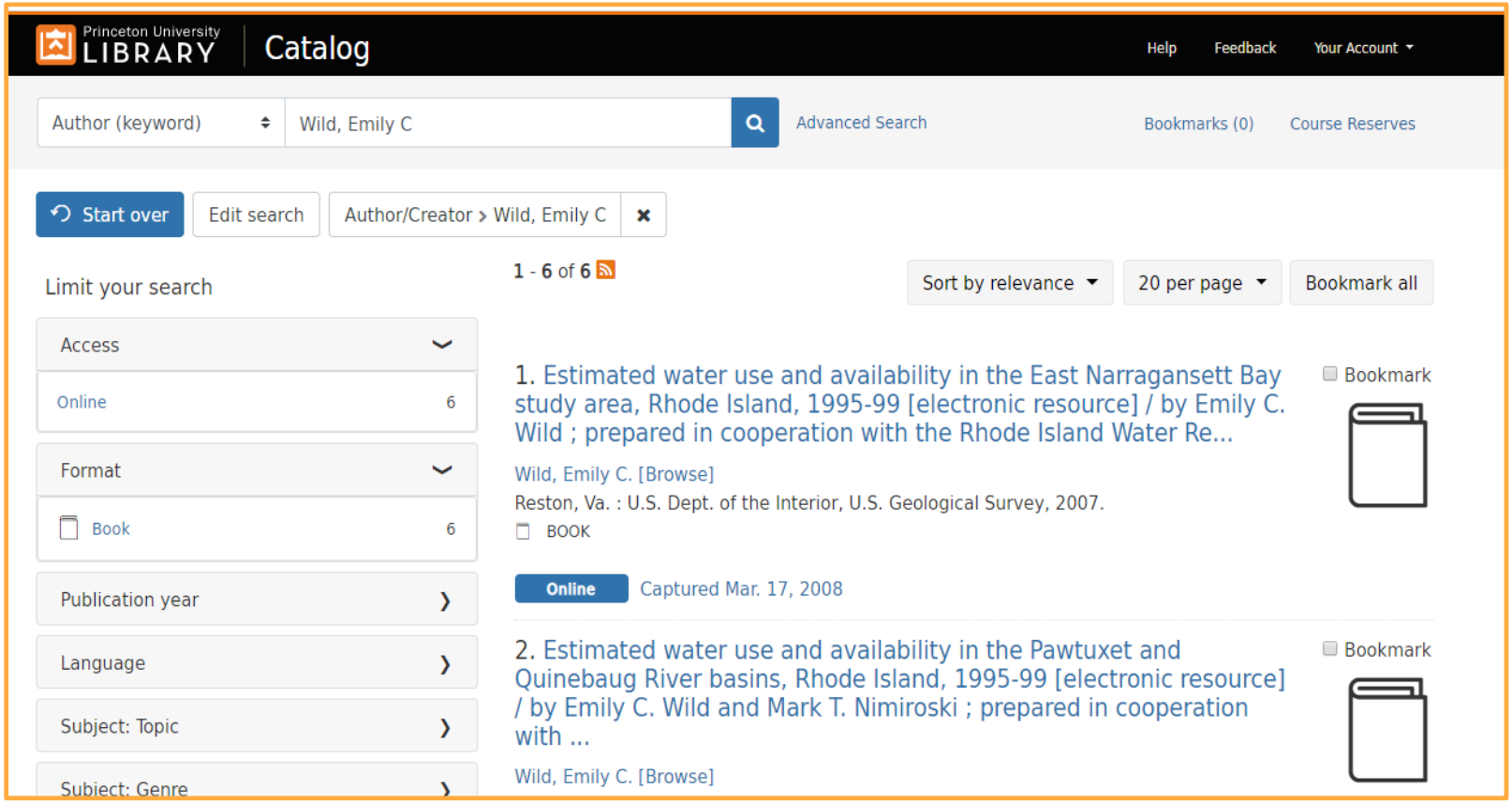
6 records


Princeton University LIBRARY
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Feedback
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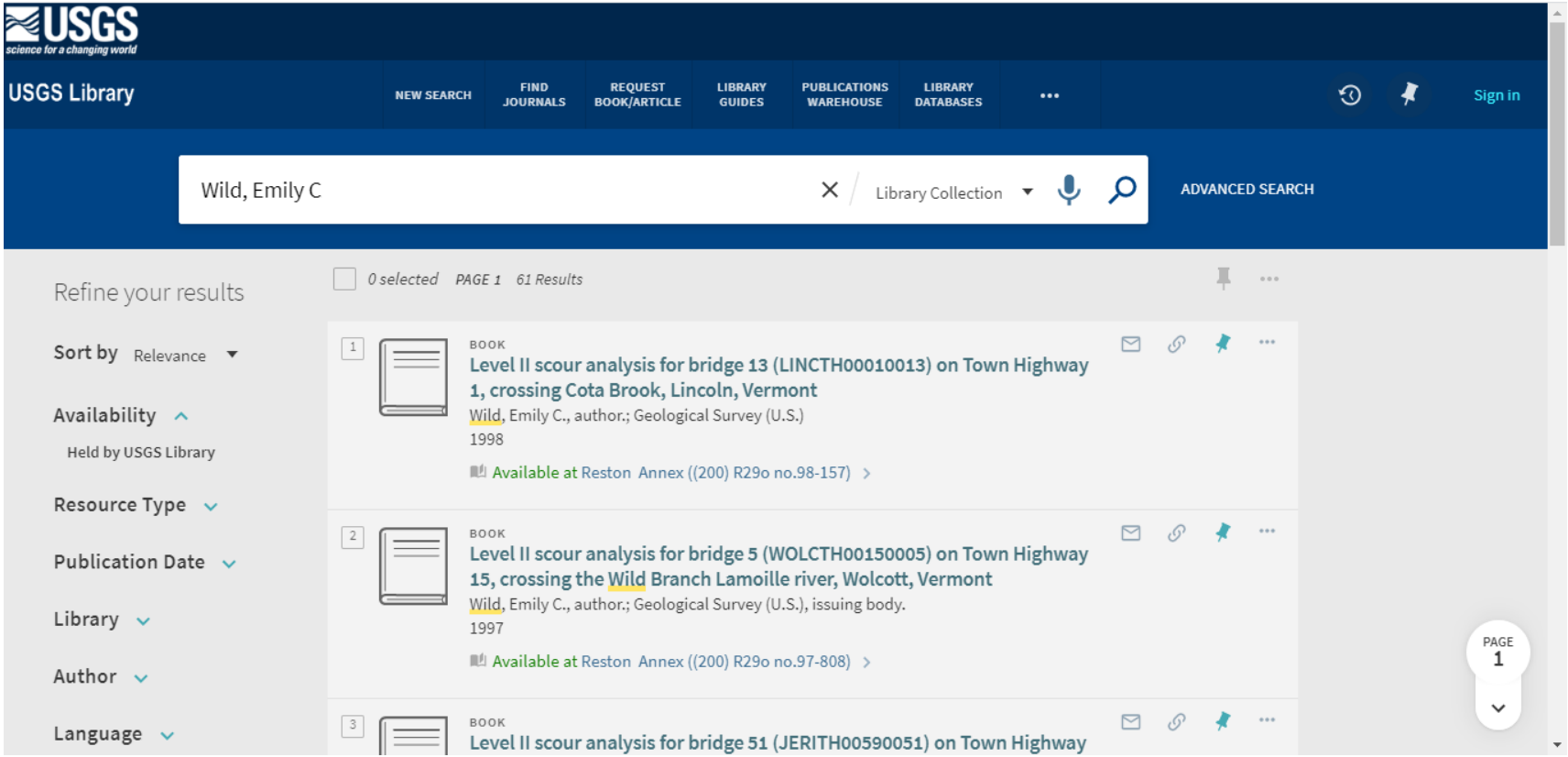
Author (keyword)
Wild, Emily C
Advanced Search
Bookmarks (0)
Course Reserves
Start over
Edit search
Author/Creator › Wild, Emily C
Limit your search
1 - 6 of 6
Sort by relevance
20 per page
Bookmark all
Access
Online 6
Format
Book 6
Publication year
Language
Subject: Topic
Subject: Genre
1. Estimated water use and availability in the East Narragansett Bay study area, Rhode Island, 1995-99 [electronic resource] / by Emily C. Wild ; prepared in cooperation with the Rhode Island Water Re...
Bookmark
Wild, Emily C. [Browse]
Reston, Va. : U.S. Dept. of the Interior, U.S. Geological Survey, 2007.
BOOK
Online
Captured Mar. 17, 2008
2. Estimated water use and availability in the Pawtuxet and Quinebaug River basins, Rhode Island, 1995-99 [electronic resource] / by Emily C. Wild and Mark T. Nimiroski ; prepared in cooperation with ...
Bookmark
Wild, Emily C. [Browse]

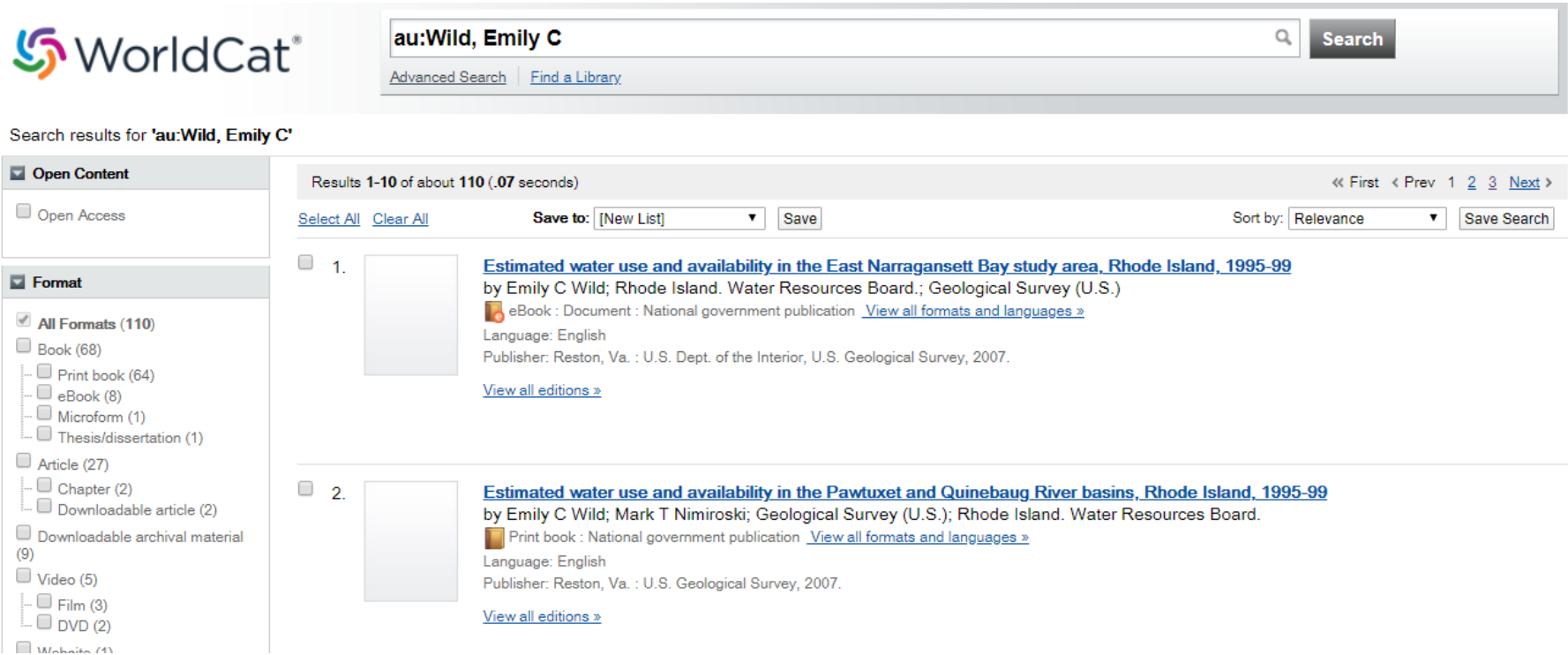
USGS Library

61 records



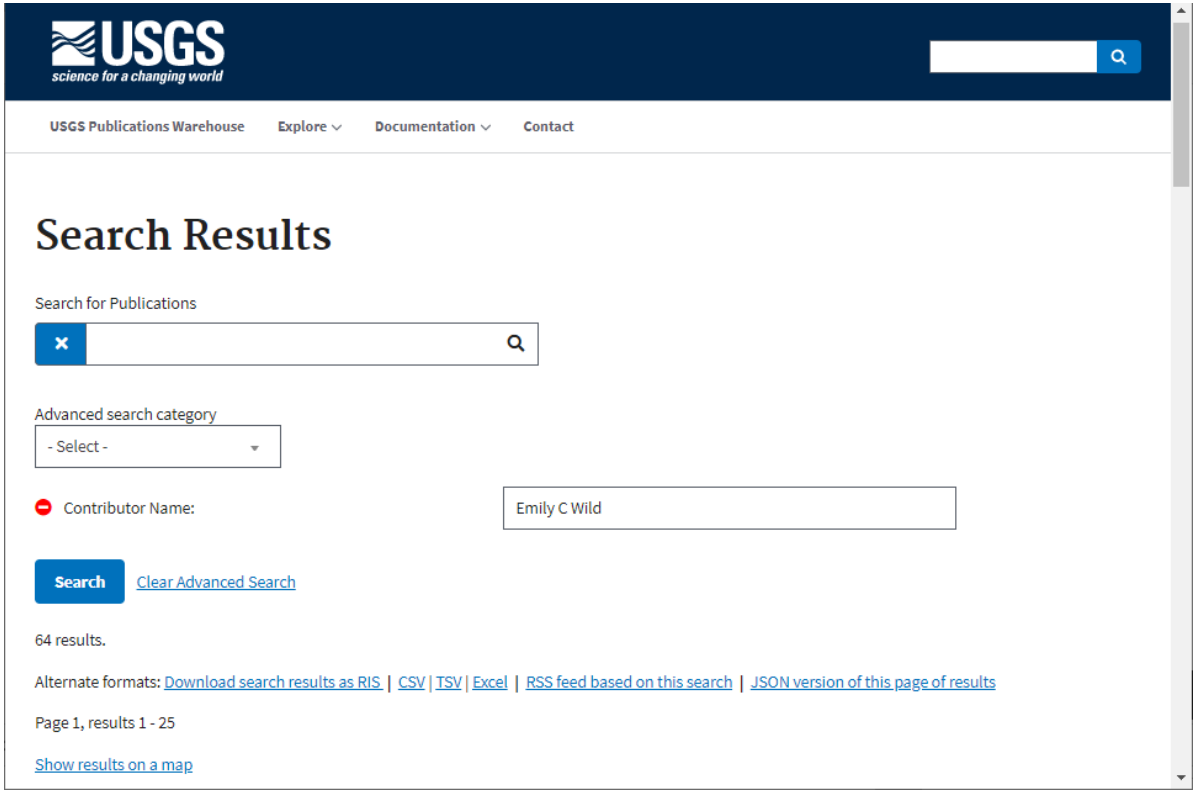
WorldCat

110 records



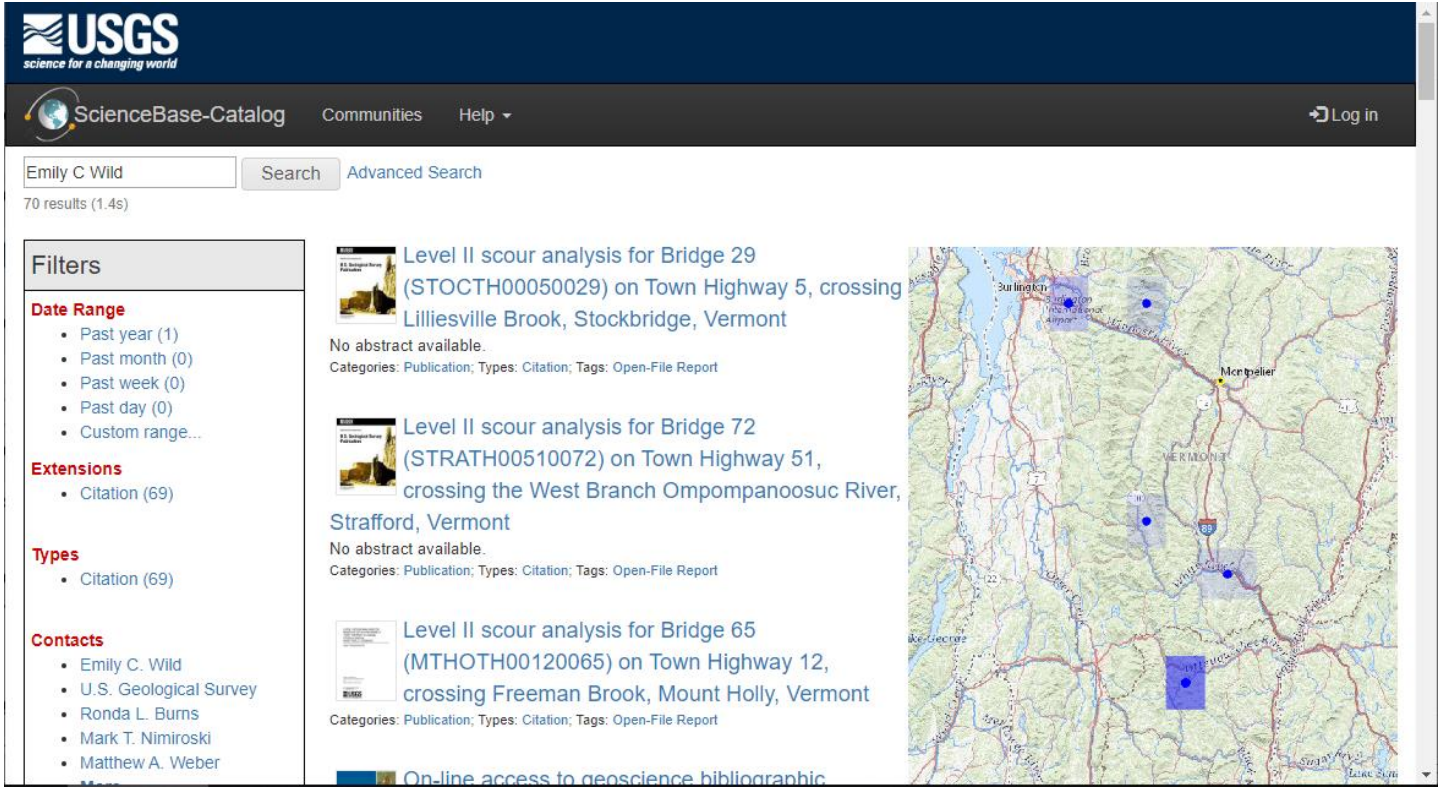
USGS Publications Warehouse

64 records



USGS ScienceBase

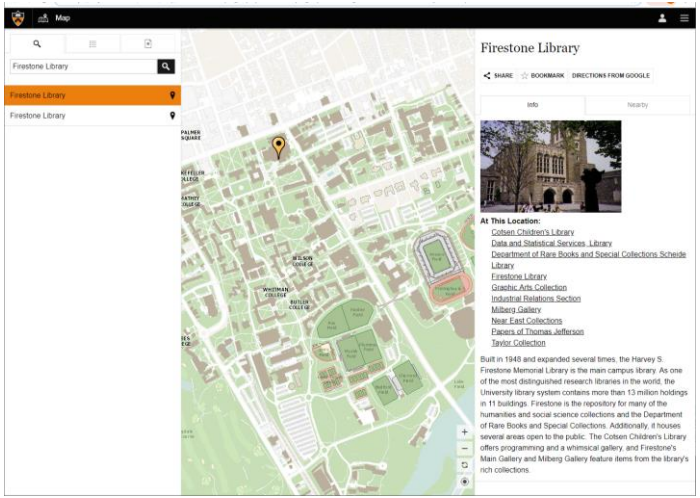
70 records



Princeton University Library

https://library.princeton.edu/

- Architecture Library — 9:00 am to 11:45 pm
- Center for Digital Humanities — 10:00 am to 5:00 pm
- East Asian Library — 9:00 am to 11:00 pm
- Engineering Library — 8:30 am to 1:45 am
- Firestone Library — 8:00 am to 11:45 pm
- Lewis Science Library — 8:30 am to 11:45 pm
- Marquand Art Library — 8:30 am to 11:45 pm
- Mendel Music Library — 8:30 am to 11:45 pm
- Mudd Manuscript Library — 9:00 am to 4:45 pm
- Plasma Physics Library — 10:00 am to 4:00 pm
- Special Collections — 9:00 am to 4:45 pm
- Stokes Library — 8:30 am to 12:00 am



https://m.princeton.edu/default/map/index?feed=campus_map&parentId=campus_map%2FBuilding&filter=Firestone%20Library&id=0069

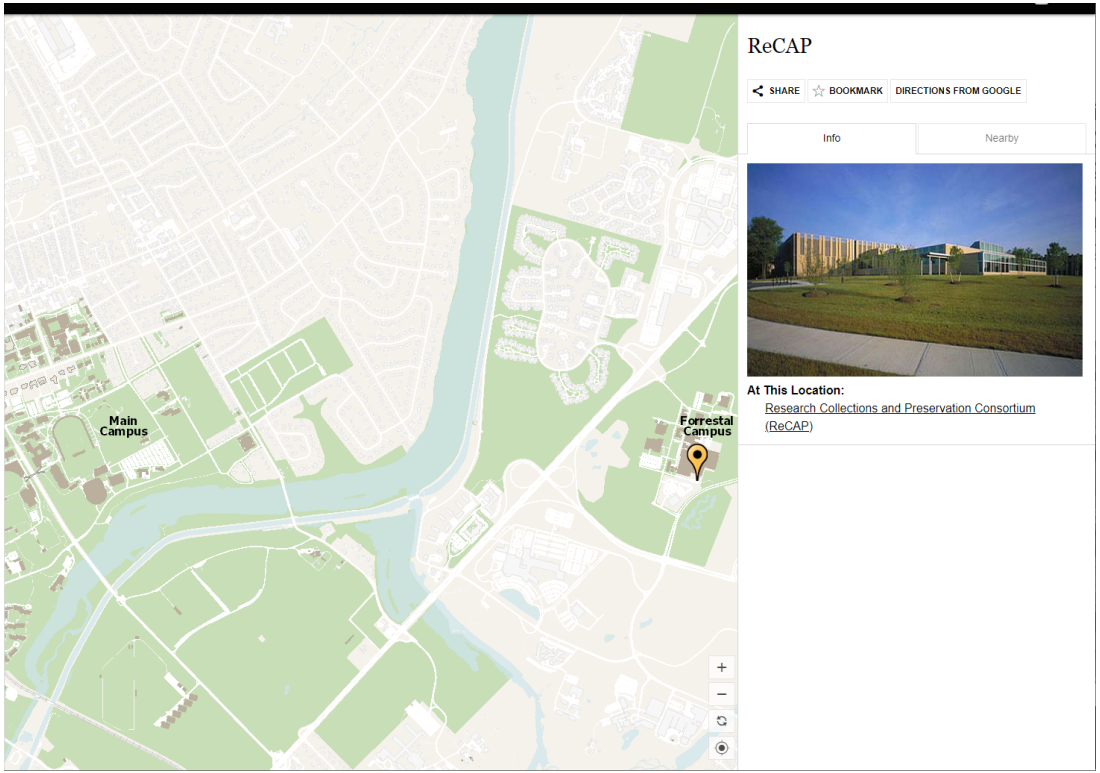
borrowdirect

Participating Institutions

Brown University Library - since 2002
Columbia University Libraries - since 1999
Cornell University Library - since 2002
Dartmouth College Library - since 2002
Duke University Libraries - since 2015
Harvard University Libraries - since 2011
Johns Hopkins University Libraries - since 2014
Massachusetts Institute of Technology Libraries - since 2011
Princeton University Library - since 2002
Stanford University Libraries - since 2017
University of Chicago Library - since 2013
University of Pennsylvania Libraries - since 1999
Yale University Library - since 1999

Princeton University Library (PUL)

https://recap.princeton.edu/about



https://m.princeton.edu/default/map/index?feed=campus_map&parentId=campus_map%2FBuilding&filter=ReCAP&id=0625

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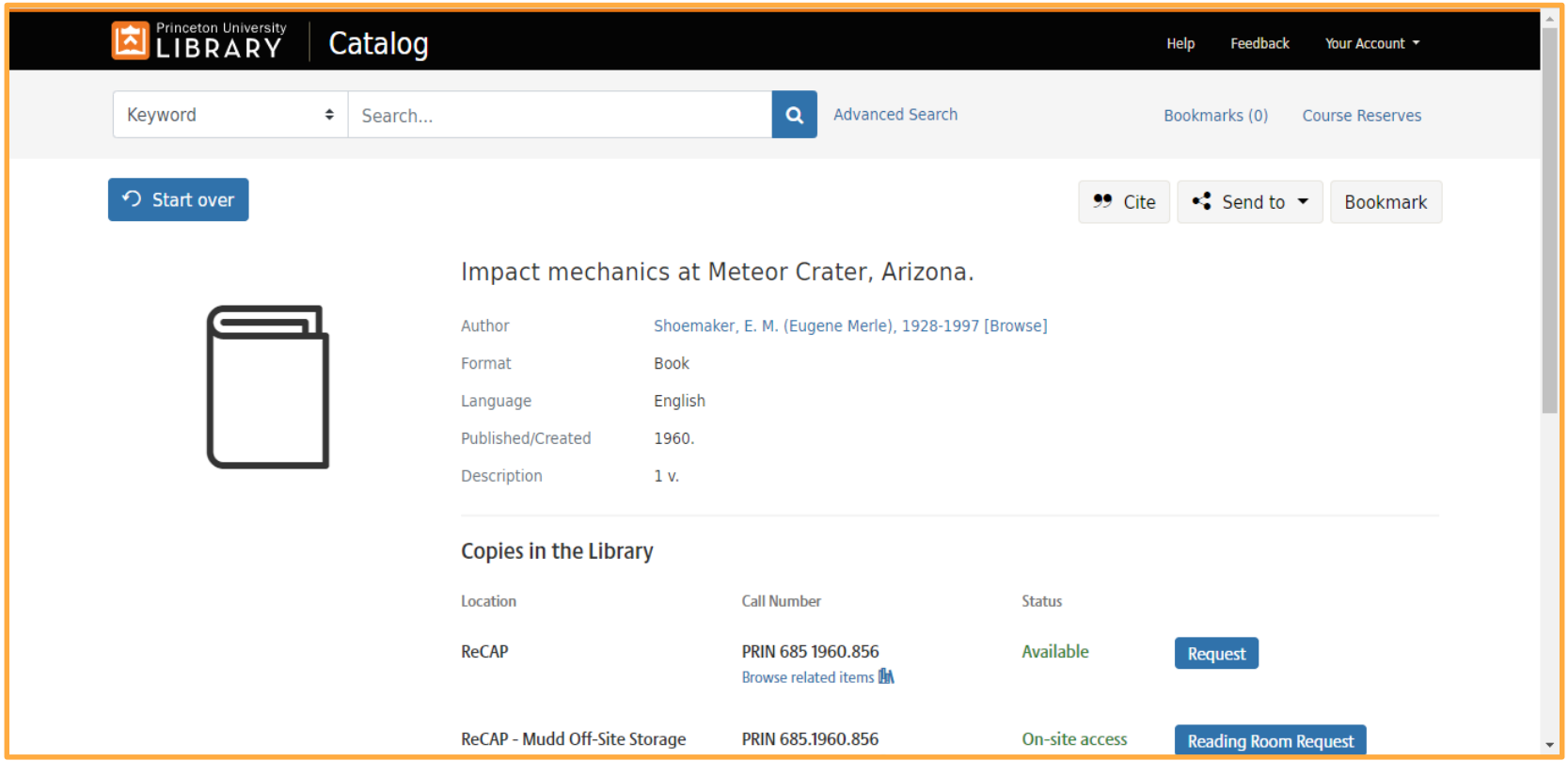
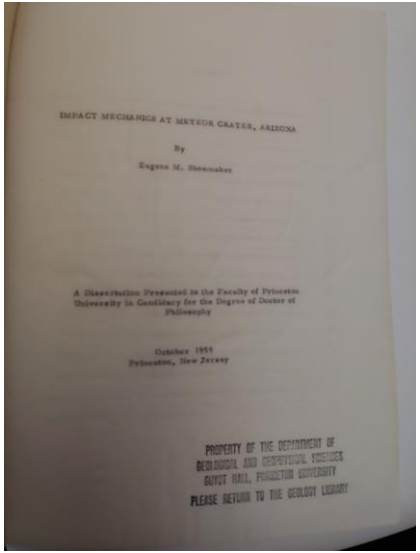
Example Geosciences Dissertation



Shoemaker – Meteor Crater, AZ


IMPACT MECHANICS AT METEOR CRATER, ARIZONA

By

Eugene M. Shoemaker

A Dissertation Presented to the Faculty of Princeton University in Candidacy for the Degree of Doctor of Philosophy

October 1959
Princeton, New Jersey

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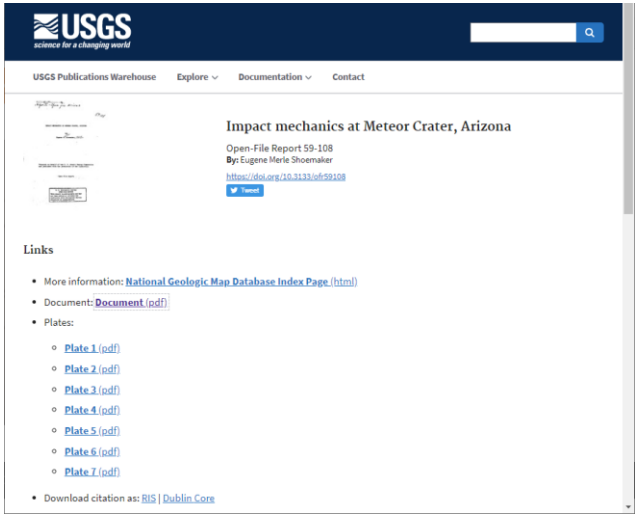
USGS science for a changing world

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Impact mechanics at Meteor Crater, Arizona

Open-File Report 59-108
By: Eugene Merle Shoemaker

https://doi.org/10.3133/ofr59108

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Links

- More information: National Geologic Map Database Index Page (html)
- Document: Document (pdf)
- Plates:
  - Plate 1 (pdf)
  - Plate 2 (pdf)
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  - Plate 4 (pdf)
  - Plate 5 (pdf)
  - Plate 6 (pdf)
  - Plate 7 (pdf)
- Download citation as: RIS | Dublin Core

https://pubs.er.usgs.gov/publication/ofr59108

Impact mechanics at Meteor Crater, Arizona


PDS NASA USGS science for a changing world

Gene Shoemaker - Founder of Astrogeology

ASTROPEDIA
Lunar and Planetary Cartographic Catalog

April 28, 1928 - July 18, 1997

He once said he considered himself a scientific historian, one whose mission in life is to relate geologic and planetary events in a perspective manner. A modest statement coming from a legend of a man who almost single-handedly created planetary science as a discipline distinct from astronomy. He brought together geologic principles to the mapping of planets, resulting in more than 3 decades of discoveries about the planets and asteroids of the Solar System. He was a 1992 recipient of the National Medal of Science, the highest scientific honor bestowed by the President of the United States, then George Bush. His family, friends, former students, and the scientific community are in shock as they hear the news and feel the loss of "SuperGene."

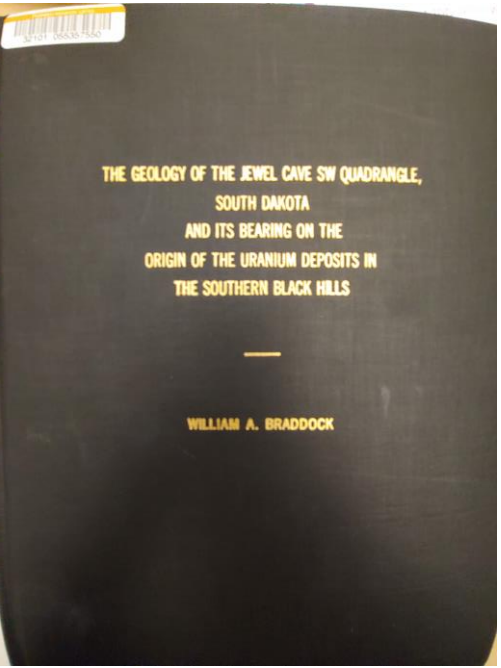
Dr. Gene Shoemaker died Friday, July 18, 1997 (Australian Time) in Alice Springs, Australia in a car accident. He was in the field, pursuing his lifelong passion of geologic studies to help understand impact craters with his wife and science partner, Carolyn Shoemaker. Carolyn survived the accident sustaining various injuries.

A longtime resident of Flagstaff, Arizona, in 1961 Gene invented the

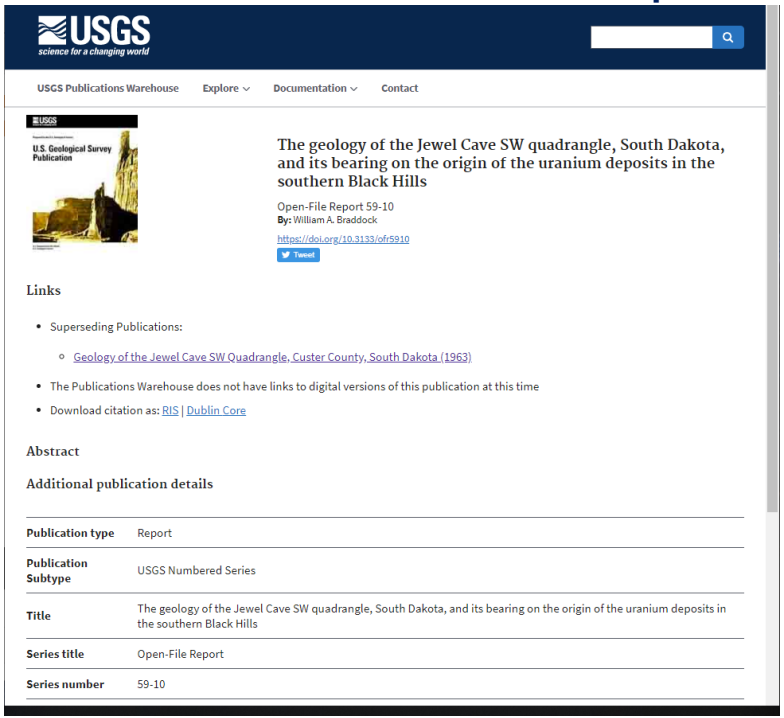
https://astrogeology.usgs.gov/rpif/Gene-Shoemaker

Braddock – Uranium Southern Black Hills

The geology of the Jewel Cave SW quadrangle, South Dakota and its bearing on the origin of the uranium deposits in the southern Black Hills.



https://catalog.princeton.edu/catalog/2843663



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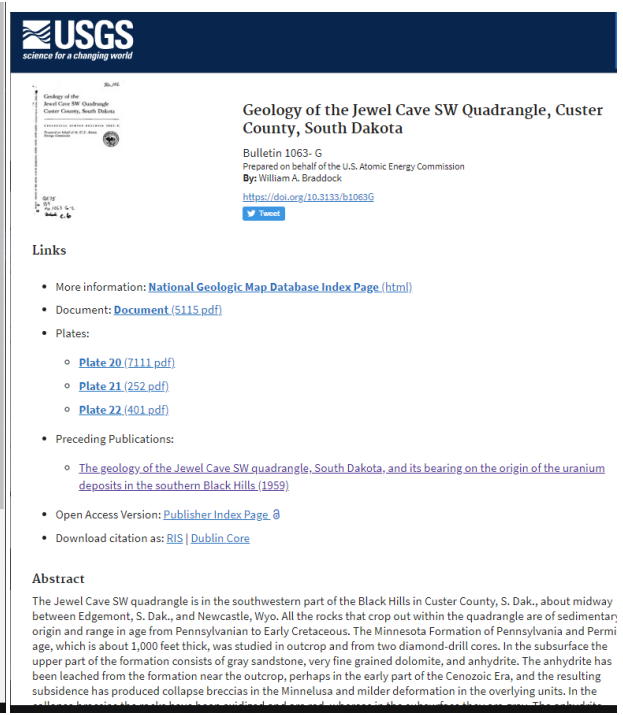
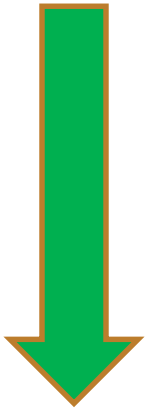


https://pubs.er.usgs.gov/publication/b1063G

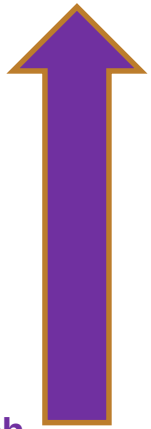
What is Geoscience Library Inquiry?

Geoscience Library Inquiry = Data Inquiry

Geoscience Investigations



- **Raw Data:** Real-Time, Continuous, Recent Partial Records, Historical
- **Calculated Data:** Equations, Software Results, Lab Results, and Model Results
- **Map Data:** Specific Location Information & other Metadata
- **Citation Data:** Bibliographic Information for Reference Lists & <u>TO FIND THE PUBLICATION</u>



Library Research

Tables & Figures/Images

Geosciences Library Research

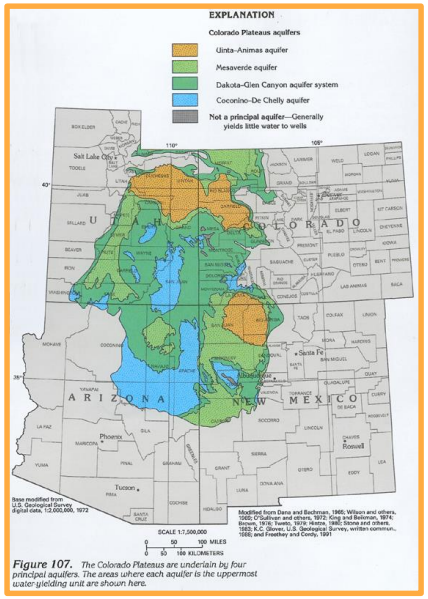
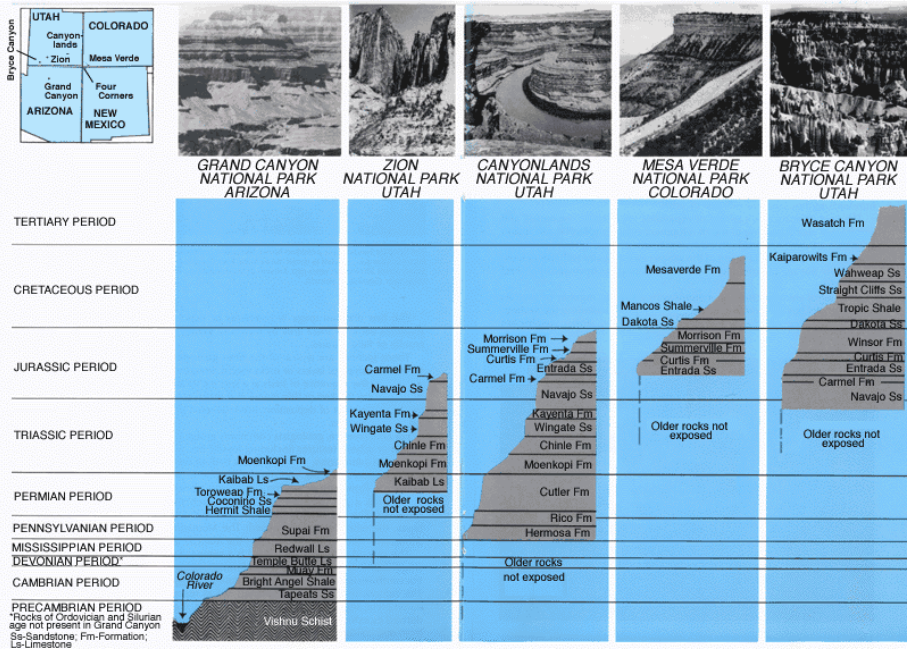


Figure 107. *The Colorado Plateaus are underlain by four principal aquifers. The areas where each aquifer is the uppermost water-yielding unit are shown here.*



Princeton University Geosciences

https://geosciences.princeton.edu/research

Climate Science **Geochemistry**

Geology **Geophysics** **Paleoclimate**

Undergraduate Research:
https://geosciences.princeton.edu/undergraduate/undergraduate-research

Student Film: Seismology - A Documentary Film Directed by James Tralie
https://www.youtube.com/watch?v=_VK8x7DhwW0&feature=youtu.be
"Many people believe seismology is solely about catastrophic earthquakes, but this documentary presents a case study of all that is possible with seismic records. This exploration communicates the importance of seismology in understanding Earth processes, the efforts being undertaken to improve our knowledge of earthquake events, and the use of seismic research in medical applications and for studying other planets."

PEI Videos: https://environment.princeton.edu/videos/

PEI Podcast: https://allforearth.princeton.edu/

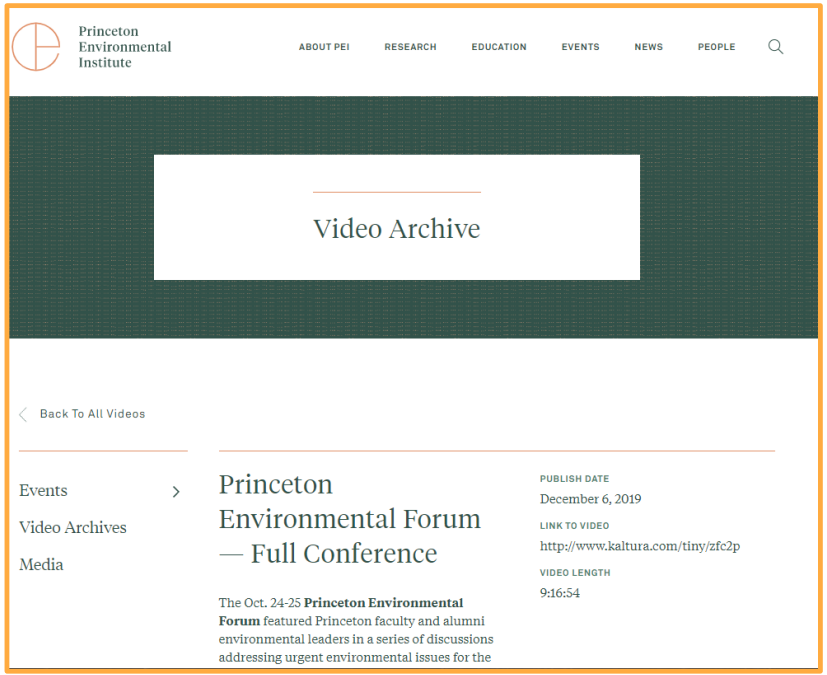
Geosciences Associated Programs

- Program in Atmospheric and Oceanic Sciences (AOS)
- Princeton University BIOS Graduate Program in Ocean Studies (BIOS)
- Princeton Environmental Institute (PEI)
- Princeton Institute for the Science and Technology of Materials (PRISM)
- Geophysical Fluid Dynamics Laboratory (NOAA/GFDL)
- Princeton Institute for Computational Science and Engineering (PICSciE)
- Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM)
- Program in Science, Technology, and Environmental Policy (STEP)

Princeton Environmental Institute

https://environment.princeton.edu/

https://environment.princeton.edu/videos/



https://environment.princeton.edu/videos/princeton-environmental-forum-full-conference/

U.S. Geological Survey (USGS)

Ecosystems
- Status and Trends Program
- Fisheries Program
- Wildlife Program
- Environments Program
- Invasive Species Program

Energy and Mineral Resources
- Mineral Resources Program
- Energy Resources Program

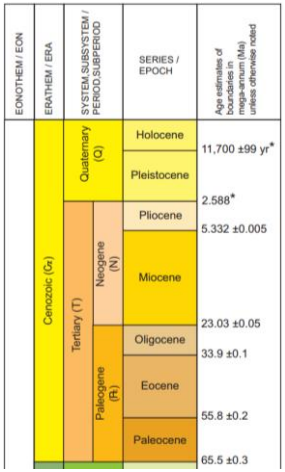
Natural Hazards
- Earthquake Hazards Program
- Volcano Hazards Program
- Landslide Hazards Program
- Global Seismographic Network
- Geomagnetism
- Coastal/Marine Hazards and Resources

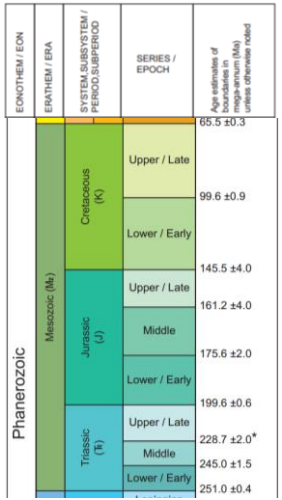
Core Science Systems
- National Geospatial Program
- National Cooperative Geologic Mapping Program
- Science Synthesis, Analysis, and Research Program

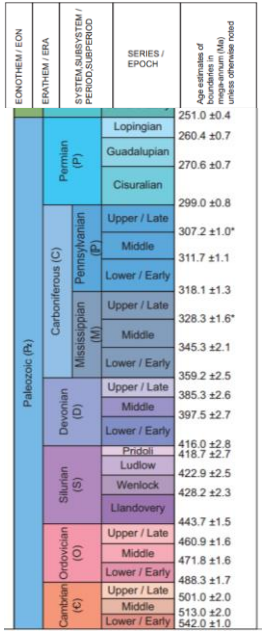
Water Resources
- Groundwater and Streamflow Information Program
- National Water Quality Program
  - National Water-Quality Assessment Project (NAWQA)
  - National Atmospheric Deposition Program
  - USGS-National Park Service Water-Quality Partnership
- Water Availability and Use Science Program
- Water Resources Research Act Program

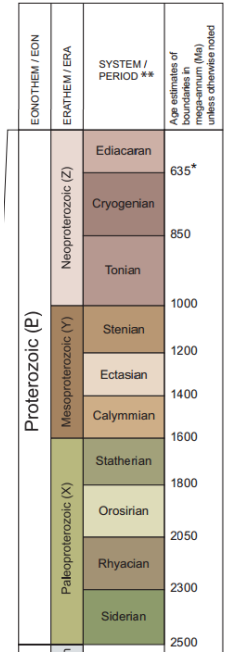
USGS Geologic Time

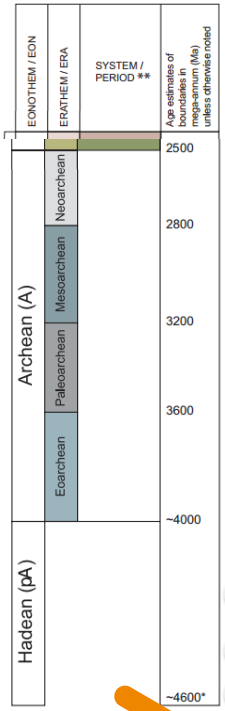
2018 Divisions of Geologic Time— Major Chronostratigraphic and Geochronologic Units









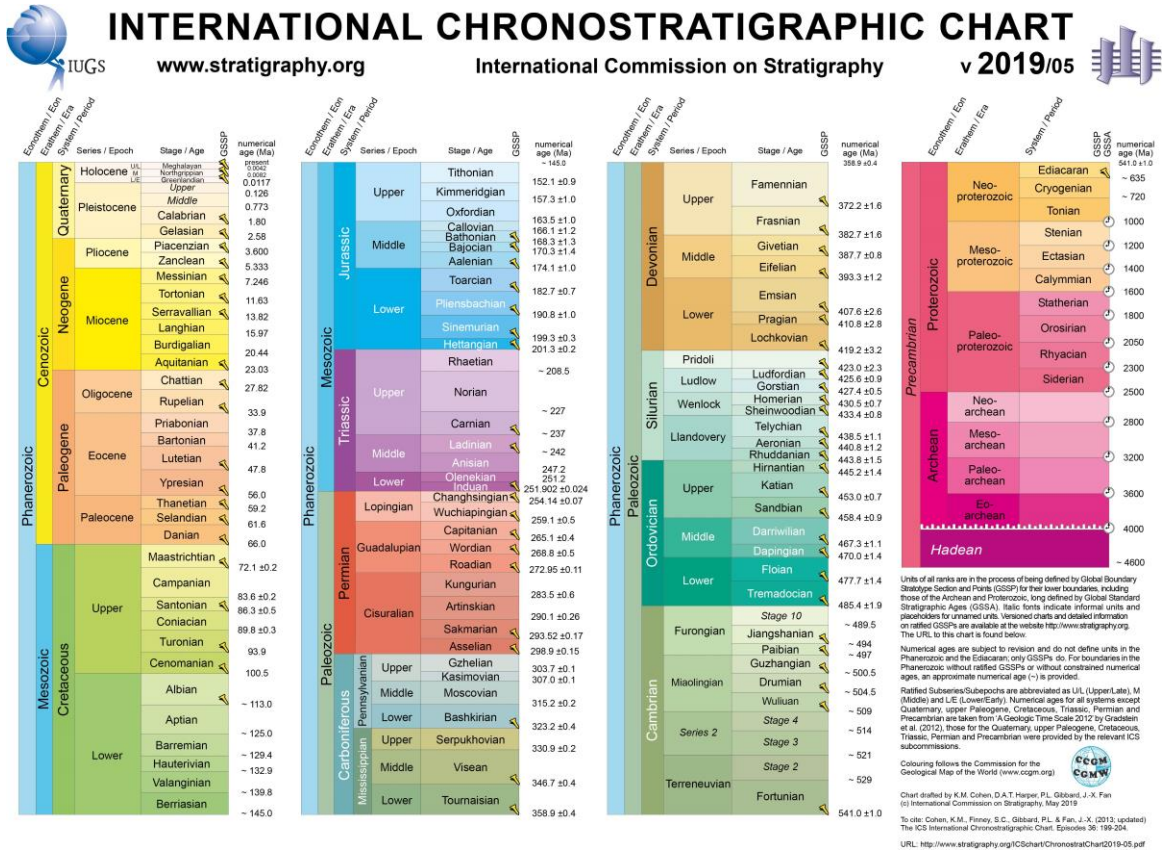


~4.6 Billion Years

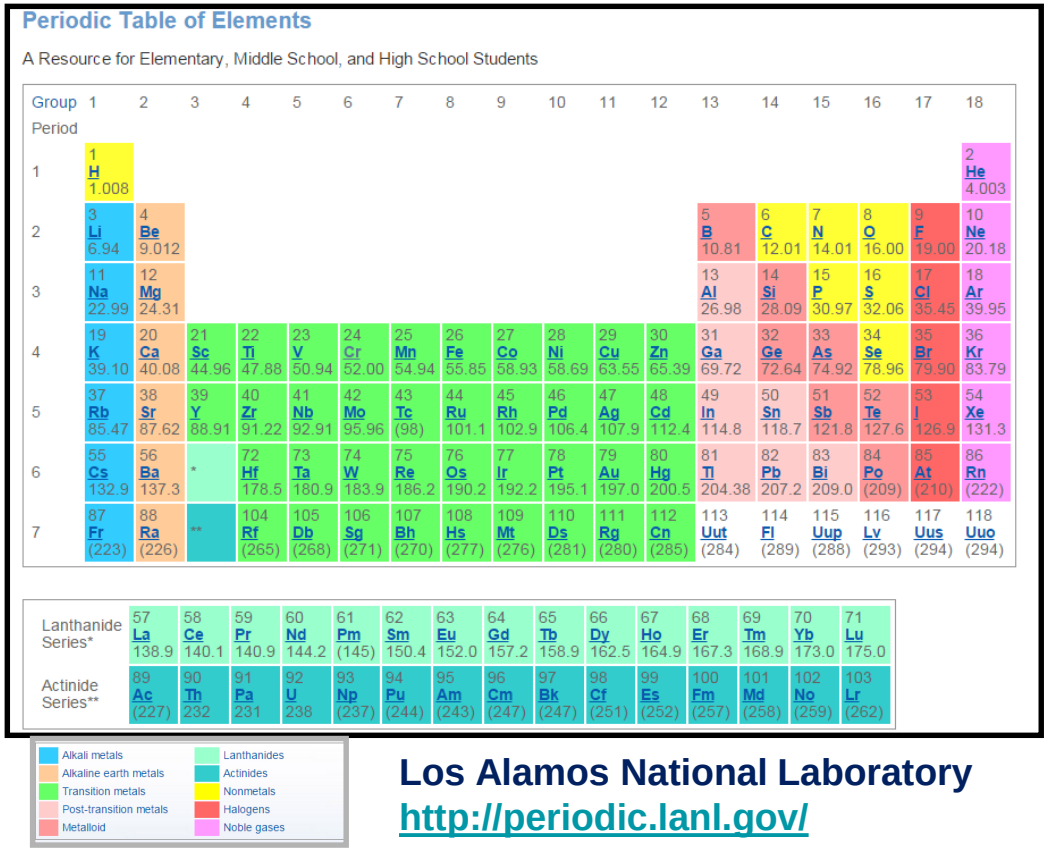
Lexicon: United States, Canada, and Mexico (North America) https://ngmdb.usgs.gov/Geolex/search

Geologic Time - International Chronostratigraphic Chart, 2019:

http://www.stratigraphy.org/index.php/ics-chart-timescale



Labs & Periodic Table of Elements



Los Alamos National Laboratory
http://periodic.lanl.gov/

Abundant Elements in the Earth's Crust

Oxygen, O

Silicon, Si

Aluminum, Al

Iron, Fe

Calcium, Ca

Sodium, Na

Potassium, K

Magnesium, Mg

Chemistry!

Frank Wigglesworth Clarke: A chemist that determined the composition of Earth's Crust ; "Father of Geochemistry"
– One of the Founders of the American Chemical Society (ACS), (President of ACS in 1901)
– Worked at USGS from 1873 to 1925, USGS Atomic Weights Series
U.S. Geological Survey Publications: https://pubs.er.usgs.gov/search?q=Frank+Wigglesworth+Clarke
Examples:
1895: The constitution of the silicates, USGS Bulletin 125
https://pubs.er.usgs.gov/publication/b125

1903: Mineral analyses from the laboratories of the United States Geological Survey, 1880 to 1903, USGS Bulletin 220:
https://pubs.er.usgs.gov/publication/b220

1908: The data of geochemistry, USGS Bulletin 330 https://pubs.er.usgs.gov/publication/b330

1924: The composition of the river and lake waters of the United States, USGS PP 135
https://pubs.er.usgs.gov/publication/pp135

Biographical Memoir of Frank Wigglesworth Clarke 1847-1931:
http://www.nasonline.org/publications/biographical-memoirs/memoir-pdfs/clarke-frank-w-1847-1931.pdf

Beryl (a beryllium-aluminum silicate)

Uranophane. Monoclinic crystallography. Uranophane is one of the many secondary uranium minerals. It is unusual in being a silicate but it shows the bright yellow color of the secondary uranium ores.

The Water on Earth

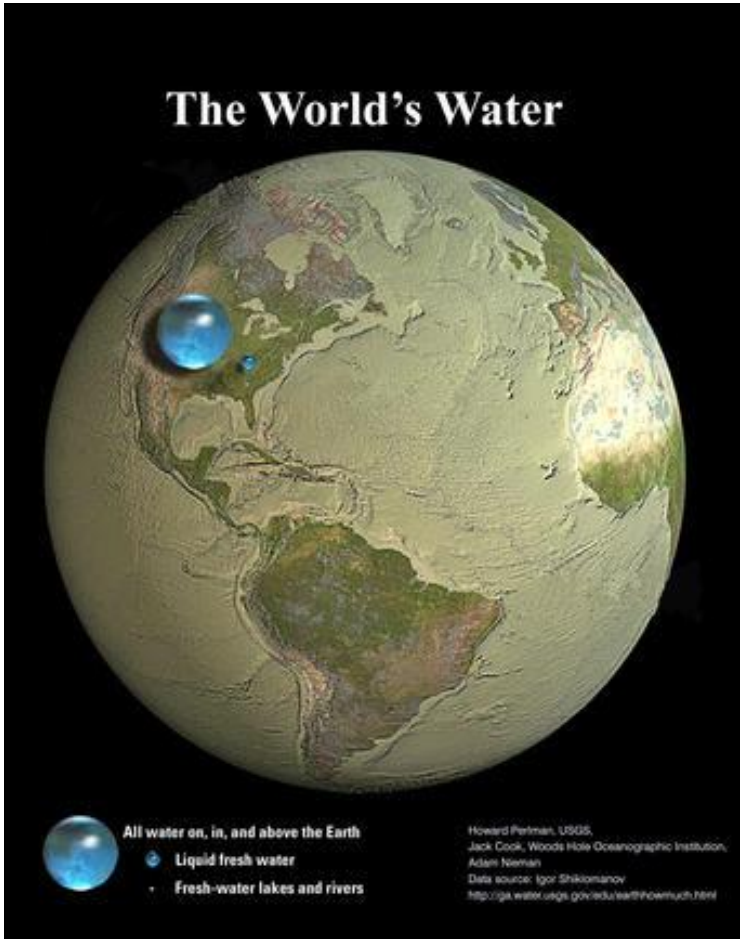
All Earth's freshwater, liquid fresh water, and water in lakes and rivers
Spheres showing:

(1) All water (sphere over western U.S., 860 miles in diameter)

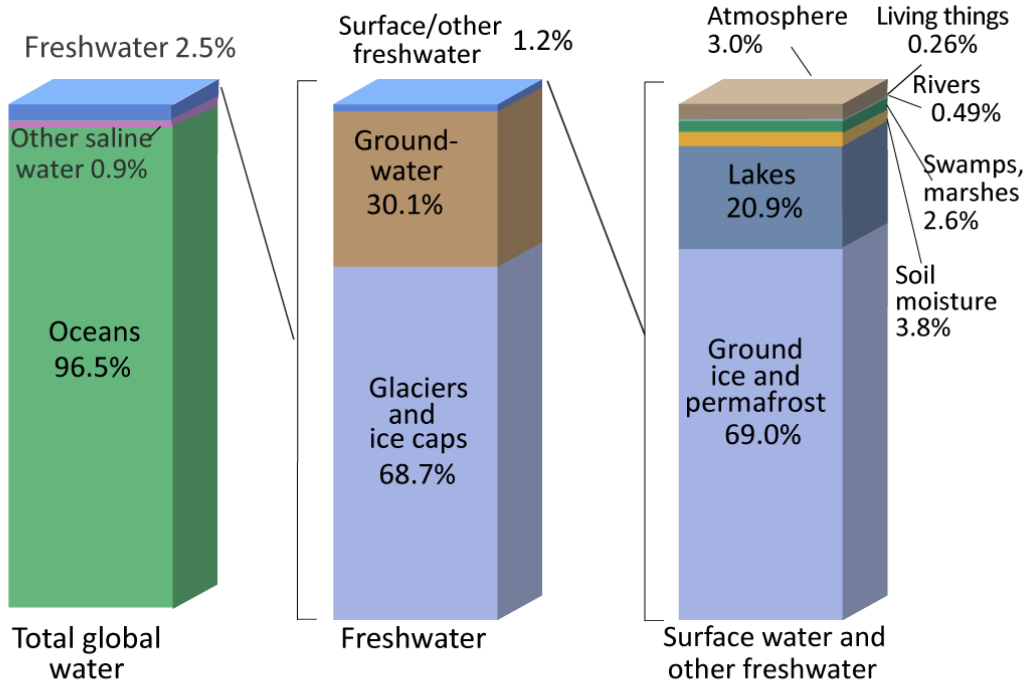
(2) Fresh liquid water in the ground, lakes, swamps, and rivers (sphere over Kentucky, 169.5 miles in diameter), and

(3) Fresh-water lakes and rivers (sphere over Georgia, 34.9 miles in diameter).

https://www.usgs.gov/media/images/all-earths-water-a-single-sphere



Where is Earth's Water?



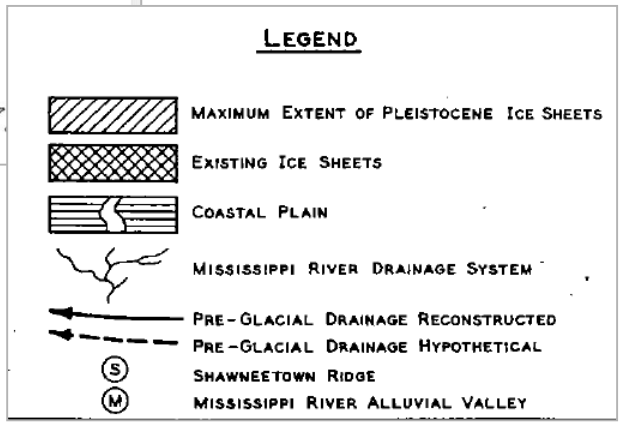
Source: Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, Water in Crisis: A Guide to the World's Fresh Water Resources. (Numbers are rounded).

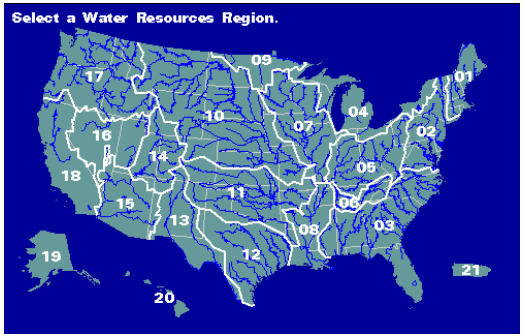
https://www.usgs.gov/special-topic/water-science-school/science/where-earths-water?qt-science_center_objects=0#qt-science_center_objects

Earth's History

Cretaceous Western Interior Seaway.
Colorado was covered by a shallow, temperate sea.
https://pubs.usgs.gov/pp/1561/report.pdf

Geological Investigation of the Alluvial Valley of the Lower Mississippi River, Fisk, 1944:
http://lmvmapping.erdc.usace.army.mil/





Hydrologic Units: HUCs

Watershed Boundary Dataset

The National Hydrography Dataset (NHD), Watershed Boundary Dataset (WBD), and NHDPlus High Resolution (NHDPlus HR) are digital geospatial datasets that map and model the surface water of the United States.

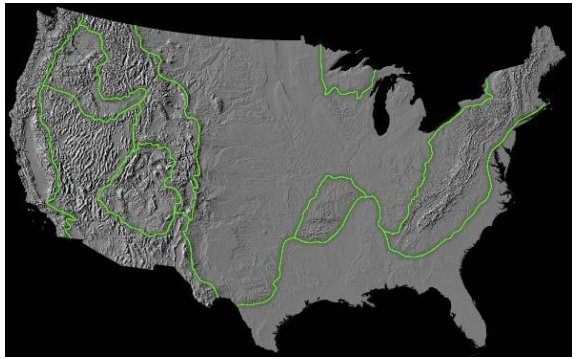
The NHD represents the nation's drainage networks and related features, including rivers, streams, canals, lakes, ponds, glaciers, coastlines, dams, and streamgages. The NHD, at 1:24,000 scale or better, is the most up-to-date and detailed hydrography dataset for the Nation. The WBD represents drainage areas of the country in eight nested levels.

https://www.usgs.gov/core-science-systems/ngp/national-hydrography

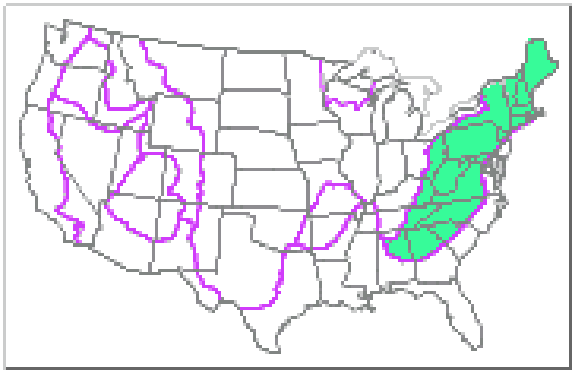
Hydrologic Unit Codes (HUCs)

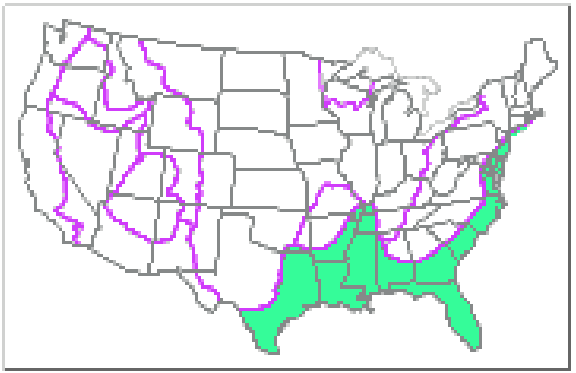
Region 01 New England
Region 02 Mid-Atlantic
Region 03 South Atlantic-Gulf
Region 04 Great Lakes
Region 05 Ohio
Region 06 Tennessee
Region 07 Upper Mississippi
Region 08 Lower Mississippi
Region 09 Souris-Red-Rainy
Region 10 Missouri
Region 11 Arkansas-White-Red
Region 12 Texas-Gulf
Region 13 Rio Grande
Region 14 Upper Colorado
Region 15 Lower Colorado
Region 16 Great Basin
Region 17 Pacific Northwest
Region 18 California
Region 19 Alaska (Old numbering system)
Region 20 Hawaii
Region 21 Caribbean

Geologic Provinces

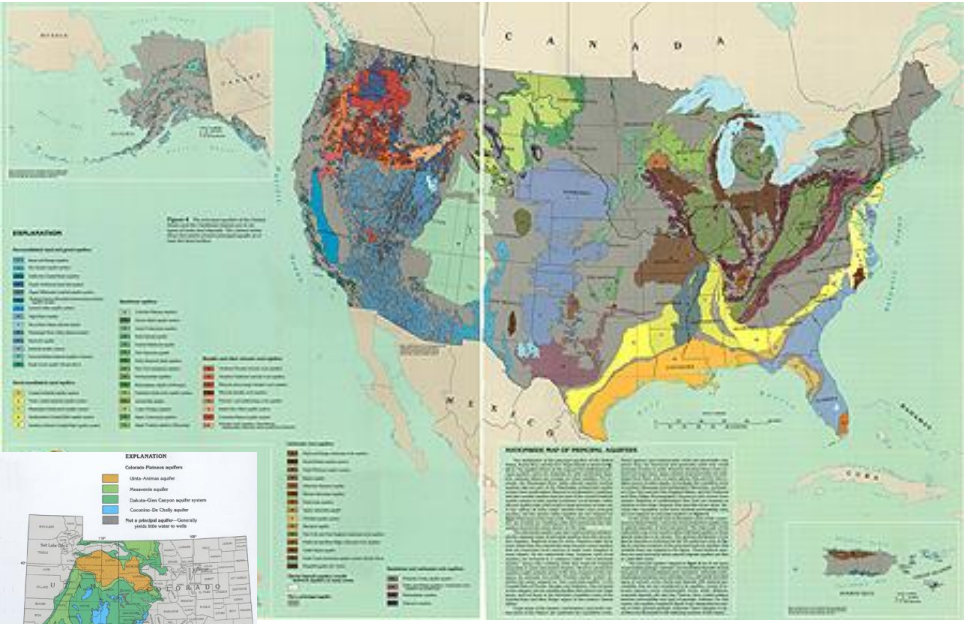


- Atlantic Plain Province
- Appalachian Highlands Province
- Laurentian Upland Province - Superior Upland
- Interior Plain Province
- Ouachita-Ozark Interior Highlands
- Rocky Mountains
- Colorado Plateau Province
- Columbia Plateau Province
- Basin and Range Province
- Pacific Province
- Alaska
- Hawai'i





https://water.usgs.gov/ogw/aquifer/atlas.html



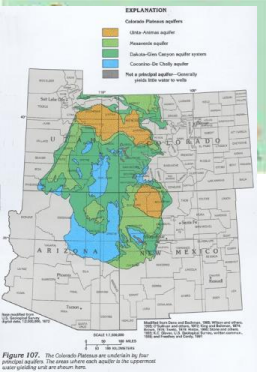
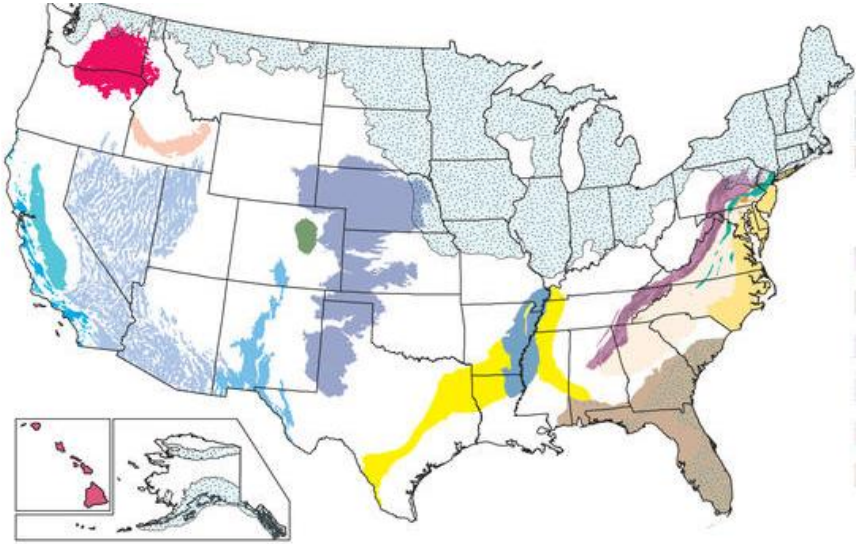


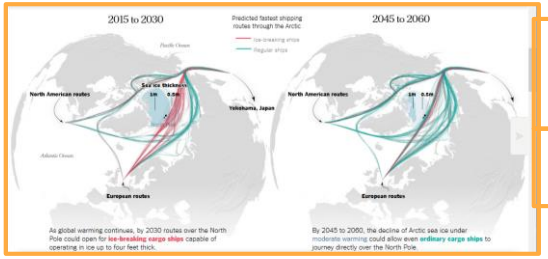
Figure 107. The Colorado Plateaus are underlain by four principal aquifers. The areas where each aquifer is the uppermost water-yielding unit are shown here.



High Plains aquifer—Circular 1337
Glacial aquifer system—Circular 1352
Northern Atlantic Coastal Plain surficial aquifer system—Circular 1353
Piedmont, Blue Ridge, and Valley and Ridge aquifers—Circular 1354
Piedmont and Blue Ridge carbonate-rock aquifers
Piedmont and Blue Ridge crystalline-rock aquifers
Valley and Ridge siliciclastic-rock aquifers
Valley and Ridge carbonate-rock aquifers
Early Mesozoic basin aquifers
Upper Floridan aquifer and overlying surficial aquifers—Circular 1355
Mississippi embayment–Texas coastal uplands aquifer system—Circular 1356
Mississippi River Valley alluvial aquifer
Denver Basin aquifer system—Circular 1357
Southwest Principal Aquifers—Circular 1358
California Coastal Basin aquifers
Central Valley aquifer system
Basin and Range basin-fill aquifers
Rio Grande aquifer system
Western Volcanics—Circular 1359
Hawaiian volcanic-rock aquifers
Snake River Plain basin-fill and basaltic-rock aquifers
Columbia Plateau basin-fill and basaltic-rock aquifers

https://www.usgs.gov/mission-areas/water-resources/science/groundwater-quality-principal-aquifers-nation-1991-2010

Climate Change



As Arctic Ice Vanishes, New Shipping Routes Open

https://www.nytimes.com/interactive/2017/05/03/science/earth/arctic-shipping.html

Examples at Princeton University:

Writing Seminars Sessions

- **Climate Science Fictions: Climate Supporters vs. Climate Deniers**

Journal of Higher Education : Princeton Climate Scientists Tried to Ignore a Campus Skeptic. Then He Went to the White House. https://www.chronicle.com/article/Princeton-Climate-Scientists/246971

PAW articles: A White House Role: Physicist Happer *64 Takes Position as Senior Science, Technology Adviser https://paw.princeton.edu/article/white-house-role-physicist-happer-64-takes-position-senior-science-technology-adviser **vs. Alarms Should Be Going Off** https://paw.princeton.edu/inbox/alarms-should-be-going **and** https://paw.princeton.edu/inbox/response-my-critics

And the NPR story:
Meet The White House's New Chief Climate Change Skeptic
https://www.npr.org/2019/03/01/698073442/heres-the-white-houses-top-climate-change-skeptic

September 12, 2019: Why a high-profile climate science opponent quit Trump's White House
https://www.sciencemag.org/news/2019/09/why-high-profile-climate-science-opponent-quit-trump-s-white-house

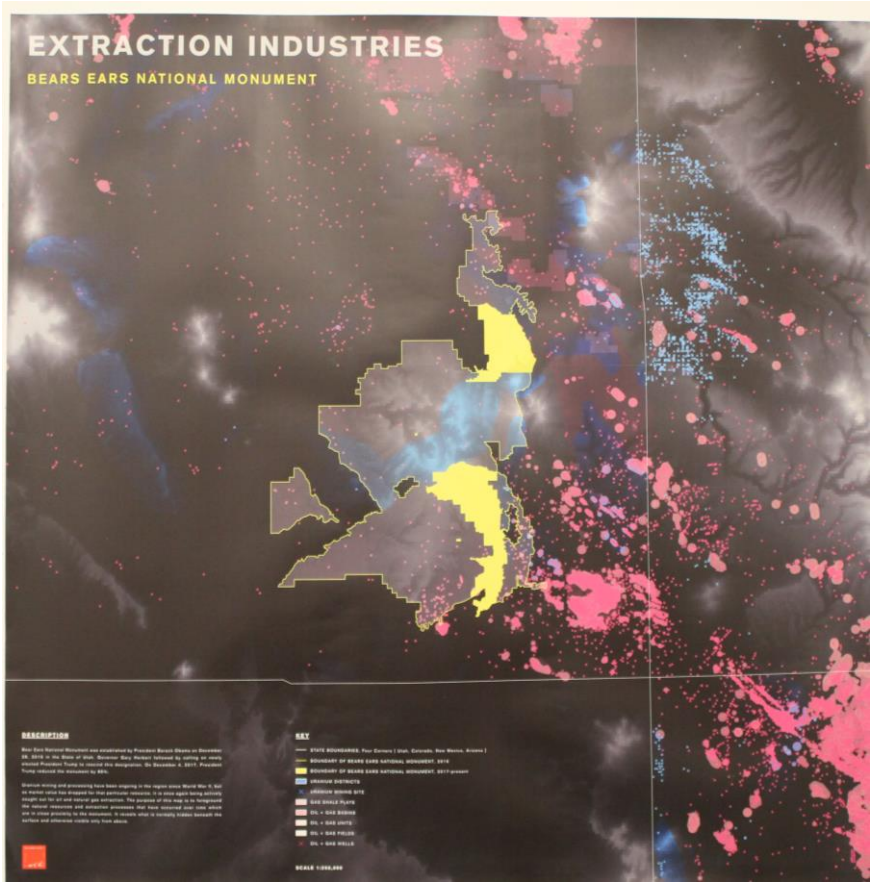
Bears Ears class, Spring 2019 ENV 426

Presidential Proclamation -- Establishment of the Bears Ears National Monument
December 26, 2016

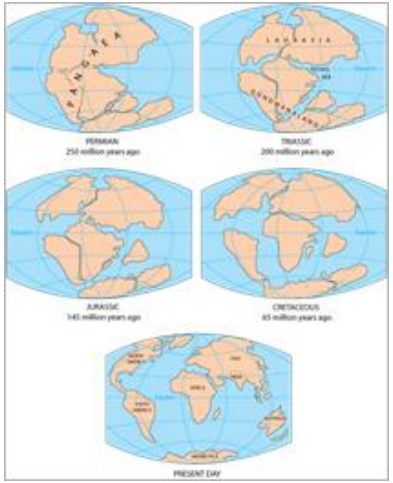
Presidential Proclamation Modifying the Bears Ears National Monument
December 6, 2017

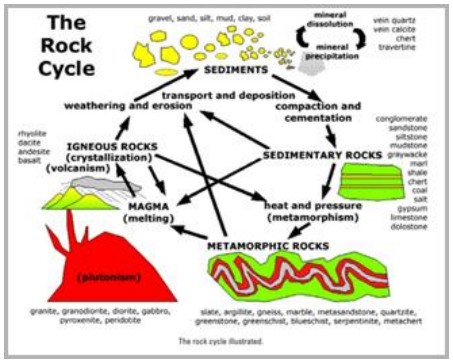
Exposure:
Fazal Sheikh https://www.fazalsheikh.org/news-stories.html
“Exposure was created in solidarity with the Citizen's Rally held at the Utah State Capital in Salt Lake City on Saturday, December 2, 2017. As artists, we wanted to support the Bears Ears Intertribal Coalition and the protection of Bears Ears and Grand Staircase-Escalante National Monuments slated to be radically reduced by President Donald J. Trump.”

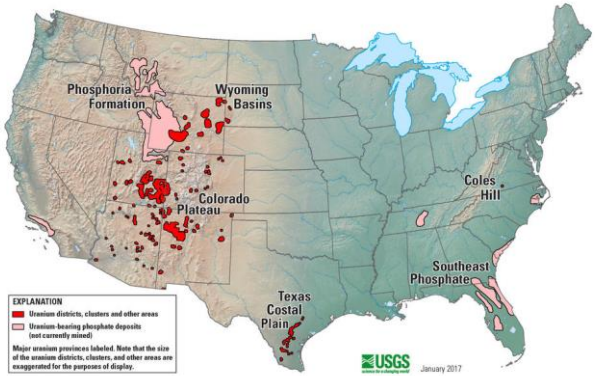
Princeton University, Spring 2019 = ENV 426
Exposure: The Storied Landscape of Bears Ears National Monument and America’s Public Lands




Uranium Ore

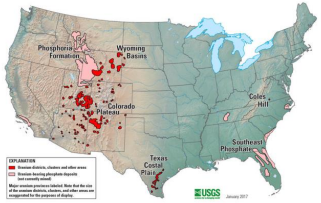

PERMIAN
250 million years ago
TRIASSIC
200 million years ago
JURASSIC
145 million years ago
CRETACEOUS
65 million years ago
PRESENT DAY

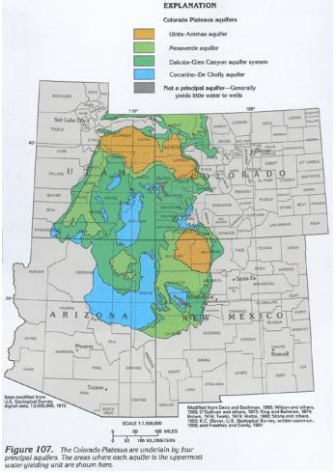

The Rock Cycle
gravel, sand, silt, mud, clay, soil
mineral dissolution
mineral precipitation
vein quartz
vein calcite
chert
travertine
SEDIMENTS
transport and deposition
weathering and erosion
compaction and cementation
rhyolite
dacite
andesite
basalt
IGNEOUS ROCKS
(crystallization)
(volcanism)
SEDIMENTARY ROCKS
conglomerate
sandstone
siltstone
mudstone
graywacke
marl
shale
chert
coal
salt
gypsium
limestone
dolostone
MAGMA
(melting)
heat and pressure
(metamorphism)
METAMORPHIC ROCKS
(plutonism)
granite, granodiorite, diorite, gabbro, pyroxenite, peridotite
slate, argillite, gneiss, marble, metasandstone, quartzite, greenstone, greenschist, blueschist, serpentinite, metachert
The rock cycle illustrated.


Uranium Resources of the United States
Phosphoria Formation
Wyoming Basins
Colorado Plateau
Coles Hill
Southeast Phosphate
Texas Costal Plain
EXPLANATION
Uranium districts, clusters and other areas
Uranium-bearing phosphate deposits (not currently mined)
Major uranium provinces labeled. Note that the size of the uranium districts, clusters, and other areas are exaggerated for the purposes of display.
USGS
January 2017


EXTRACTION INDUSTRIES
BEARS EARS NATIONAL MONUMENT

Uranium Resources of the United States





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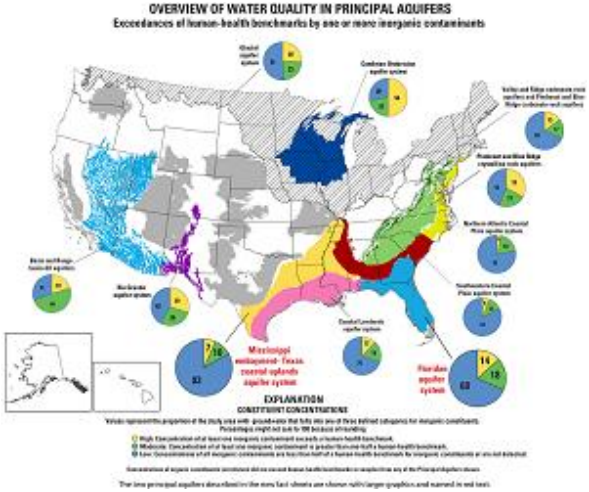
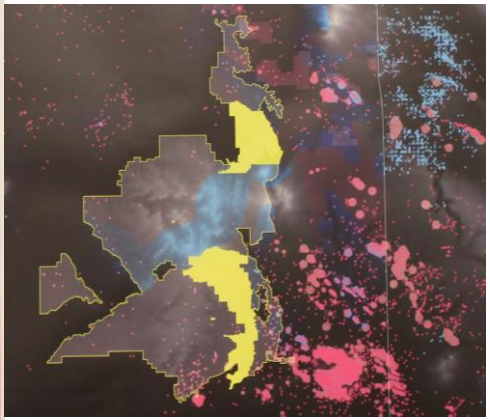
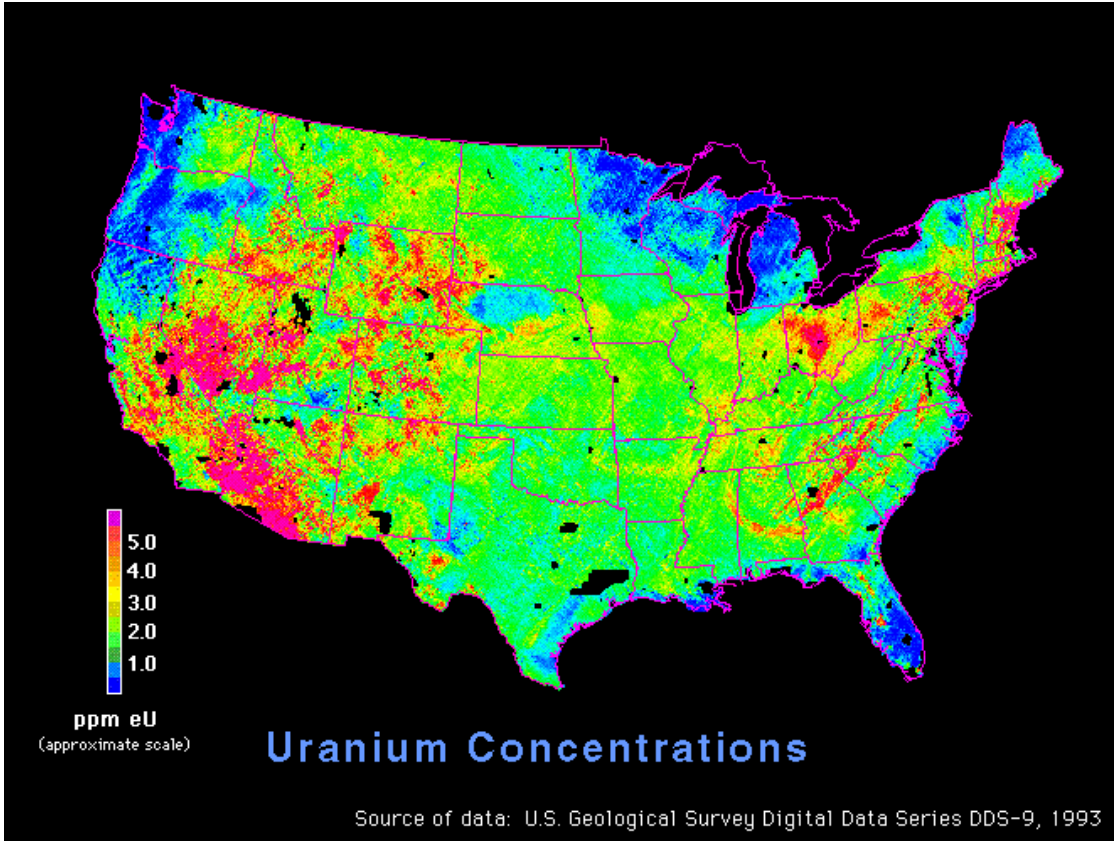


[Is Uranium in Water Resources near the Grand Canyon a Health Hazard?]



Uranium-238 Concentrations across United States from NURE



Water Quality: The Birth of “Emily the Uranium Librarian” in 2004

Geohydrologic data for a low-level radioactive contamination site, Wood River Junction, Rhode Island
Open-File Report 84-725 **By:** Barbara J. Ryan https://pubs.er.usgs.gov/publication/ofr84725

Low-level radioactive ground-water contamination from a cold scrap recovery operation, Wood River Junction, Rhode Island Open-File Report 84-66 **By:** B.J. Ryan and K.L. Kipp
https://pubs.er.usgs.gov/publication/ofr8466

Tragic Death Gives Way to Environmental Rebirth January 06, 2016

“WOOD RIVER JUNCTION, R.I. — Fifty-two years ago this July an explosion rocked this rural village and devastated a local family.
On July 24, 1964, a criticality accident occurred at the United Nuclear Corp.’s fuels recovery plant, killing a 37-year-old production technician. On the evening of the accident, Robert Peabody was reportedly pouring what he thought was a bottle of trichloroethylene, to remove organics, into a mechanical mixer when he saw a blue flash. He had accidentally poured a concentrated uranium solution into the mixer, which contained sodium carbonate, resulting in a critical nuclear reaction.

With so much uranium in one container, it reached critical mass and reacted, knocking Peabody to the floor, splashing him with radioactive liquid and exposing him to a fatal radiation dose of 10,000 rads (1 rad equals 0.01) — 1,000 times the lethal dose and the equivalent of 700,000 chest X-rays. Peabody, bombarded by neutrons and gamma rays, had been exposed to more radiation than anyone outside of Hiroshima or Nagasaki, Japan, two decades earlier.

Peabody died two days later. His wife and their nine children were left with a small cash settlement. The accident was blamed on a combination of factors, including incorrect procedures approved by supervisors. The Atomic Energy Commission eventually charged United Nuclear Corp. with 14 violations of nuclear-safety regulations, eight directly involved in Peabody’s accident, but no fines were ever imposed.”

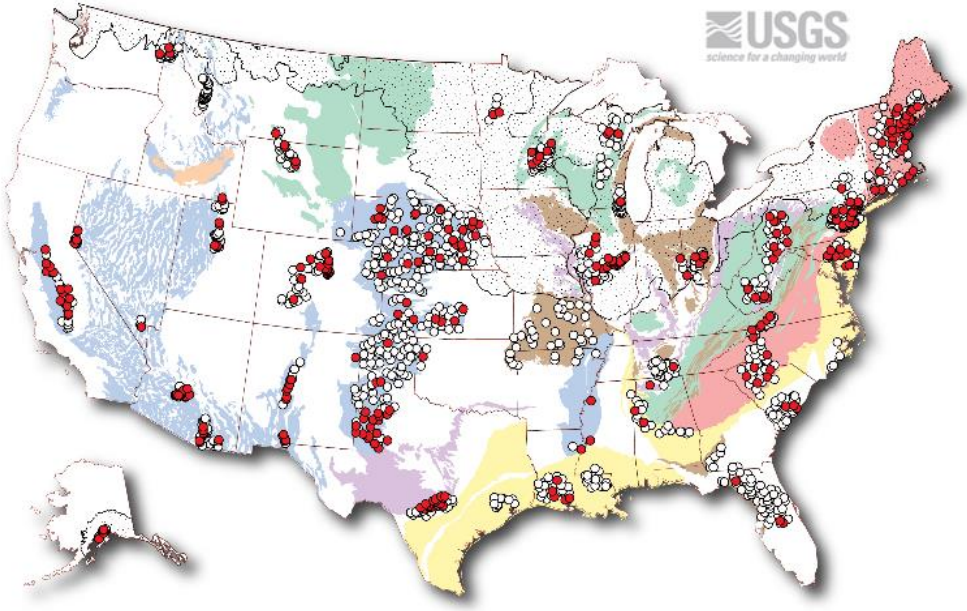
2013- BACK TO THE FUTURE: URANIUM INFORMATION AT THE USGS DENVER LIBRARY
https://gsa.confex.com/gsa/2013AM/webprogram/Paper225430.html

2013- THE PAST IS THE KEY TO THE FUTURE: URANIUM RESEARCH AT THE USGS DENVER LIBRARY
https://gsa.confex.com/gsa/2013AM/webprogram/Paper222073.html

2012 - Critical analysis of world uranium resources
https://pubs.er.usgs.gov/publication/sir20125239

2011 - Review and Interpretation of Previous Work and New Data on the Hydrogeology of the Schwartzwalder Uranium Mine and Vicinity, Jefferson County, Colorado
https://pubs.usgs.gov/of/2011/1092/

Domestic (Private) Well Water Quality



EXPLANATION
- At least one contaminant concentration greater than a human-health benchmark
- No contaminant concentration greater than a human-health benchmark

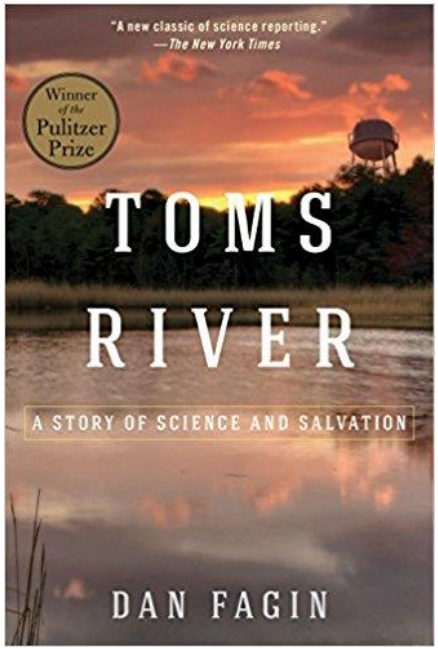
Health-Based Screening Levels for Evaluating Water-Quality Data

Water Quality of Domestic Wells: (1991-2004)

In a study of 2,100 domestic wells, water pumped from about one in five wells contained one or more contaminants at a concentration greater than a human-health benchmark for drinking water.

- **The contaminants most often found at these elevated concentrations were inorganic chemicals, such as metals, radionuclides, and nitrate; all of these but nitrate are derived primarily from natural sources.**
- **Man-made organic compounds, such as pesticides and solvents, were detected in more than half (60 percent) of the domestic wells sampled, but concentrations were seldom greater than human-health benchmarks (less than 1 percent of wells).**
- **About half of the wells had at least one "nuisance" contaminant—a compound that impairs taste, odor, or other aesthetic considerations—at a level or concentration outside the range of values recommended by the U.S. Environmental Protection Agency.**
- **Microbial contaminants (for example, bacteria) were detected in about one-third of the approximately 400 wells that had their water analyzed for those contaminants.**
- **Contaminants found in domestic wells usually co-occurred with other contaminants as mixtures, rather than alone, which is a potential concern because the total toxicity of a mixture can be greater than that of any single contaminant.**

Tom's River



Toms River: A Story of Science and Salvation by Dan Fagin

Toms River Township Childhood Cancer Investigation: https://www.state.nj.us/health/ceohs/environmental-occupational/hazardous-waste-sites/ocean/dovertwp.shtml

Beginning in 1995, the New Jersey Department of Health (NJDOH) and the Agency for Toxic Substances and Disease Registry (ATSDR) examined childhood cancer incidence in Dover Township, Ocean County, and its relationship to environmental contamination. Most of the documents prepared during the course of that investigation are available below. For further information, please contact us.

Summary of the investigation and findings

Chronology of activities

Summary of the investigation and findings

Background

The occurrence of childhood cancer has been a concern in the Dover Township/Toms River area of Ocean County for many years. In 1995, the NJDOH released an analysis of childhood cancer using State Cancer Registry data for the period 1979 through 1991. The finding of a statistically significant elevation in overall childhood cancer heightened community concerns about cancer in children, and its possible relationship to environmental pollution issues in and around the township.

Public Health Response Plan

The NJDOH has worked closely with the federal Agency for Toxic Substances and Disease Registry (ATSDR) to evaluate possible risk factors (including environmental exposures), that may be related to the elevated incidence of childhood cancer in Dover Township. The NJDOH and ATSDR, with community-based input from the Citizens Action Committee on Childhood Cancer Cluster (CACCCC) and the Ocean County Health Department, developed a Public Health Response Plan**.** The Plan included an update and re-evaluation of childhood cancer rates, public health evaluations of potential environmental exposures to hazardous chemicals in the environment, and public health education efforts. Public health activities were later expanded to include a case-control epidemiologic study. *For more information, please go to the full Public Health Response Plan or to Health Care Provider Update #1.*

New Jersey Water: PFAS

New Jersey sues DuPont, 3M over toxic firefighting foam
https://www.nj.gov/oag/newsreleases19/AFFF_Complaint.pdf
May 14, 2019

NRDC Advises Tougher Standards for PFAS in NJ Drinking Water, May 15, 2019
https://www.nrdc.org/experts/kimberly-ong/nrdc-advises-tougher-standards-pfas-nj-drinking-water

USGS : Per- and Polyfluoroalkyl Substances (PFASs) detected in Source Waters and Treated Public Water Supplies
https://www.usgs.gov/mission-areas/environmental-health/science/and-polyfluoroalkyl-substances-pfass-detected-source?qt-science_center_objects=0#qt-science_center_objects

What are PFAS?

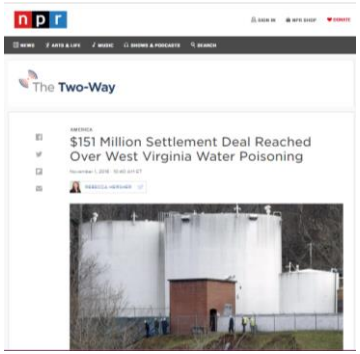
Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s. PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both chemicals are very persistent in the environment and in the human body – meaning they don't break down and they can accumulate over time. There is evidence that exposure to PFAS can lead to adverse human health effects.

PFAS can be found in:

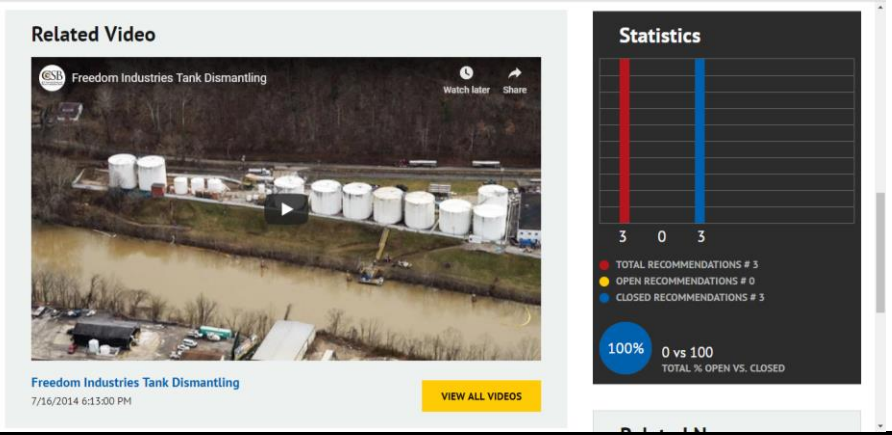
- **Food** packaged in PFAS-containing materials, processed with equipment that used PFAS, or grown in PFAS-contaminated soil or water.
- **Commercial household products**, including stain- and water-repellent fabrics, nonstick products (e.g., Teflon), polishes, waxes, paints, cleaning products, and fire-fighting foams (a major source of groundwater contamination at airports and military bases where firefighting training occurs).
- **Workplace**, including production facilities or industries (e.g., chrome plating, electronics manufacturing or oil recovery) that use PFAS.
- **Drinking water**, typically localized and associated with a specific facility (e.g., manufacturer, landfill, wastewater treatment plant, firefighter training facility).
- **Living organisms**, including fish, animals and humans, where PFAS have the ability to build up and persist over time.

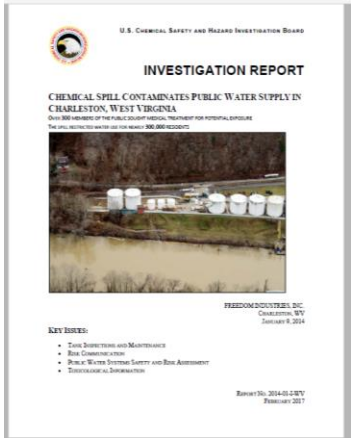
https://www.epa.gov/pfas/basic-information-pfas

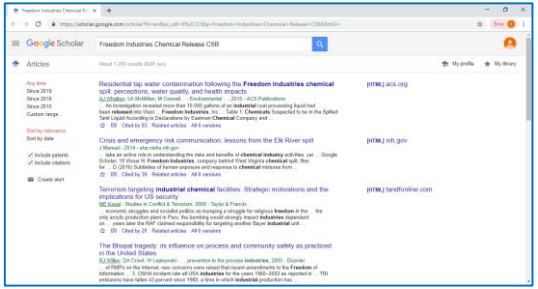
Water Quality Investigation



Accident Description
Accident: Freedom Industries Chemical Release
Location: Location: Charleston, WV
Accident Occurred On: 01/09/2014 | **Final Report Released On:** 05/11/2017
Accident Type: Release
Investigation Status: The CSB's final investigation report was released on 5.11.2017
A leak originating from a storage tank at Freedom Industries contaminated the local water supply leaving hundreds of thousands of West Virginia residents without clean drinking water.
https://www.csb.gov/freedom-industries-chemical-release-/



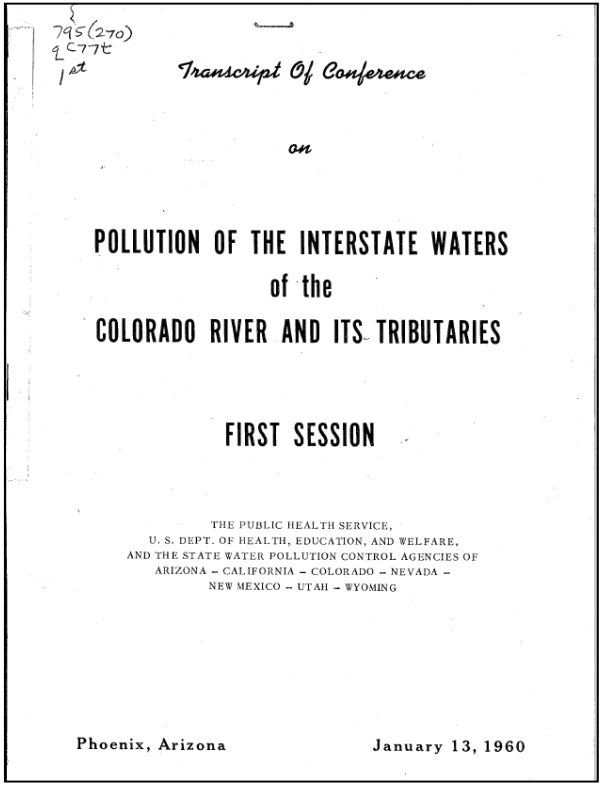




Colorado River: Animas River

Pollution of Interstate Waters Reports

http://www.worldcat.org/search?q=ti%3APollution+of+Interstate+Waters+&qt=advanced&dblist=638



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Transcript Of Conference

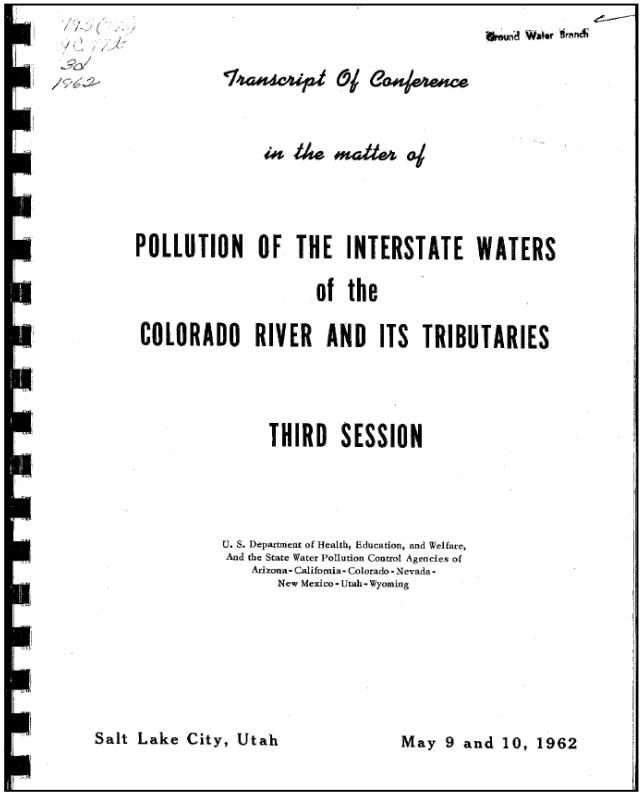
on

POLLUTION OF THE INTERSTATE WATERS
of the
COLORADO RIVER AND ITS TRIBUTARIES

FIRST SESSION

THE PUBLIC HEALTH SERVICE,
U. S. DEPT. OF HEALTH, EDUCATION, AND WELFARE,
AND THE STATE WATER POLLUTION CONTROL AGENCIES OF
ARIZONA – CALIFORNIA – COLORADO – NEVADA –
NEW MEXICO – UTAH – WYOMING

Phoenix, Arizona January 13, 1960



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1962

Ground Water Branch

Transcript Of Conference

in the matter of

POLLUTION OF THE INTERSTATE WATERS
of the
COLORADO RIVER AND ITS TRIBUTARIES

THIRD SESSION

U. S. Department of Health, Education, and Welfare,
And the State Water Pollution Control Agencies of
Arizona - California - Colorado - Nevada -
New Mexico - Utah - Wyoming

Salt Lake City, Utah May 9 and 10, 1962

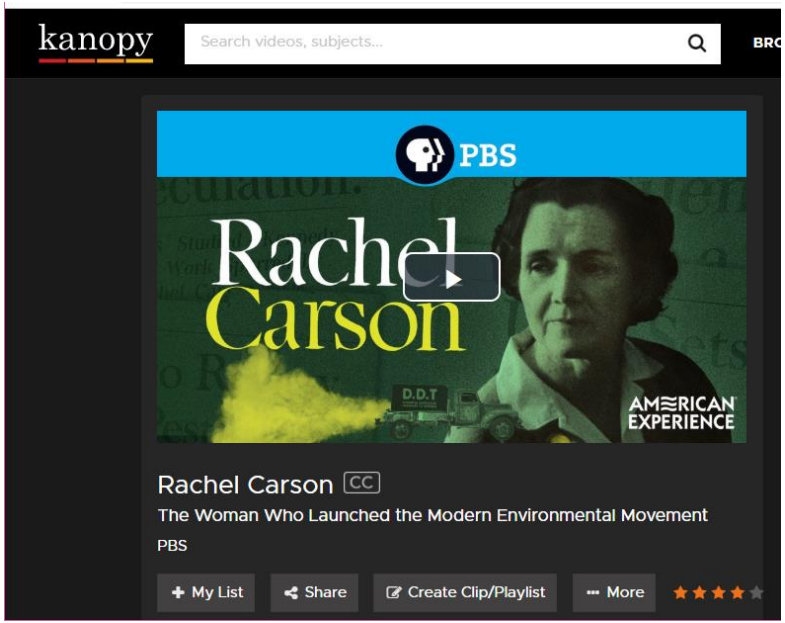
Reports include Raw & Calculated USGS data

These are the Pre-EPA reports: EPA created on December 2, 1970
https://www.epa.gov/history

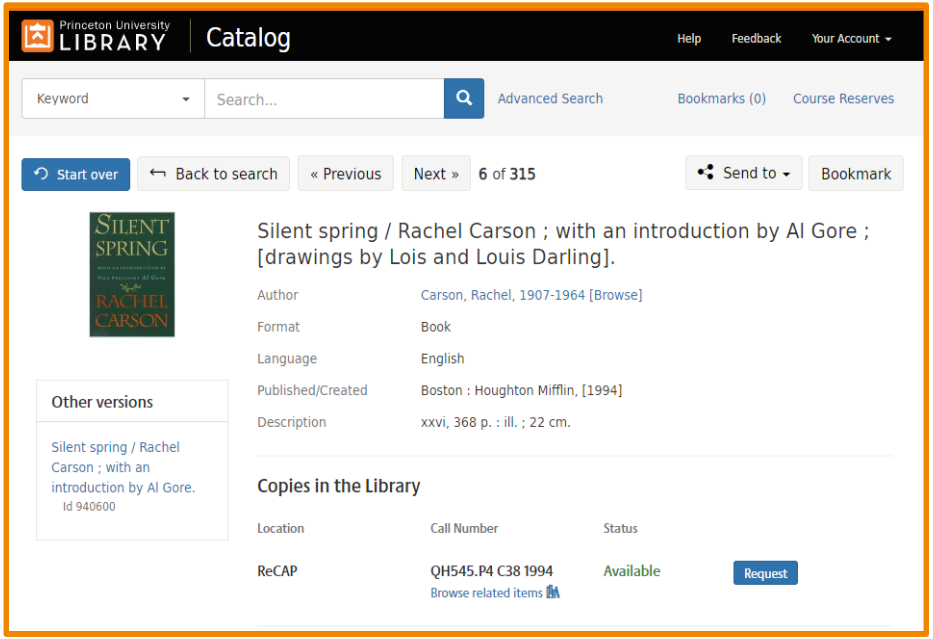
Rachel Carson: Silent Spring

http://www.rachelcarson.org/

“Perhaps the finest nature writer of the Twentieth Century, Rachel Carson (1907-1964) is remembered more today as the woman who challenged the notion that humans could obtain mastery over nature by chemicals, bombs and space travel than for her studies of ocean life. Her sensational book ***Silent Spring*** (1962) warned of the dangers to all natural systems from the misuse of chemical pesticides such as DDT, and questioned the scope and direction of modern science, initiated the contemporary environmental movement.”



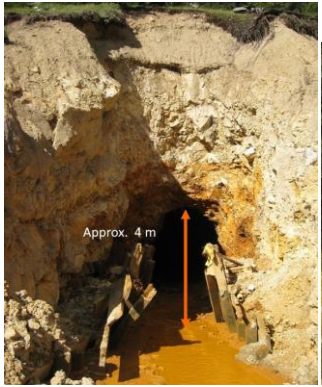
https://princeton.kanopy.com/video/rachel-carson



https://catalog.princeton.edu/catalog/SCSB-3303611

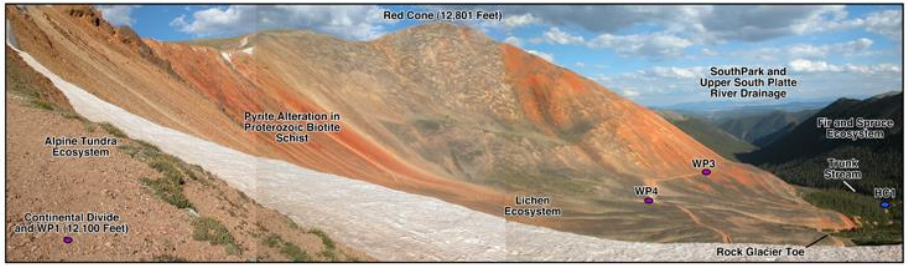
Abandoned Mine vs. No Mining

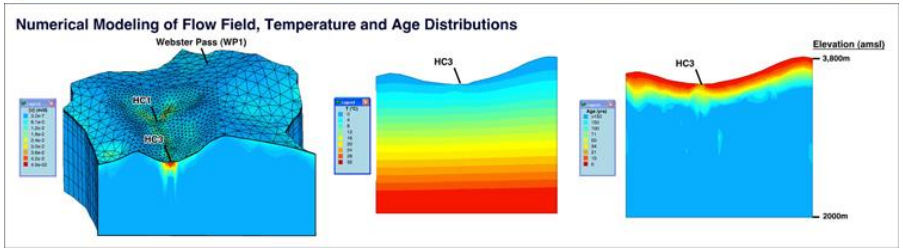
https://water.usgs.gov/owq/gkm/



https://www.usgs.gov/media/galleries/usgs-site-visit-and-sampling-gold-king-mine-august-11-13-2015

https://www.usgs.gov/media/images/usgs-scientists-monitor-animas-river





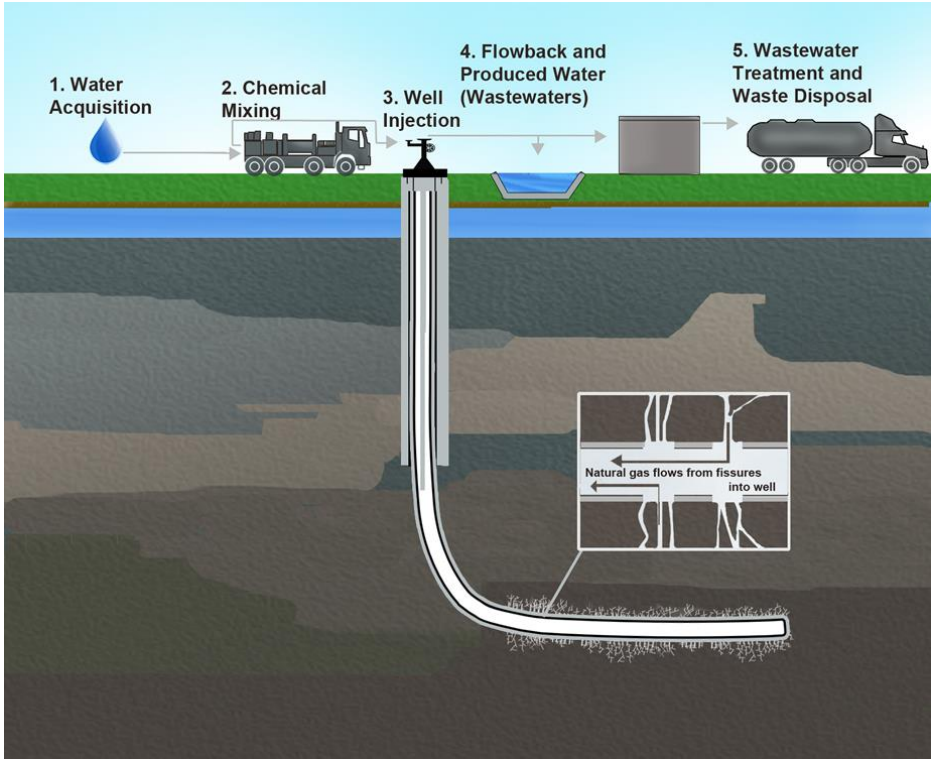
https://crustal.usgs.gov/projects/Handcart_Gulch/watershed.html

ROCKS WEATHER AND WATER IS FRIENDLY

https://water.usgs.gov/edu/

Water-Quality Topics: Hydraulic Fracturing

https://water.usgs.gov/owq/topics/hydraulic-fracturing/

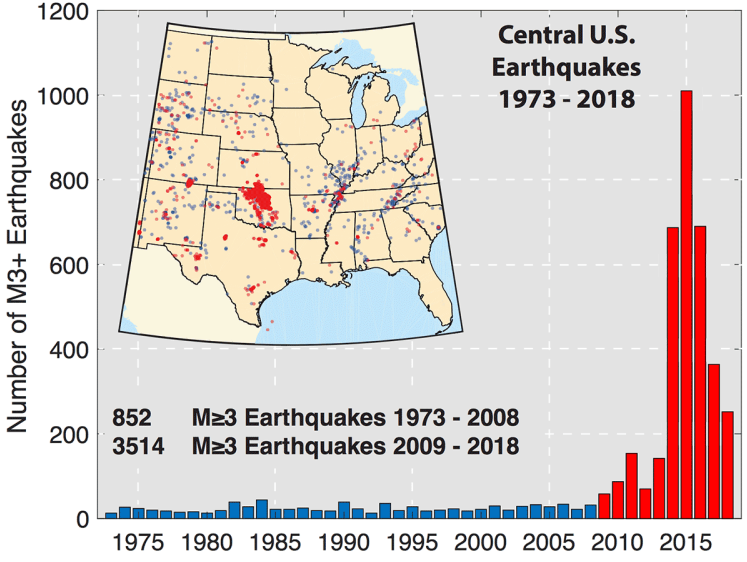


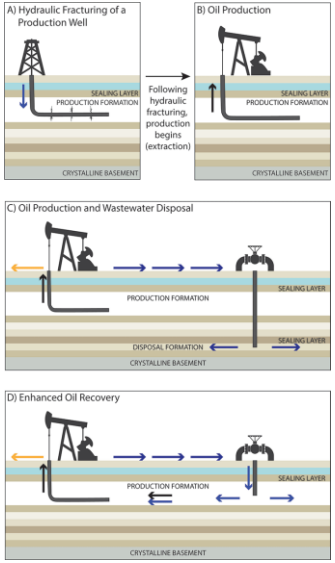
Hydraulic fracturing (informally known as hydrofracking, fracking, fracing, or hydrofracturing) is a process that typically involves injecting water, sand, and (or) chemicals under high pressure into a bedrock formation via a well. This process is intended to create new fractures in the rock as well as increase the size, extent, and connectivity of existing fractures.

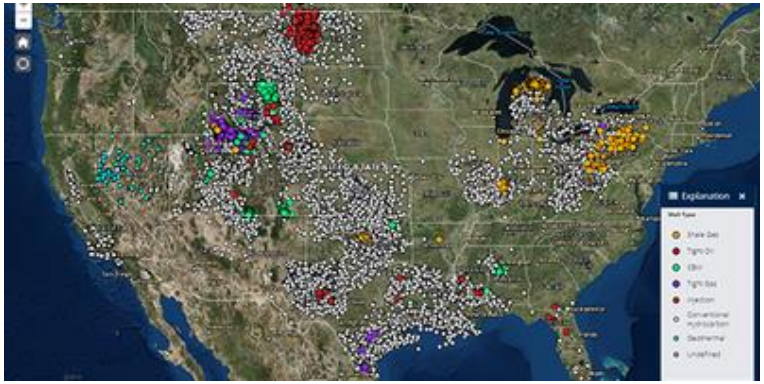
Hydraulic fracturing is a well-stimulation technique used commonly in low-permeability rocks like tight sandstone, shale, and some coal beds to increase oil and/or gas flow to a well from petroleum-bearing rock formations. A similar technique is used to create improved permeability in underground geothermal reservoirs. A form of hydraulic fracturing is also used in low permeability sediments and other tight subsurface formations to increase the efficiency of soil vapor extraction and other technologies used in remediating contaminated sites.

Water Quality - Energy

Energy Program: Environmental Aspects







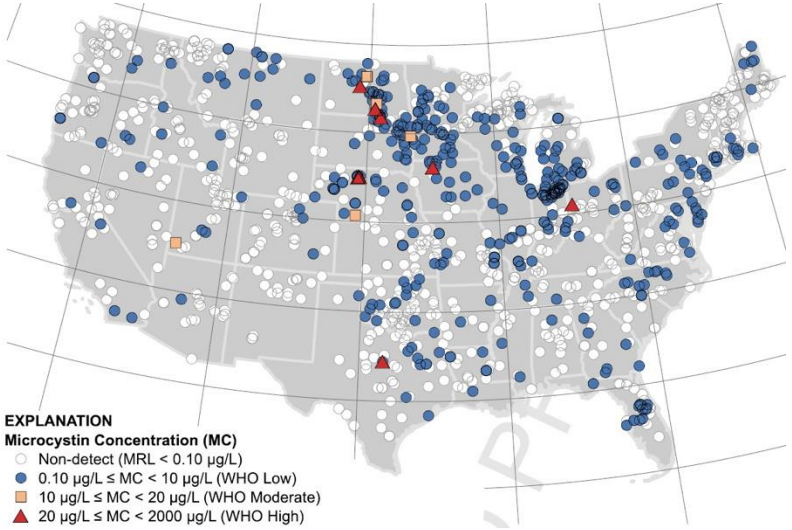
Produced Waters Database

The primary objective of this project is to provide information on the volume, quality, impacts, and possible uses of water produced during generation and development of energy resources (particularly hydrocarbons) as well as related fluids injected into reservoirs for energy development and associated waste disposal.

https://earthquake.usgs.gov/research/induced/overview.php

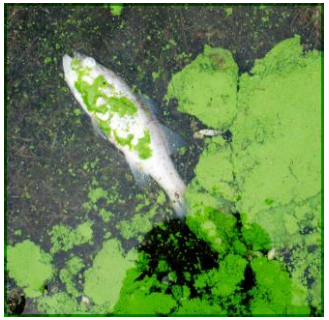
Water Quality – Algal Toxins

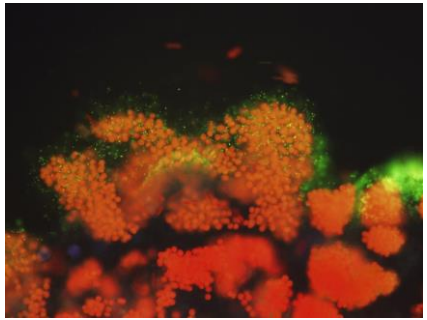
https://toxics.usgs.gov/highlights/2016-05-31-cyanotoxins_in_lakes.html



https://www.sciencedirect.com/science/article/pii/S1568988315300883?via%3Dihub

May 15, 2019: USGS Kicks Off Innovative Project to Study Harmful Algal Blooms in New York
https://www.usgs.gov/news/usgs-kicks-innovative-project-study-harmful-algal-blooms-new-york





USGS Publications Access Points

National Geologic Map Database:
https://ngmdb.usgs.gov

Geology and Hydrology Maps

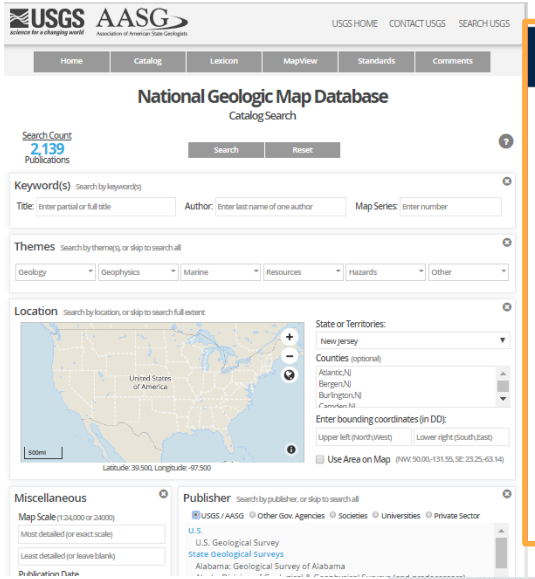
TopoView = Topographic Maps

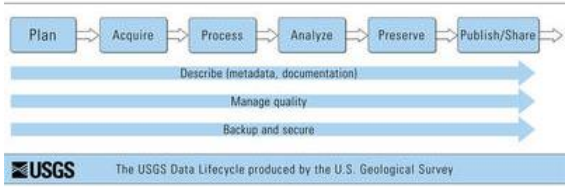
Publications Warehouse:
https://pubs.usgs.gov

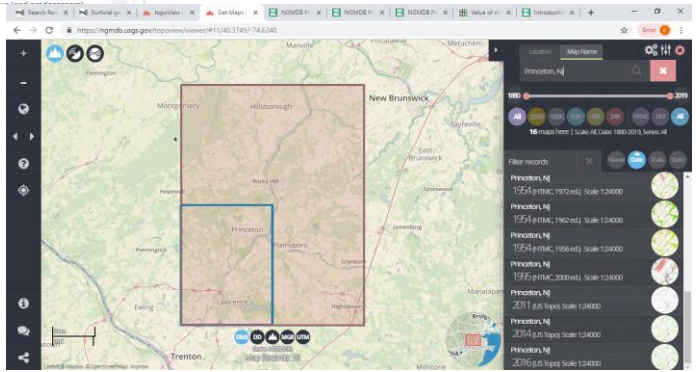
ScienceBase.gov

Data.usgs.gov

DataOne (Earth Data)
https://www.dataone.org/







Faundeen, J.L., Burley, T.E., Carlino, J.A., Govoni, D.L., Henkel, H.S., Holl, S.L., Hutchison, V.B., Martín, Elizabeth, Montgomery, E.T., Ladino, C.C., Tessler, Steven, and Zolly, L.S., 2013, The United States Geological Survey Science Data Lifecycle Model: U.S. Geological Survey Open-File Report 2013–1265, 4 p., *http://dx.doi.org/10.3133/ofr20131265*

Earth As Art!

Earth As Art 1 : https://eros.usgs.gov/image-gallery/earth-art-1

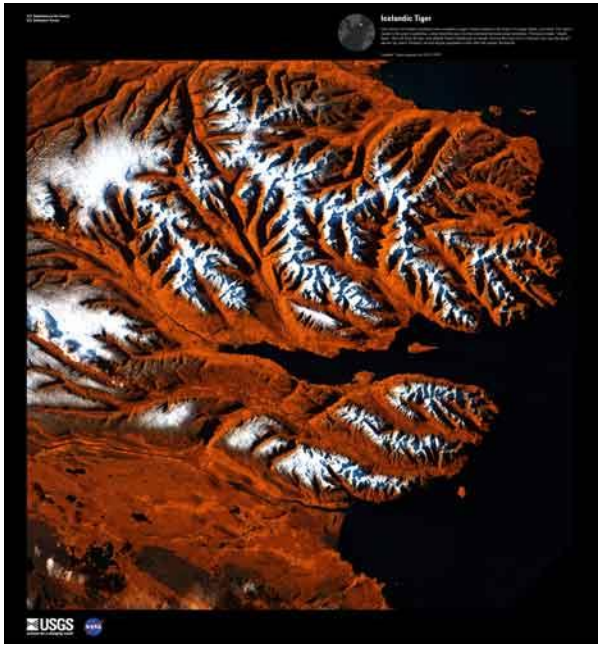
Earth As Art 2 : https://eros.usgs.gov/image-gallery/earth-art-2

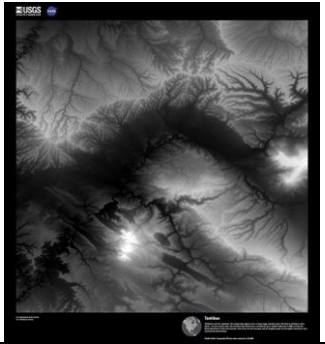
Earth As Art 3 : https://eros.usgs.gov/image-gallery/earth-art-3

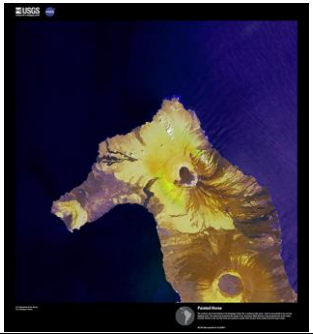
Earth As Art 4 : https://eros.usgs.gov/image-gallery/earth-art-4

Earth As Art 5 : https://eros.usgs.gov/image-gallery/earth-art-5

Earth As Art 6 : https://eros.usgs.gov/image-gallery/earth-art-6







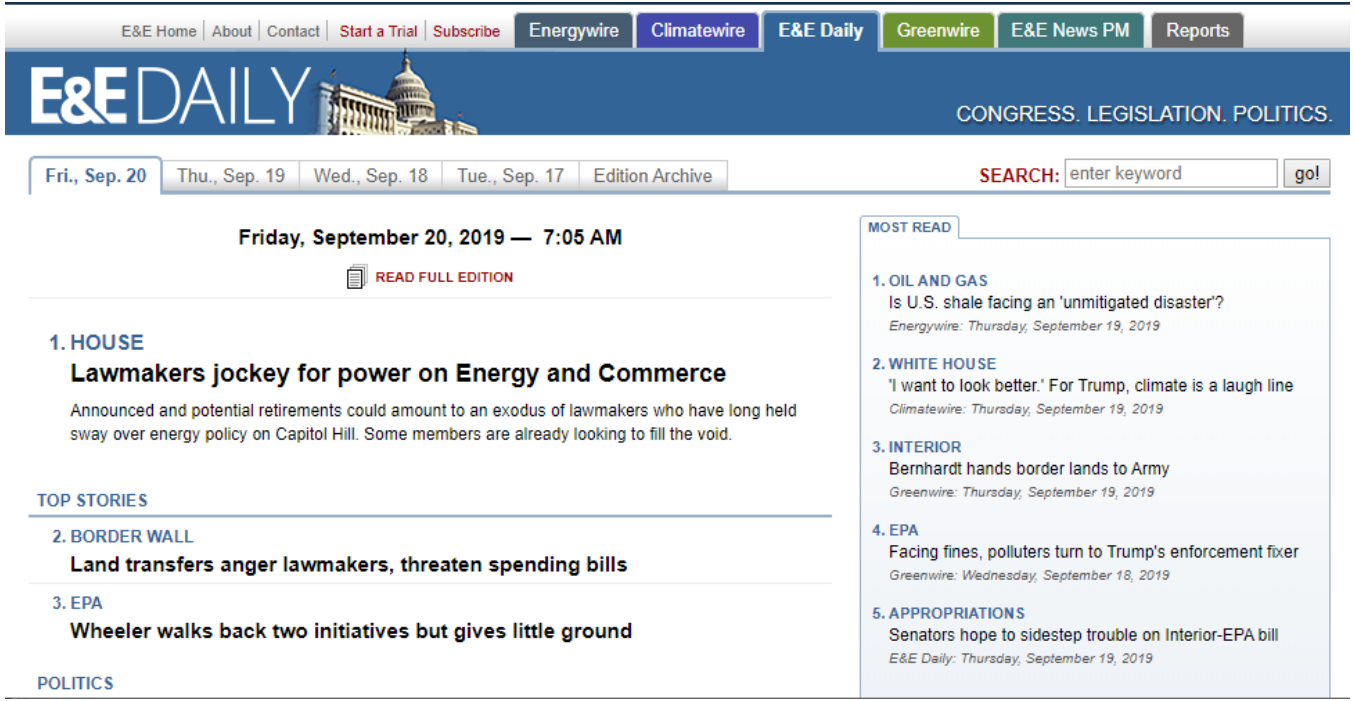
Earth News

E&E News (Subscription):
https://www.eenews.net/

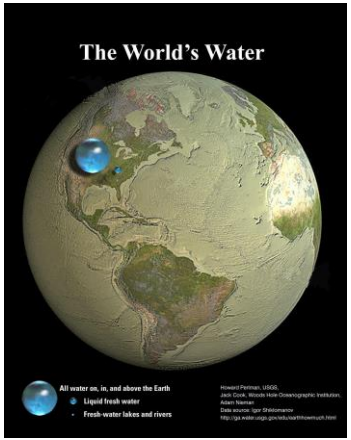
Eos: https://eos.org/

Eurekalert!:
https://www.eurekalert.org/
Earth Science:
https://www.eurekalert.org/bysubject/earthscience.php

Rocky Mountains:
https://www.rmag.org/publications/publications/



Sessions for 2020



January – Introduction to Geosciences Library Research

March – Library Research for Water Resources

TBD – Library Research for Climate Change

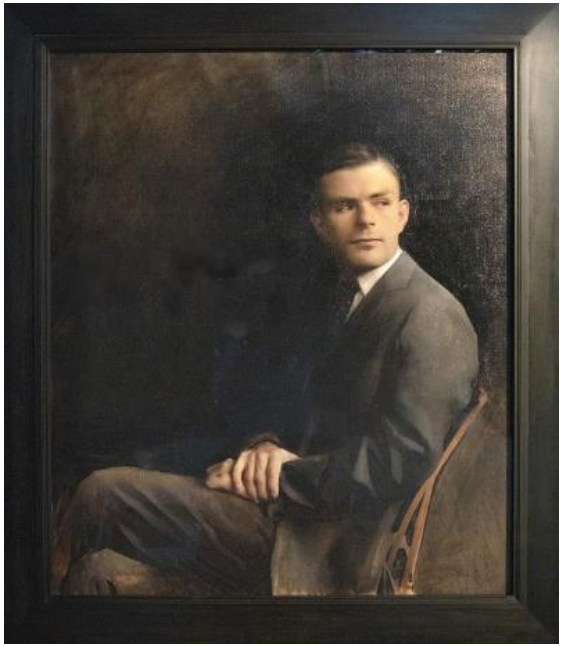
TBD – Library Research for Atmospheric and Oceanic Sciences

TBD – Library Research for Energy, Mineral, and Uranium Resources

TBD – Library Research for Natural Hazard Events: Earthquakes, Hurricanes, Volcanoes, and Wildfires

TBD – Using Art to Teach Chemistry, Geosciences and Environmental Studies in the Library

Thank You!



Alan Turing's portrait near front entrance to Lewis Science Library: https://www.cs.princeton.edu/news/alan-turings-portrait-unveiled-ceremony

Emily C. Wild
ewild@princeton.edu
609-258-5484

Princeton University Library
http://library.princeton.edu

Princeton University Geosciences
http://geosciences.princeton.edu
Geophysical Fluid Dynamics Laboratory
https://www.gfdl.noaa.gov/
Princeton Environmental Institute
http://environment.princeton.edu

Princeton University Chemistry
https://chemistry.princeton.edu/

Andlinger Center for Energy and the Environment
https://acee.princeton.edu/