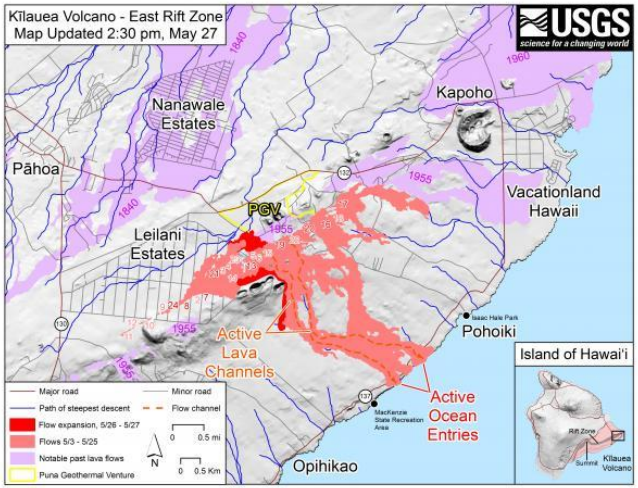
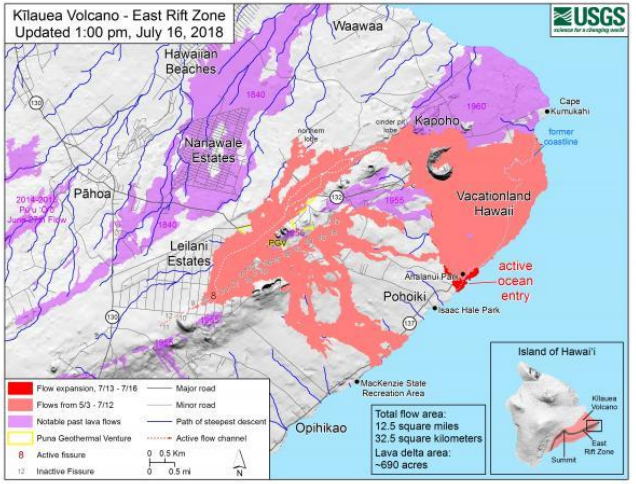
USGS
science for a changing world

U.S. Geological Survey Library Materials for Natural Hazards (and Land Change)



Kīlauea lower East Rift Zone lava flows and fissures, May 27, 2:30 p.m. HST
https://volcanoes.usgs.gov/volcanoes/kilauea/multimedia_maps.html



Kīlauea lower East Rift Zone lava flows and fissures, July 16, 1:00 p.m. HST
https://volcanoes.usgs.gov/volcanoes/kilauea/multimedia_maps.html

Presented by:
Emily C. Wild,
Librarian (Physical Scientist)

GPO FDLP Academy Webinar
July 19, 2018

U.S. Department of the Interior
U.S. Geological Survey

Kilauea eruption near the Leilani Estates Subdivision is the blue burning flame of methane gas, observed in the cracks on Kahukai Street, on May 22, around 11:30 PM, HST. The view is to the southeast.
When hot lava buries plants and shrubs, methane gas is produced as a byproduct of burning vegetation.
https://www.youtube.com/watch?v=7uGjDsN8JGM

http://www.usgs.gov

http://Library.usgs.gov

http://www.doi.gov/library

Past GPO Presentations & Handouts

- 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

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Past Presentations, Conferences and Workshops

- **February 11, 2018 -** "USGS Library Materials: Measuring Research Impact - What Really Counts?" presentation at American Libraries Association (ALA) Mid-Winter Meeting's session Science & Technology Section Publisher/Vendor Relations Discussion Group (ACRL STS) Measuring Research Impact: What Really Counts? ; Denver, Colorado https://www.eventscribe.com/2018/ALA-Midwinter/fsPopup.asp?Mode=presInfo&PresentationID=333419

- **October 2017 -** Geoscience Information Society (GSIS), Geoscience Librarianship workshop, "Introduction to Geoscience Librarianship and Instruction: Finding and Using USGS Publications" ; Seattle, Washington

- **March 2017** - Colorado Library Consortium (CLiC) Spring Workshops, Grand Junction, Colorado; "A Maps Workshop--Update 2017" : http://www.clicweb.org/ – pdf of ppt available upon request

- **March 2017** - Colorado Library Consortium (CLiC) Spring Workshops, Grand Junction, Colorado; “Go with the flow! (The Water Cycle)” : http://www.clicweb.org/ – pdf of ppt available upon request

- **February 2017** - "USGS Library: Finding Images and Maps" presentation for the Alaska Resources Library and Information Services (ARLIS) – pdf of ppt available upon request

- **November 2016** - "Disaster Resources at the U.S. Geological Survey Library" for National Institute of Health (NIH) National Library of Medicine's (NLM) Disaster Info Specialist Program Webinars: https://disasterinfo.nlm.nih.gov/dimrc/dismeetings.html

USGS

Past Presentations, Conferences and Workshops (Cont…)

- **November 2016** - "Exploring Career Paths through Published Materials" presentation to the Geological Society of America's (GSA) GeoCareers Program: https://www.geosociety.org/gsa/careers/events.aspx

- **October 2016**: "U.S. Geological Survey Denver Library: Geoscience Outreach and Instruction" presentation to North American Cartographic Information Society – pdf of ppt available upon request

- **September 2016** - "Prospecting the USGS Library Materials for GIS Nuggets" presentation to Association of Earth Science Editors (AESE) : http://www.aese.org/ – pdf of ppt available upon request

- **September 2016** - "Prospecting the USGS Library Materials for GIS Nuggets" presentation during the session "Open Data, Open Access: Trends in Geoscience Publications and Data Sources" at the Geological Society of America Annual Meeting, Denver, Colorado: https://gsa.confex.com/gsa/2016AM/webprogram/Paper286965.html

- **September 2016** - Geoscience Information Society, Geoscience Librarianship workshop, "Introduction to Geoscience Librarianship" and "Geoscience Bibliographic Instruction" ; Denver, Colorado http://www.geoinfo.org/GL101%202016/101%20Intro%20Instruction%202016.pdf

- **June 2016** - "Mining USGS Library Materials for Mineral Information Nuggets" presentation to the "All About Mining - A Total Concept of the Mining Industry" class for teachers and librarians: http://www.allaboutmining.org/ – pdf of ppt available upon request

USGS

Past Presentations, Conferences and Workshops (Cont…)

- **February 2016** - "Drilling through USGS Library Materials for GIS Nuggets" presentation during the session "Taking GIS Retrospective to the Federal Level" at ESRI's FedGIS 2016, Washington, D.C. http://proceedings.esri.com/library/userconf/fed16/papers/fed_125.pdf

- **October 2015** - Geoscience Information Society, Geoscience Librarianship workshop, "Introduction to Geoscience Librarianship" and "Geoscience Bibliographic Instruction" ; Baltimore, Maryland http://www.geoinfo.org/

- **October 2014** - "EARTH DATA! Accessing Real-Time, Recent, and Historical Water Data from Print and Online Information Sources" presentation at Geological Society of America Annual Meeting, Vancouver, British Columbia, Canada: https://gsa.confex.com/gsa/2014AM/webprogram/Paper240647.html

- **February 2014** - "U.S. Geological Survey Denver Library Materials for Law Librarians: Access to Geoscience Information and Legal Databases," presentation to the Colorado Association of Law Libraries (CoALL): http://www.aallnet.org/chapter/coall/

- **June 2013** - "USGS Information Sources for Students, Teachers, and Librarians" presentation to the "All About Mining - A Total Concept of the Mining Industry" class: http://www.allaboutmining.org/

- **April 2013** - American Association of Petroleum Geologists, Rocky Mountain Section Young Professionals, (http://www.aapg.org/youngpros/); Denver, Colorado; "Using the U.S. Geological Survey Denver Library for Oil & Gas Research: Finding Print and Online Materials"

USGS

Quick Government Overview

- Judicial Branch (Supreme Court)

- Legislative Branch (Congress, House & Senate)
  - Library of Congress: https://www.loc.gov/

- Executive Branch (President)
  - Example, Departments

  Department of the Interior:

  Interior Library: https://www.doi.gov/library and
  https://www.doi.gov/library/electronic/

  U.S. Geological Survey: http://www.usgs.gov

  USGS Library: http://library.usgs.gov

  Other DOI bureaus and offices:
  https://www.doi.gov/bureaus

Famous Building Stones of Our Nation's Capital,
USGS Fact Sheet 2012-3044

Building Stones of our Nation's Capital
https://pubs.usgs.gov/gip/70039206/report.pdf

USGS

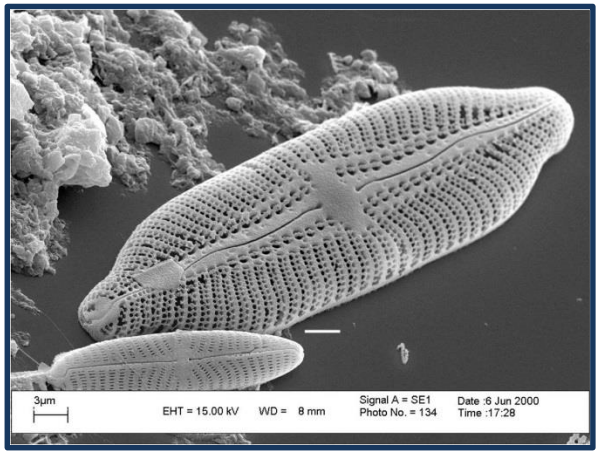
U.S. Geological Survey, March 3, 1879

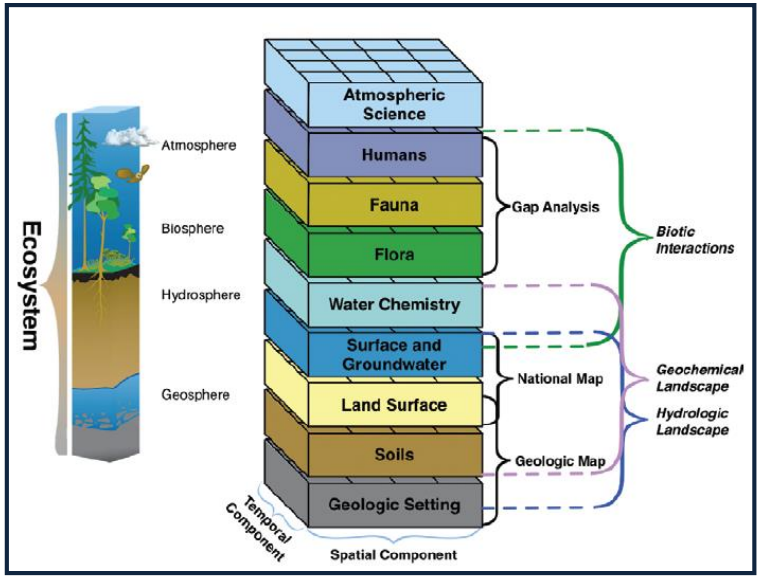
Mission

- The USGS serves the Nation by providing reliable scientific information to describe and understand the Earth;
- Minimize loss of life and property from natural disasters;
- Manage water, biological, energy, and mineral resources; and
- Enhance and protect our quality of life.

What Do We Do

As the Nation's largest water, earth, and biological science and civilian mapping agency, USGS collects, monitors, analyzes, and provides science about natural resource conditions, issues, and problems. Our diverse expertise enables us to carry out large-scale, multidisciplinary investigations and provide impartial scientific information to resource managers, planners, and other customers.





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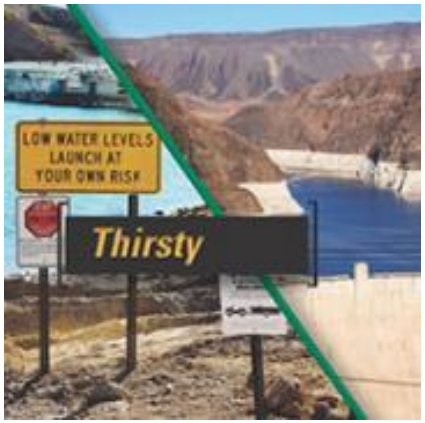
USGS Mission Areas:

- Core Science Systems
- Ecosystems
- Energy and Minerals
- Environmental Health
- Land Resources
- Natural Hazards
- Water Resources



USGS

Core Science Systems (CSS):

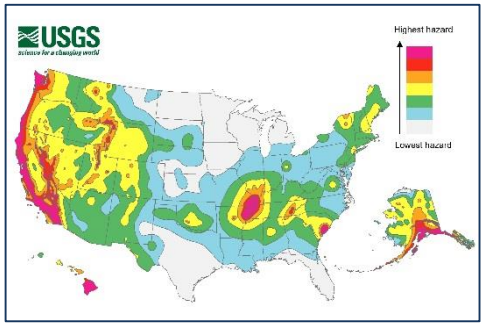
https://www.usgs.gov/science/mission-areas/core-science-systems

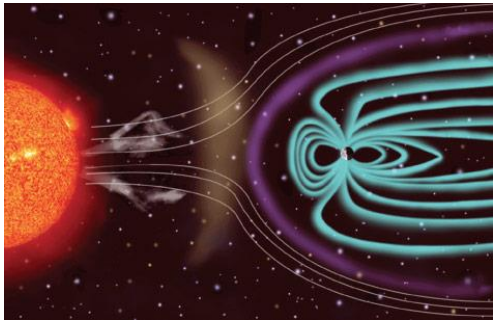
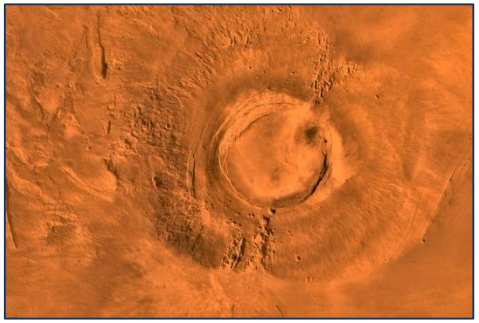
- **3D Elevation Program (3DEP)** To respond to growing needs for high-quality elevation data, the 3D Elevation Program (3DEP) initiative is systematically collecting 3D elevation data during an 8-year period in the form of light detection and ranging (lidar) data over the conterminous United States, Hawaii, and the U.S. territories; and interferometric synthetic aperture radar (IfSAR) in Alaska.
- **Core Research Center** The Core Research Center (CRC) was established in 1974 by the U.S. Geological Survey (USGS) to preserve valuable rock cores for use by scientists and educators from government, industry, and academia. The cylindrical sections of rock are permanently stored and available for examination and testing at the core storage and research facility in Denver, Colorado.
- **Core Science Analytics, Synthesis, and Libraries (CSAS&L)** **CSAS&L synthesizes and delivers Earth system data and information. We strive to accelerate research and decision making through data science, information delivery, advanced computing and biodiversity analytics. CSAS&L has developed a Five Year Science Strategy that outlines our organization's goals, research questions, and strategic activities.**
- **Hydrography** The National Hydrography Dataset (NHD) and Watershed Boundary Dataset (WBD) are digital geospatial datasets that map the surface water of the United States and are a part of The National Map. Together, the NHD and WBD, along with data from the 3D Elevation Program (3DEP), are processed to create the NHDPlus High Resolution (NHDPlus HR).
- **John Wesley Powell Center for Analysis and Synthesis** Offering the opportunity for emergent knowledge in Earth system science through collaborative analysis and synthesis.
- **National Cooperative Geologic Mapping Program** The National Cooperative Geologic Mapping Program (NCGMP) is the primary source of funds for the production of geologic maps in the United States and provides accurate geologic maps and three-dimensional framework models that help to sustain and improve the quality of life and economic vitality of the Nation and to mitigate natural hazards.
- **National Geological and Geophysical Data Preservation Program** The Energy Policy Act of 2005 established the National Geological and Geophysical Data Preservation Program (NGGDPP) to preserve and expose the Nation's geoscience collections (samples, logs, maps, data) to promote their discovery and use for research and resource development. The National Digital Catalog describes geoscience collections managed by USGS and state geological agencies.
- **National Geospatial Program** The National Geospatial Program provides a foundation of digital geospatial data representing the topography, natural landscape, and built environment of the United States. These data and derived products and services can be accessed through The National Map Data Download and Visualization Services.

USGS

Natural Hazards – Library Reference Inquiries

- Coastal and Marine Geology: Erosion, hurricanes, underwater mining, bathometry, oil spills, and other topics
- Earthquakes: Tectonic, magmatic, and induced seismicity
- Emergency Management: Wildfires, HDDS library and specific events
- Geomagnetism: Solar storms, oil and gas industry, and others
- Global Seismic Network: collaborations and outreach
- Landslides: Post-fire debris, earthquakes, volcanic eruptions, and others
- Reducing Risk (SAFRR): Wildfires, earthquake early warning (city transit)
- Volcanoes: extinct, dormant/inactive, active and by type and by planet
- Water Resources: water quality (algal blooms, groundwater contamination), floods, droughts, and hurricanes




USGS

Geoscience Library Inquiry = Data Inquiry

Science Investigations

- **Raw Data:** Chemical and(or) Physical 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 & **TO FIND THE PUBLICATION**

Library Research

Tables & Figures/Images

USGS Frequently Asked Questions (FAQs): https://www.usgs.gov/faq

- Natural Hazards FAQs : https://www.usgs.gov/faq/natural-hazards

How does the USGS tell the difference between an earthquake and a sonic boom?

Which volcanic eruptions were the deadliest?

When will the next large earthquake occur in Yellowstone?

What are earthquake lights?

What is the role of the USGS in responding to hurricanes?

Can nuclear explosions cause earthquakes?

What is the difference between a tsunami and a tidal wave?

How far did the ash from Mount St. Helens travel?

When will Yellowstone erupt again?

What gases are emitted by Kīlauea and other active volcanoes?

USGS

USGS Library: https://library.usgs.gov/

USGS Library Classification System: https://pubs.usgs.gov/bul/b2010/b2010.pdf

Natural Hazards – Library Reference Inquiries

- **Coastal and Marine Geology: https://usgs.primo.exlibrisgroup.com/discovery/search?query=any,contains,Coastal%20and%20Marine%20Geology&tab=LibraryCatalog&search_scope=MyInstitution&vid=01USGSL_INST:01USGSL_INST&offset=0**
- **Earthquakes, seismology = call # 240**

(Includes "man made" earthquakes, seismic waves, ground shaking and earthquake hazard analysis; for seismic wave application to earth structure, seismic profiling see 295.2)

240.1 Conferences

240.2 Earthquake engineering and effects of earthquakes on construction

240.3 Geomorphological effects of earthquakes (Includes earthquake effects on slope stability)

240.4 Earthquake prediction

240.5 Induced seismicity

240.6 Soil liquefaction

240.8 Seismometry (Instrumental aspects of seismology)

240.9 Paleoseismology

245 Landslides, avalanches, debris flows, mudslides, and rockslides

248 Local land subsidences, sinkholes

249 Natural disasters (Includes geological hazards and disaster relief; for specific geologic hazards and associated disasters, see the specific types: earthquakes: 240; landslides: 245; subsidences: 248; hurricanes and typhoons: 515; tsunamis: 533; tornados: 515; floods: 552)

249.1 Congresses

249.2 Natural disasters' effects on construction

USGS

Library of Congress (LC) Subject Headings: http://id.loc.gov/authorities/subjects.html

Earthquakes: http://id.loc.gov/authorities/subjects/sh85040496.html

Variants

- Quakes (Earthquakes)

Broader Terms

- Earth Movements
- Natural Disasters

Narrower Terms

- Earthquake aftershocks
- Earthquake Intensity
- Earthquake magnitude
- Earthquake swarms
- Northern Tier Pipeline—Earthquake effects
- Railroads—Earthquake effects
- Seismites
- Transportation—Earthquake effects

Related Terms

- Seismology

USGS

LC Call # QE = Geology

QE1-996.5 Geology
QE1-350.62 General Including geographical divisions

QE351-399.2 Mineralogy

QE420-499 Petrology

QE500-639.5 Dynamic and structural geology

QE521-545 Volcanoes and earthquakes

QE601-613.5 Structural geology

QE640-699 Stratigraphy

QE701-760 Paleontology

QE760.8-899.2 Paleozoology

QE901-996.5 Paleobotany

USGS Products: Where do I start? It depends on the Question

- Topographic Maps - to purchase, contact the USGS Store: http://store.usgs.gov

To download - Most recent topos = US Topos :

Pre-USGS to about 2008/2009, USGS Topographic Maps :

- Thematic Maps: USGS National Geologic Map Database (NGMD) http://ngmd.usgs.gov - select https://ngmdb.usgs.gov/ngm-bin/ngm_compsearch.pl and zoom on map to create lat/long box of area of interest

- Reports and other USGS authored materials: https://pubs.er.usgs.gov/

- Imagery: https://lta.cr.usgs.gov/products_overview/

- Data: http://data.usgs.gov

- Everything? Use ScienceBase-Catalog: https://www.sciencebase.gov/catalog/

- What about journals, books, and other products?

USGS Library online indexes, catalogs, and e-content:
https://usgs.primo.exlibrisgroup.com/discovery/search?vid=01USGSL_INST:01USGSL_INST&sortby=rank

USGS

Coastal and Marine Geology: Coastal Change Hazards Portal

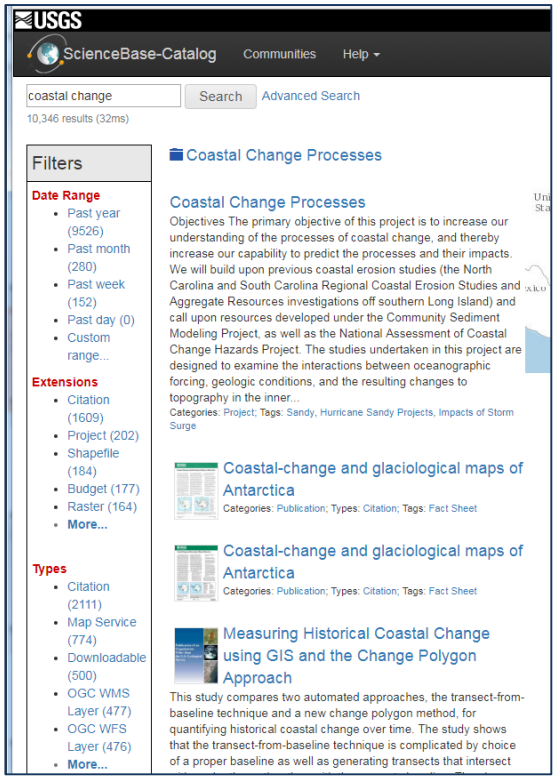
https://marine.usgs.gov/coastalchangehazardsportal/

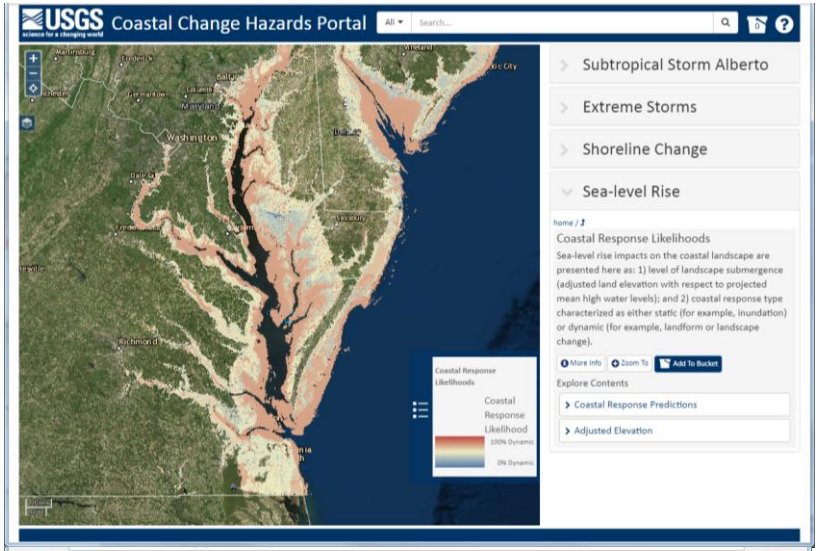
- **USGS Publications Warehouse**

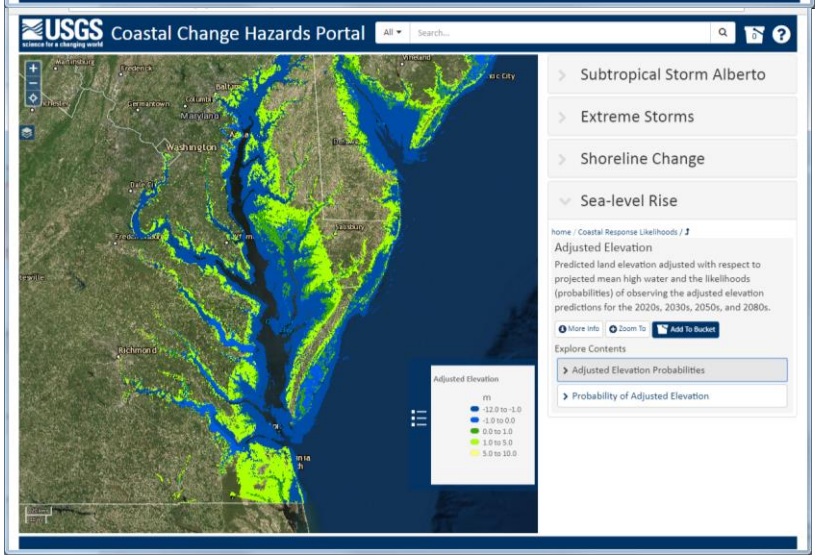
https://pubs.er.usgs.gov/search?q=coastal+change

- **ScienceBase Catalog**

https://www.sciencebase.gov/catalog/items?q=coastal%20change







USGS

Coastal and Marine Geology: Bathymetry

https://marine.usgs.gov/coastalchangehazardsportal/

- **USGS Publications Warehouse**

https://pubs.er.usgs.gov/search?q=Bathymetry

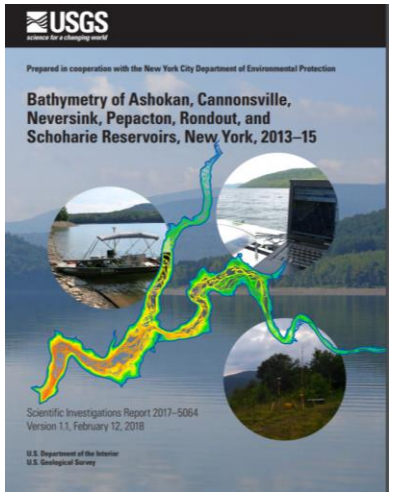
Evaluating the potential for near-shore bathymetry on the Majuro Atoll, Republic of the Marshall Islands, using Landsat 8 and WorldView-3 imagery
Sandra K. Poppenga, Monica Palaseanu-Lovejoy, Dean B. Gesch, Jeffrey J. Danielson, Dean J. Tyler
2018, Scientific Investigations Report 2018-5024
Satellite-derived near-shore bathymetry (SDB) is becoming an increasingly important method for assessing vulnerability to climate change and natural hazards in low-lying atolls of the northern tropical Pacific Ocean. Satellite imagery has become a cost-effective means for mapping near-shore bathymetry because ships cannot collect soundings safely while operating close to the...

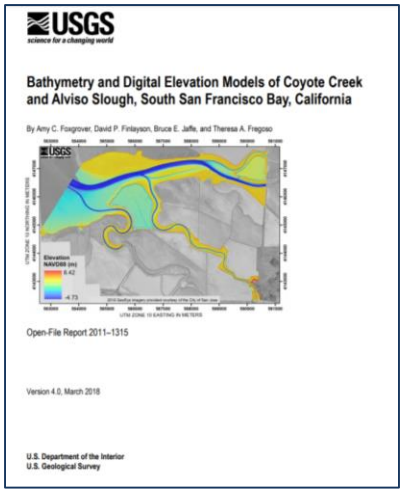
Nearshore coastal bathymetry data collected in 2016 from West Ship Island to Horn Island, Gulf Islands National Seashore, Mississippi
Nancy T. DeWitt, Chelsea A. Stalk, Jake J. Fredericks, James G. Flocks, Kyle W. Kelso, Andrew S. Farmer, Thomas M. Tuten, Noreen A. Buster
2018, Data Series 1081
The U.S. Geological Survey (USGS) St. Petersburg Coastal and Marine Science Center, in cooperation with the U.S. Army Corps of Engineers, Mobile District, conducted bathymetric surveys of the nearshore waters surrounding Ship and Horn Islands, Gulf Islands National Seashore, Mississippi. The objective of this study was to establish base-level elevation...

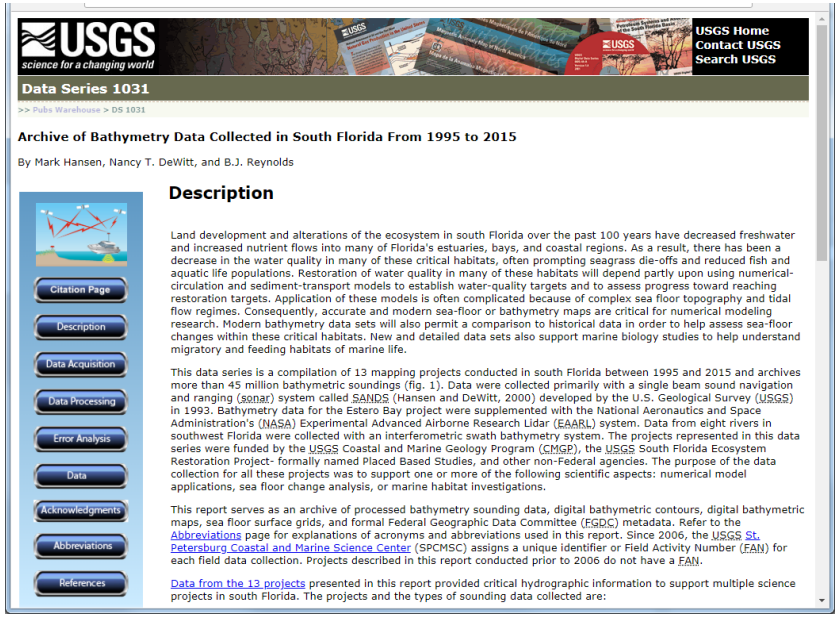
Spectrally based bathymetric mapping of a dynamic, sand-bedded channel: Niobrara River, Nebraska, USA
Elizabeth Dilbone, Carl Legleiter, Jason S. Alexander, Brandon McElroy
2018, River Research and Applications (34) 430-441
Methods for spectrally based mapping of river bathymetry have been developed and tested in clear-flowing, gravel-bed channels, with limited application to turbid, sand-bed rivers. This study used hyperspectral images and field surveys from the dynamic, sandy Niobrara River to evaluate three depth retrieval methods. The first regression-based approach, optimal band...

One-meter topobathymetric digital elevation model for Majuro Atoll, Republic of the Marshall Islands, 1944 to 2016
Monica Palaseanu-Lovejoy, Sandra K. Poppenga, Jeffrey J. Danielson, Dean J. Tyler, Dean B. Gesch, Maria Kottermair, Andrea Jalandoni, Edward Carlson, Cindy A. Thatcher, Matthew M. Barbee
2018, Scientific Investigations Report 2018-5047
Atoll and island coastal communities are highly exposed to sea-level rise, tsunamis, storm surges, rogue waves, king tides, and the occasional combination of multiple factors, such as high regional sea levels, extreme high local tides, and unusually strong wave set-up. The elevation of most of these atolls averages just under...

Bathymetry of Ashokan, Cannonsville, Neversink, Pepacton, Rondout, and Schoharie Reservoirs, New York, 2013–15
Elizabeth A. Nystrom
2018, Scientific Investigations Report 2017-5064
Drinking water for New York City is supplied from several large reservoirs, including a system of reservoirs west of the Hudson River. To provide updated reservoir capacity tables and bathymetry maps of the City's six West of Hudson reservoirs, bathymetric surveys were conducted by the U.S. Geological Survey from 2013...







USGS

Coastal and Marine Geology: Oil Spill
(http://library.usgs.gov/publiceresources.html)

Deepwater Horizon

Macondo Well

- GeoScienceWorld : https://pubs.geoscienceworld.org
Deepwater Horizon (1,462) and Macondo Well (54)

- ScienceDirect (Elsevier) : https://www.sciencedirect.com/
Deepwater Horizon (2,218) and Macondo Well (259)

- Springer: https://link.springer.com/
Deepwater Horizon (1,705) and Macondo Well (137)

- Wiley: https://onlinelibrary.wiley.com/
Deepwater Horizon (1,404) and Macondo Well (118)

- AAPG Datapages : http://archives.datapages.com/data/index.html
Deepwater Horizon (62) and Macondo Well (11)

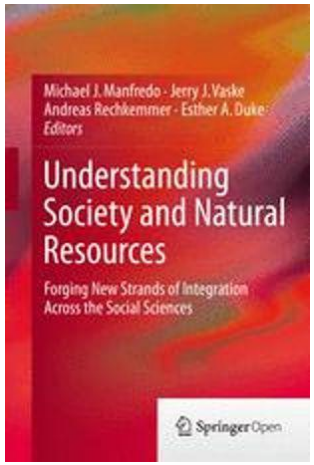
- ACS : https://www.acs.org/content/acs/en.html
Deepwater Horizon (22) and Macondo Well (4)

- USGS Publications Warehouse: https://pubs.er.usgs.gov/
Deepwater Horizon (91) and Macondo Well (18)

- ScienceBase.gov: https://www.sciencebase.gov/catalog/
Deepwater Horizon (176) and Macondo Well (20)

USGS

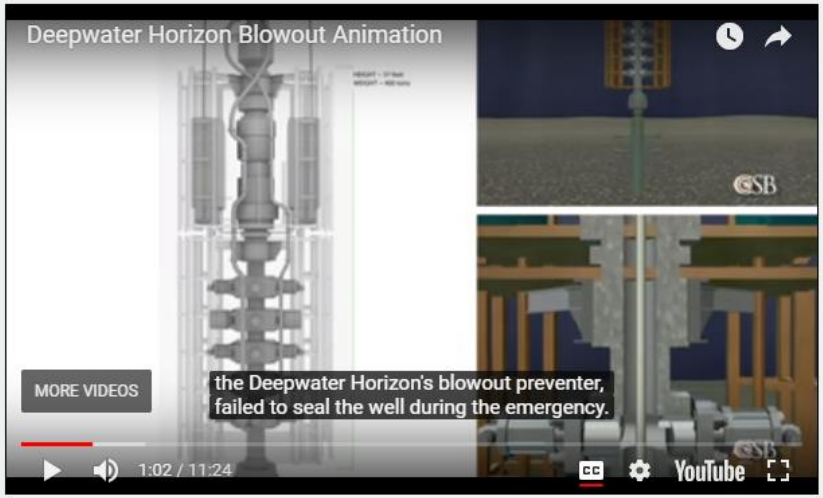
Coastal and Marine Geology: Oil Spill



Science During Crisis: The Application of Interdisciplinary and Strategic Science During Major Environmental Crises, pages 47-65

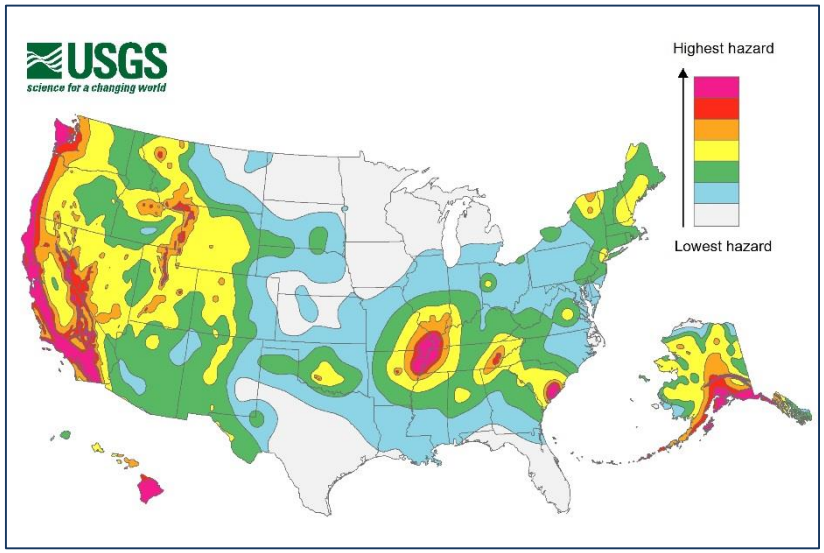
- USGS National Geologic Map Database (NGMDB): https://ngmdb.usgs.gov/ngmdb/ngmdb_home.html
- USGS NGMDB MapView: https://ngmdb.usgs.gov/mapview/
- USGS Energy, Oil & Gas in the United States & World: https://energy.usgs.gov/OilGas.aspx
- USGS Water Resources, Deepwater Horizon: https://water.usgs.gov/owq/deephorizonoilspill/
- USGS Wetland & Aquatic, Deepwater Horizon: https://www.usgs.gov/centers/wetland-and-aquatic-research-center-warc/science-topics/oil-spill
- *USGS Oil Spill* : https://archive.usgs.gov/archive/sites/www2.usgs.gov/oilspill/index.html
- U.S. Chemical Safety Board (CSB): https://www.csb.gov/macondo-blowout-and-explosion/

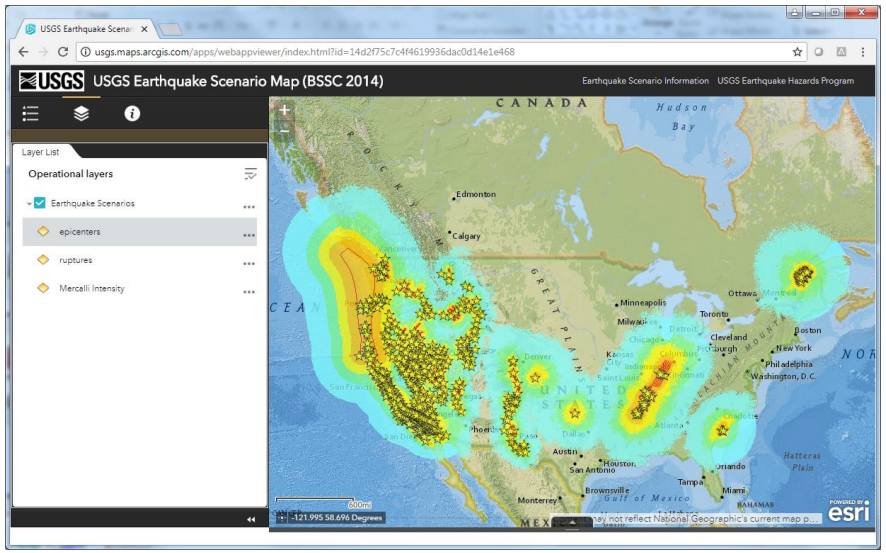
Related Video



USGS

Earthquakes: Seismicity https://earthquake.usgs.gov/hazards/





http://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=14d2f75c7c4f4619936dac0d14e1e468

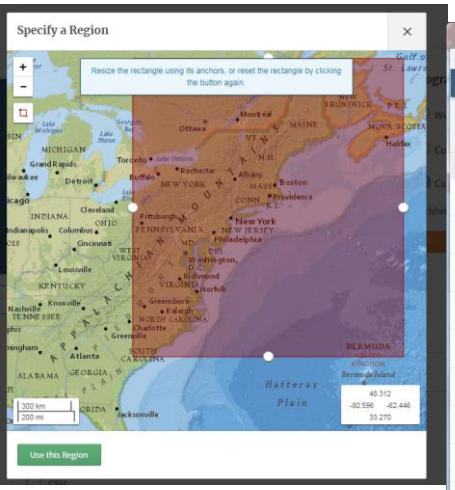
- Long-term model: 2014
- Fault Maps: https://earthquake.usgs.gov/hazards/qfaults/
- Design Ground Motions:

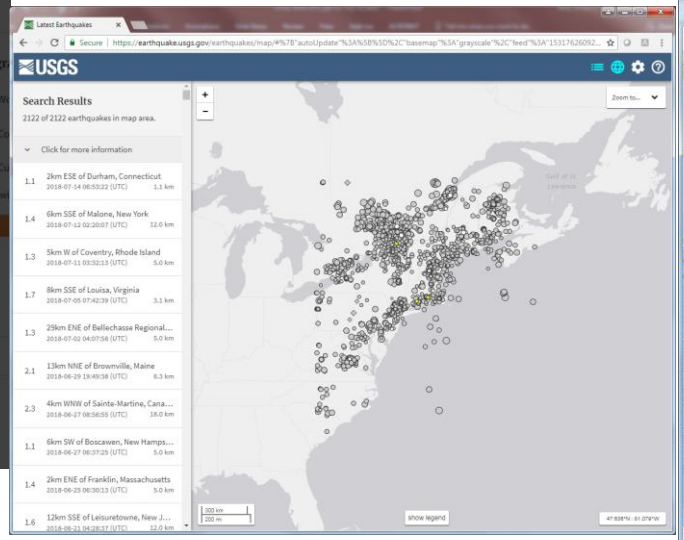
Seismic Design Web Service Documentation

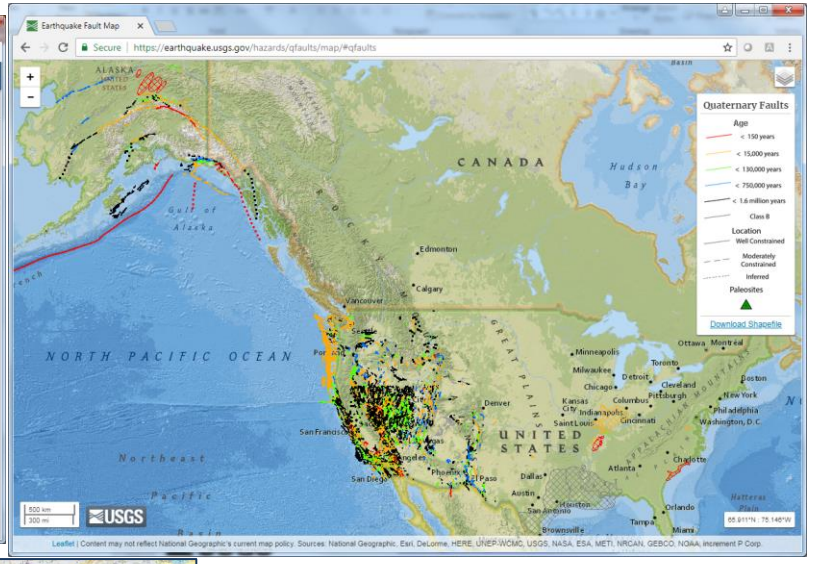
Reference Document End Points

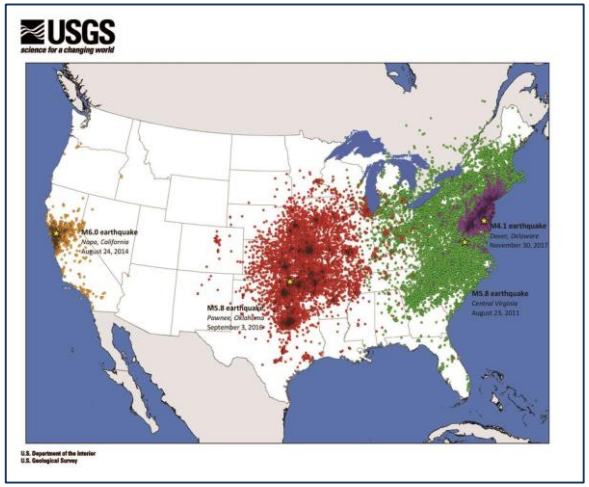
- ASCE7
- 2016 ASCE 7 Standard (ASCE7-16)
- 2010 ASCE 7 Standard (ASCE7-10)
- 2005 ASCE 7 Standard (ASCE7-05)
- ASCE41
- 2017 ASCE 41 Standard (ASCE41-17)
- 2013 ASCE 41 Standard (ASCE41-13)
- NEHRP
- 2009 NEHRP Standard (NEHRP-2009)
- 2015 NEHRP Standard (NEHRP-2015)
- IBC
- 2012 IBC Standard (IBC-2012)
- 2015 IBC Standard (IBC-2015)

Earthquakes: Seismicity https://earthquake.usgs.gov/earthquakes/search/

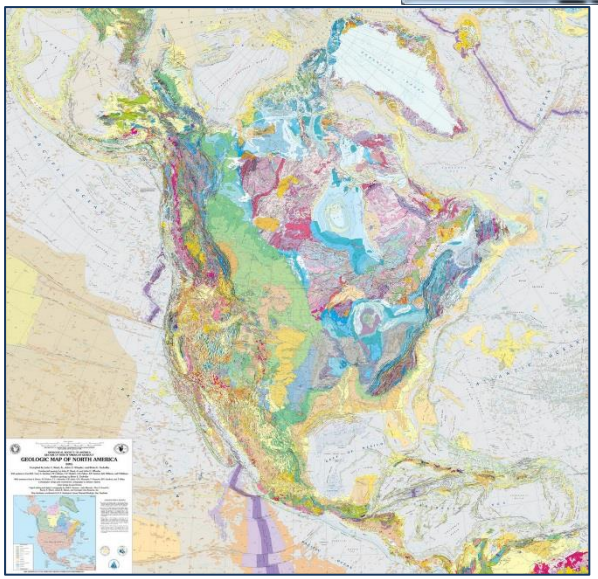








East vs West Coast Earthquakes



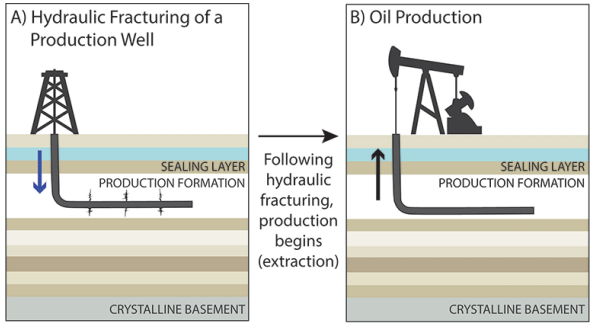
Geologic Map of North America

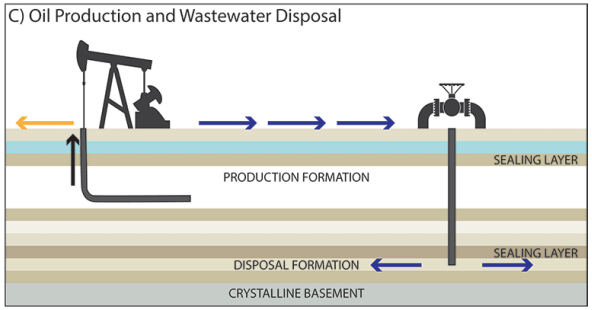
USGS

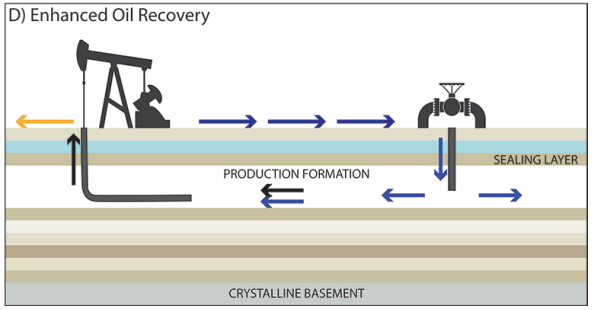
USGS Circular 985 : Charlestown, South Carolina August 31, 1886

Earthquakes: Induced Seismicity

https://earthquake.usgs.gov/hazards/





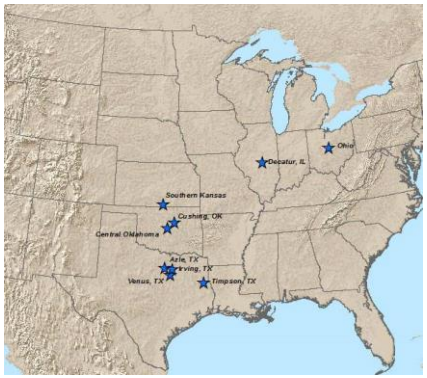


https://earthquake.usgs.gov/research/induced/myths.php

USGS

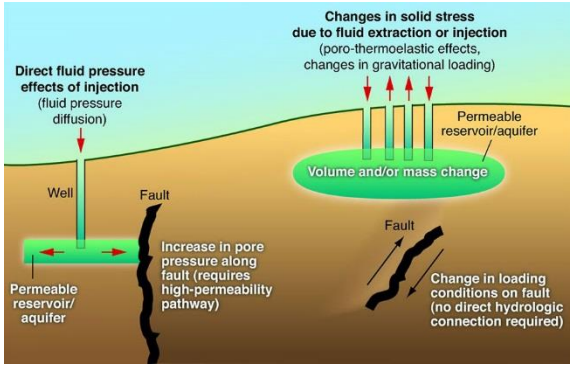
Short-term Induced Seismicity Models

- 2018
- 2017
- 2016

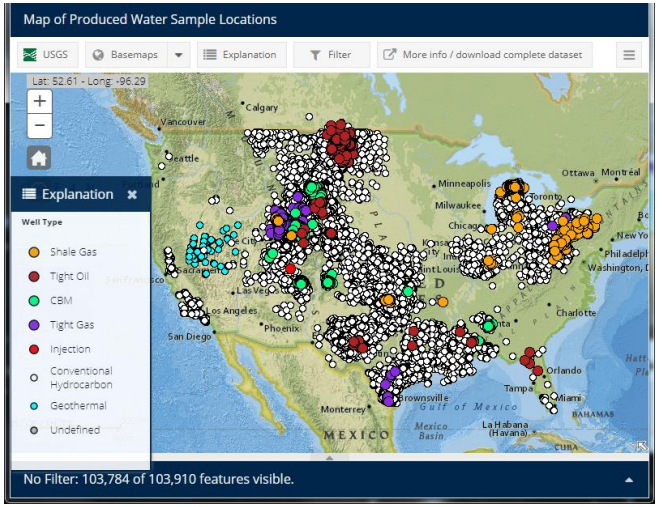


Publications & References

USGS Publications Warehouse Search

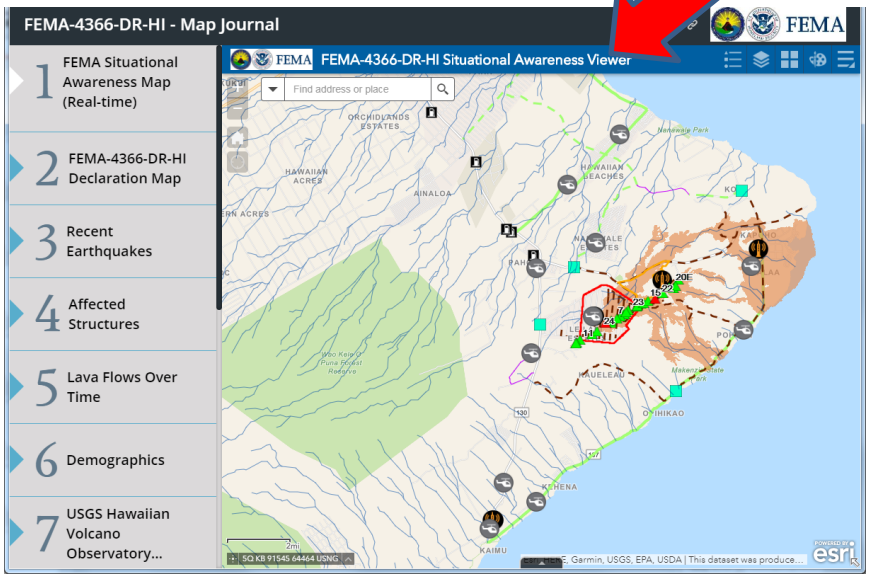


Observational Studies



Produced Waters Geochemical Database

HDDS Library: https://hdds.usgs.gov/digital-library

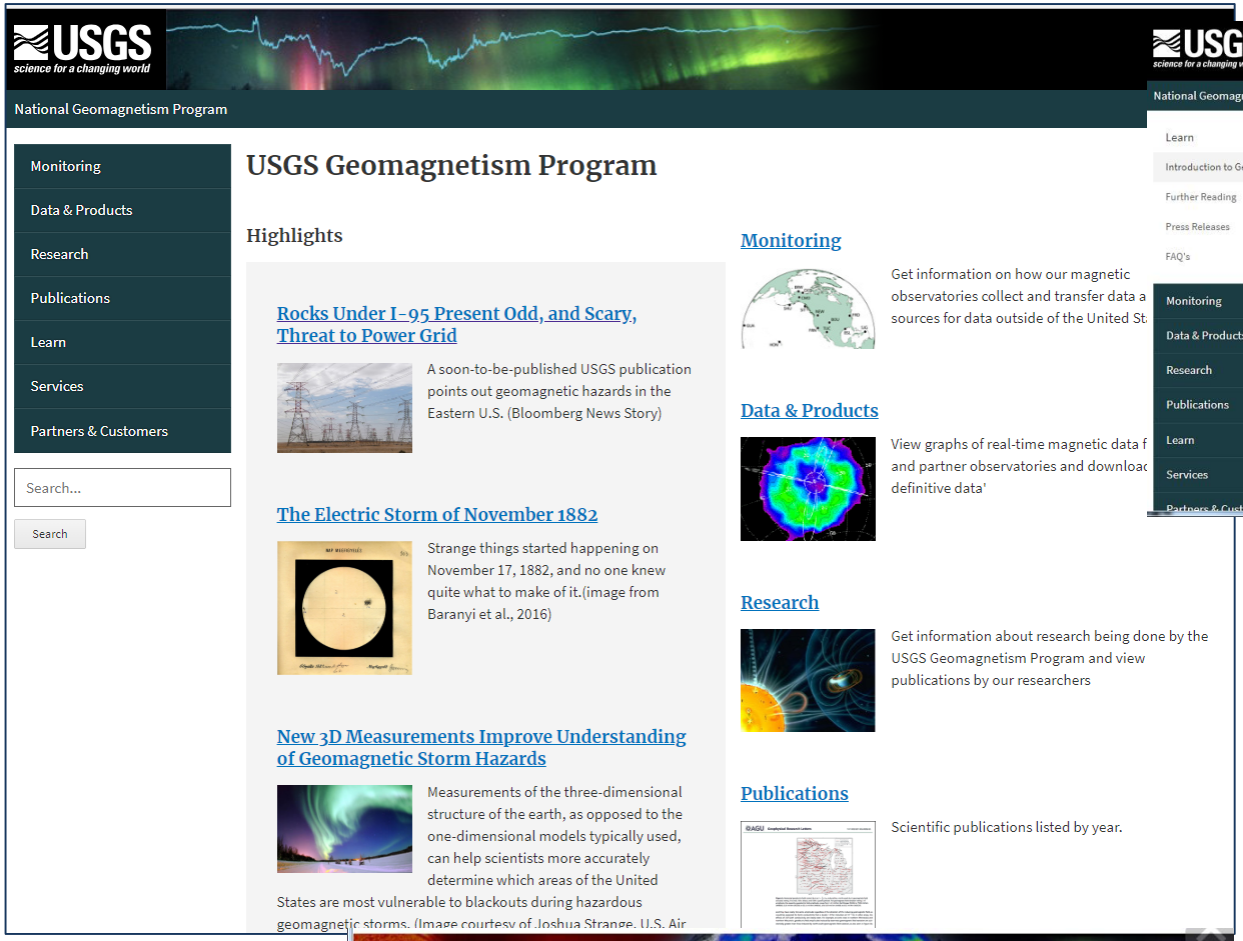


Special Products

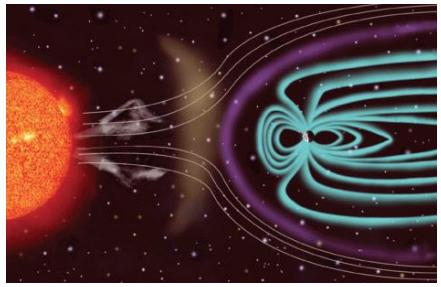
- 2018 Volcano Kilauea HI
  - USGS Volcano Hazards Program
  - Kilauea Latest Entries - Photo & Video Chronology
  - Maps of the Kilauea lower East Rift Zone lava flows and fissures, Hawaii through June 05
  - Thermal fissures maps of the Kilauea lower East Rift Zone, Hawaii through June 05
  - FEMA Map Journal
- 2017 Mexico Earthquake
- 2017 Hurricane Irma
- 2017 Hurricane Harvey
- 2017 Fire South Africa
- 2017 Flood Uruguay
- 2017 Flood Argentina
- 2017 Tropical Cyclone Debbie
- 2017 Peru Flood
- 2017 Cyclone Enawo Madagascar
- 2017 February Flood & Dam US
- 2016 Hurricane Matthew
- 2016 September Flood US
- 2016 August Flood US
- 2016 Canada Fire
- 2016 Ecuador Earthquake
- 2016 Southern US Flood
- 2015 Midwest Flood

USGS

Geomagnetism: Solar Storms https://geomag.usgs.gov/



Introduction to Geomag



https://www.usgs.gov/news/new-3d-measurements-improve-understanding-geomagnetic-storm-hazards

USGS

Landslides: Post-Fire Debris https://landslides.usgs.gov/hazards/

USGS science for a changing world

Landslide Hazards Program

- Post-Fire Debris-Flow Hazards
- Emergency Assessment of Post-Fire Debris-Flow Hazards
- Early Warning System

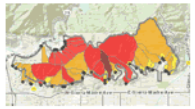
- Post-Fire Debris-Flow Hazards
- Monitoring
- Learn
- Research

Search...

Search

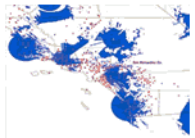
Post-Fire Debris-Flow Hazards

Emergency Assessment of Post-Fire Debris-Flow Hazards



Estimates of the probability and volume of debris flows that may be produced by a storm in a recently burned area, using a model with characteristics related to basin shape, burn severity, soil properties, and rainfall.

Early Warning System



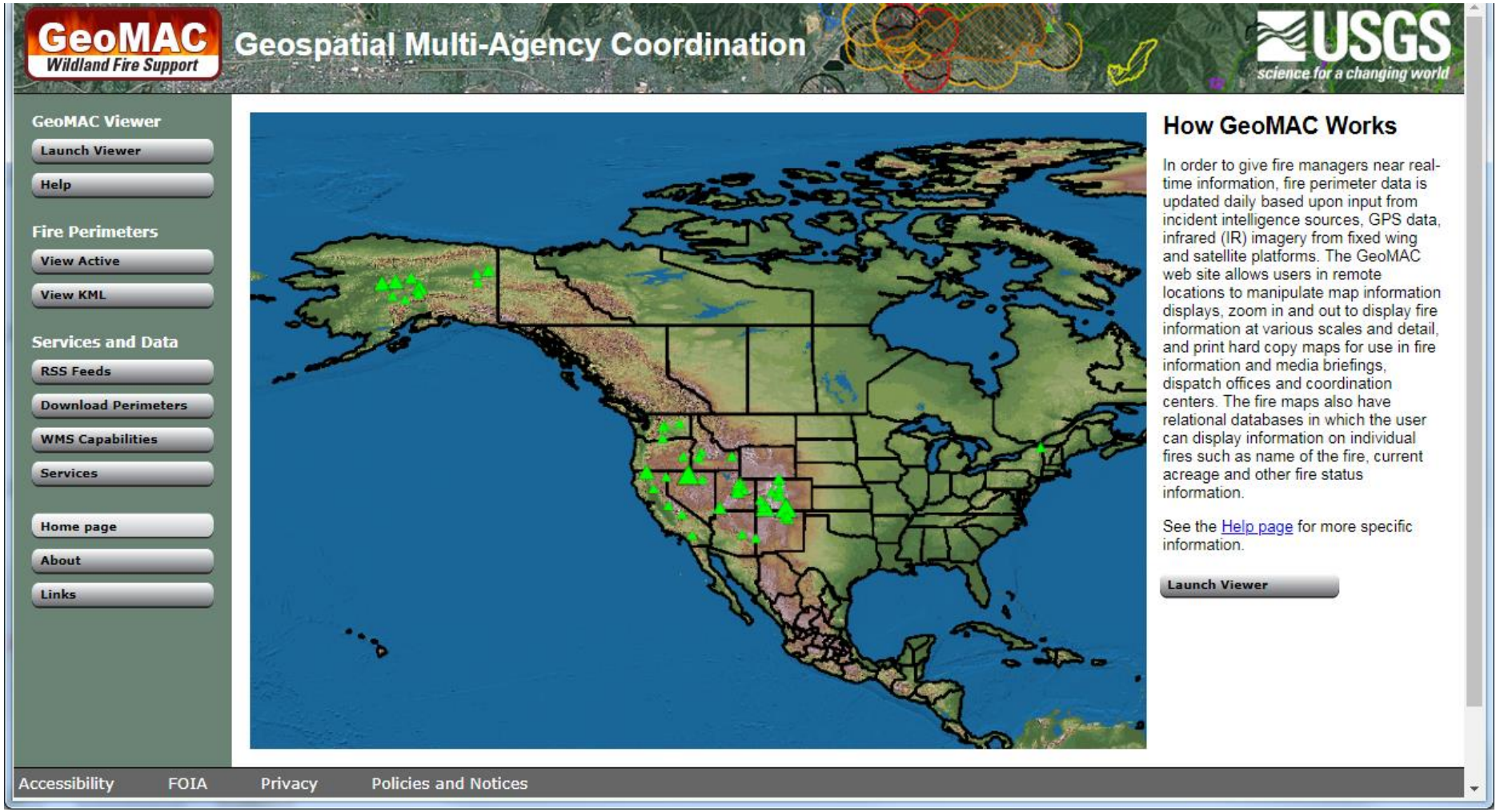
NOAA/USGS Demonstration Flash-Flood and Debris-Flow Early-Warning System

What to do if you live in a recently-burned area where debris flows are possible, and there is a rainstorm - before, during, and after. Download the National Weather Service Post Wildfire Flash Flood and Debris Flow Guide (PDF 7.2 MB)

Wildland fires are inevitable in the western United States. Expansion of human development into forested areas has created a situation where wildfires can adversely affect lives and property, as can the flooding and landslides that occur in the aftermath of the fires. There is a need to develop tools and methods to identify and quantify the potential hazards posed by landslides produced from burned watersheds. Post-fire landslide hazards include fast-moving, highly destructive debris flows that can occur in the years immediately after wildfires in response to high intensity rainfall events, and those flows that are generated

USGS

Wildfires: https://geomac.usgs.gov/



USGS Publications Warehouse search results:
https://pubs.er.usgs.gov/search?q=wildfire

USGS

USGS ScienceBase search results:
https://www.sciencebase.gov/catalog/items?q=wildfire

Earthquake Early Warning (City Transit)

https://www.usgs.gov/news/earthquake-early-warning-vital-city-transit

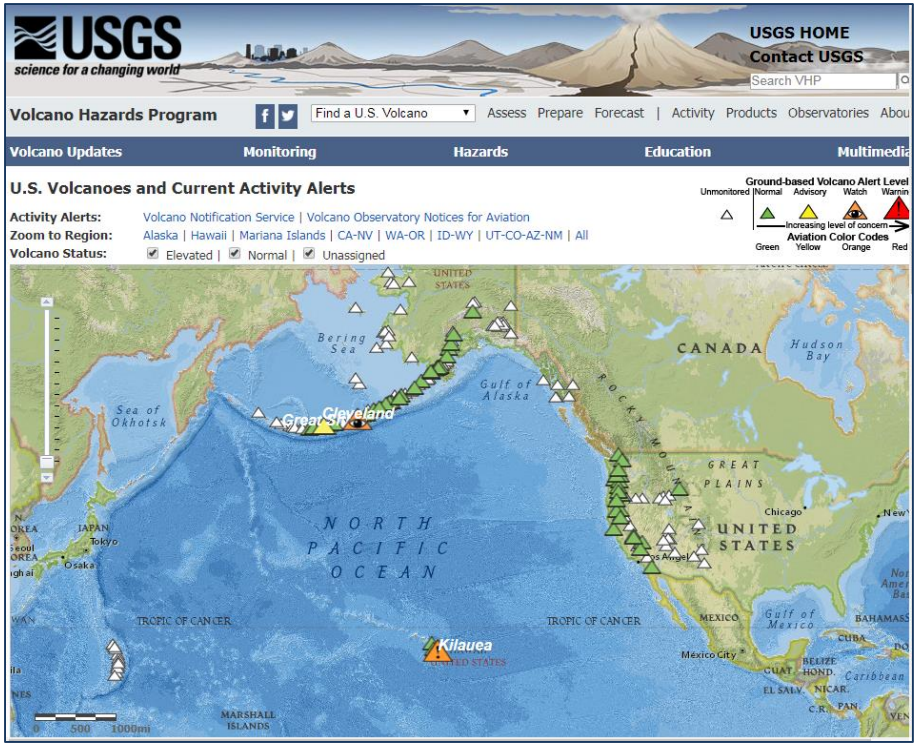
GeoScienceWorld: https://pubs.geoscienceworld.org/search-results?page=1&q=Earthquake%20Early%20Warning%20(City%20Transit)%20

USGS Publications Warehouse: https://pubs.er.usgs.gov/search?q=Earthquake+Early+Warning

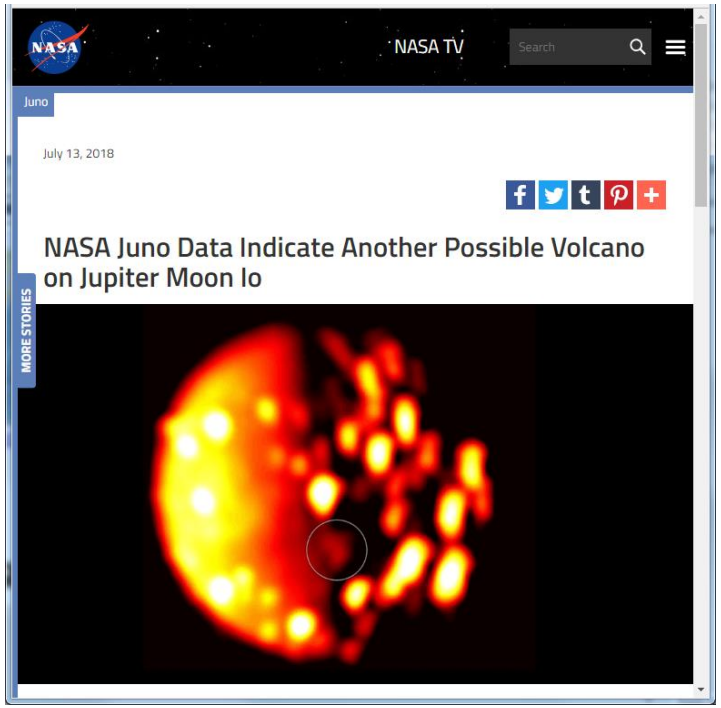
Wiley : https://onlinelibrary.wiley.com/action/doSearch?AllField=%22Earthquake+Early+Warning%22+

USGS

Volcanoes: Active, by type and planet



https://volcanoes.usgs.gov/index.html



https://www.nasa.gov/jpl/NASA-Juno-data-indicate-another-possible-volcano-on-Jupiter-moon-Io

Volcano search: https://pubs.er.usgs.gov/search?q=volcano

Volcano, Mars search: https://pubs.er.usgs.gov/search?q=volcano+mars+

Volcano, Io (Jupitar's moon) search: https://pubs.er.usgs.gov/search?q=volcano+Io

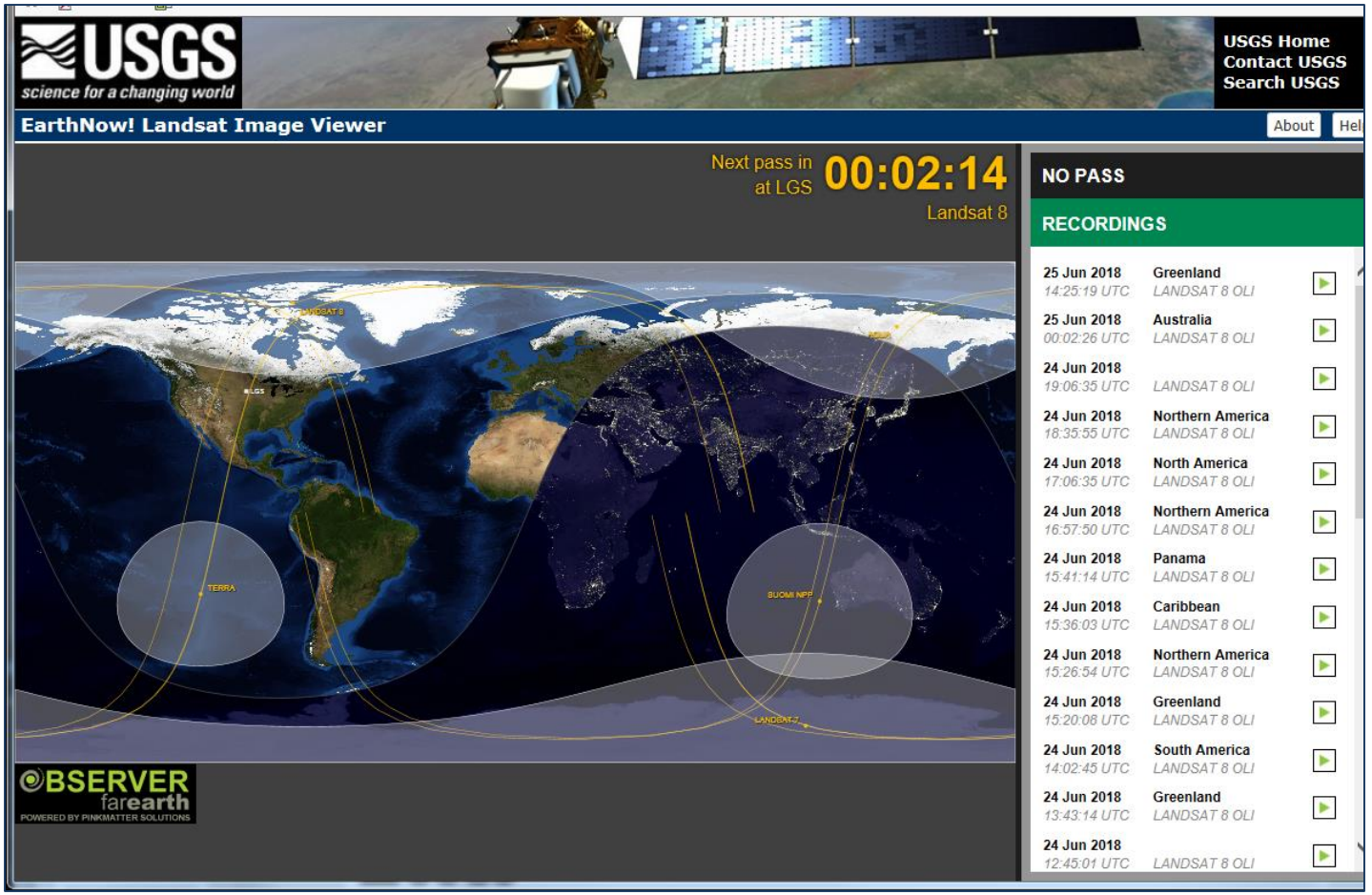
USGS

EarthNow! https://earthnow.usgs.gov

EarthNow! **displays near-real time imagery of Landsat 7 and Landsat 8 data being collected by USGS as the satellites cross over the Earth. Along with live stream video, the tool also replays image loops from a list of recent overpass recordings.**

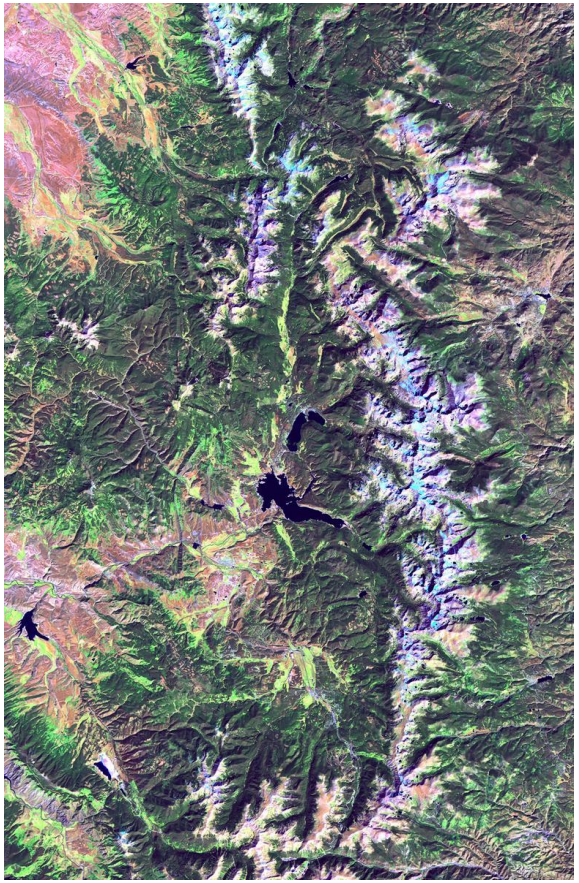
To learn more about each Landsat satellite, sensors, bands, and years of operation, please visit the Landsat Missions website.

EarthNow! is based on FarEarth Global Observer (developed by Pinkmatter Solutions) to help visualize incoming data for satellite receiving stations, which is freely available to the public. FarEarth Global Observer includes passes from Landsat's International Ground Stations, along with the USGS-acquired imagery shown on *EarthNow!*

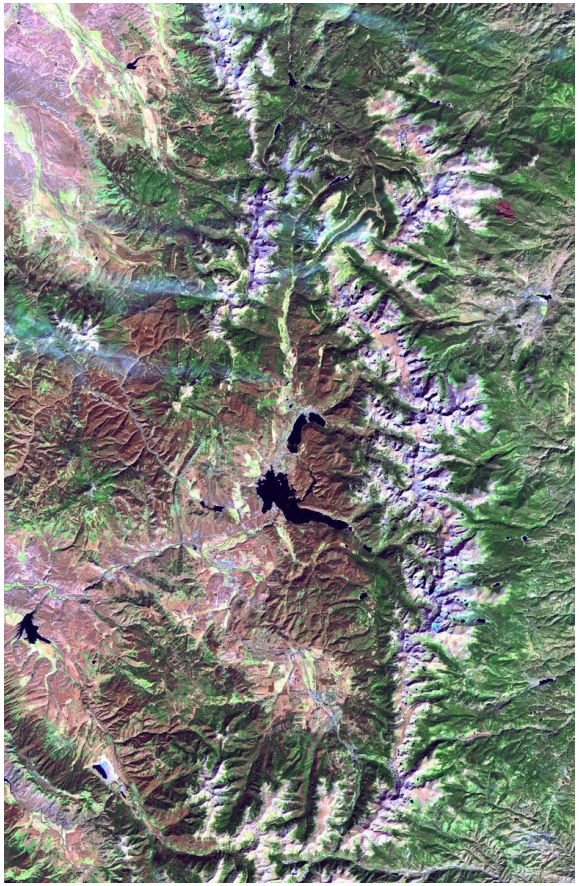


USGS

Beetle Infestation in Rocky Mountain National Park



September 22, 2003



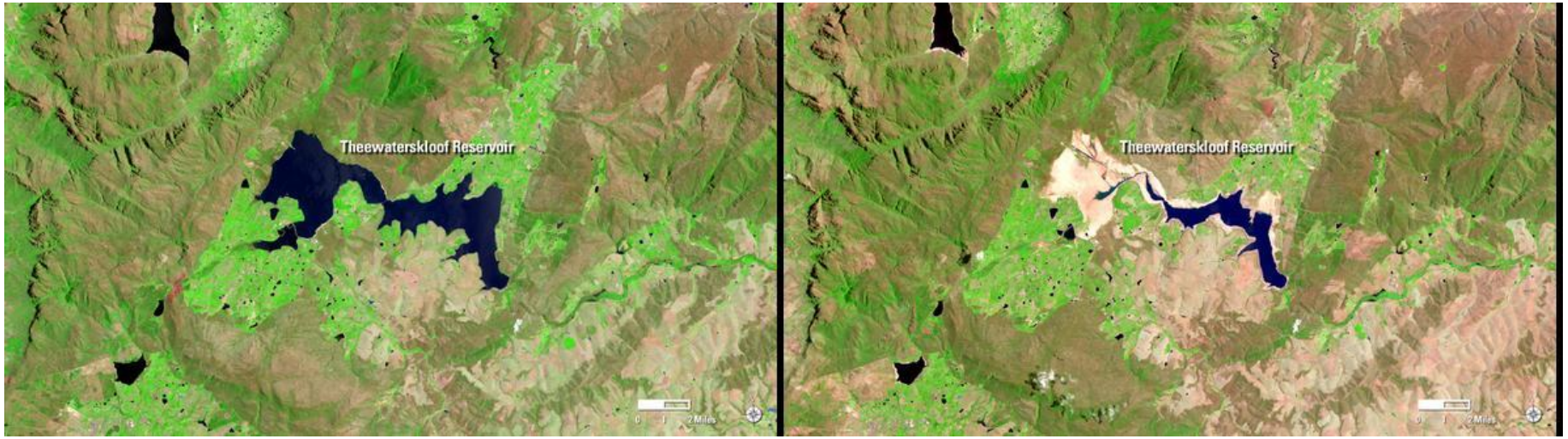
September 25, 2010

Tree mortality, caused by the mountain pine beetle, is responsible for almost all the change in conifer tree health status represented in 2003 and 2010 Landsat satellite imagery over the western slopes of Rocky Mountain National Park in Colorado. Between those two dates, beetles killed a majority of the medium to large lodgepole pines in the forests in the region. Surveys of trees in field plots in that area in 2008-2010 found that an average of around 60% of the lodgepole pines were dead in each plot. There are other conifer species present that were not affected by mountain pine beetle (e.g. fir and spruce) though beetle infestation was the primary factor in tree damage.

USGS

https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#653

Theewaterskloof Reservoir, South Africa



January 3, 2014 **January 14, 2018**

A three-year drought is threatening to cause city officials in Cape Town, South Africa, to shut off the tap water. The growing city of nearly 4 million relies mostly on reservoirs for its water supply. While drought is part of the cause of the current crisis, an increasing population is also straining water resources.

The view from data acquired by Landsat 8 brings the crisis in Cape Town into focus. The January 2014 image shows the largest reservoir in its water supply system, Theewaterskloof, at full capacity. In January 2018, it is easy to see how much the surface area of the lake has diminished after three years of drought. The Western Cape Government lists the reservoir's water capacity at just 13 percent.

Smaller reservoirs do not appear to change much compared to Theewaterskloof, but Cape Town only gets a small fraction of its water from them.

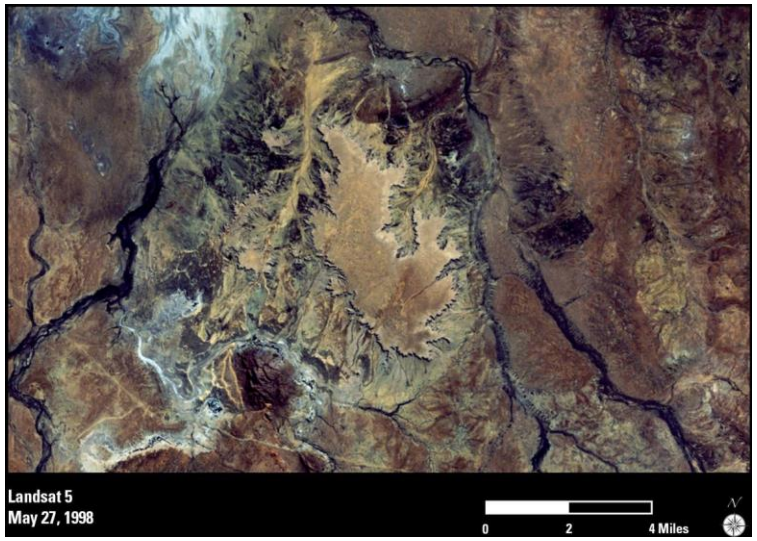
In 2015, rainfall in the area measured 325 mm (12.8 inches)—normal annual rainfall there is 515 mm (20.3 inches). After that, the drought only got worse. Rainfall totaled just 157 mm (6.2 inches) in 2017. Rainfall this low for three straight years is extremely rare. Even with water use restrictions, the city could run out of water by mid-April 2018.

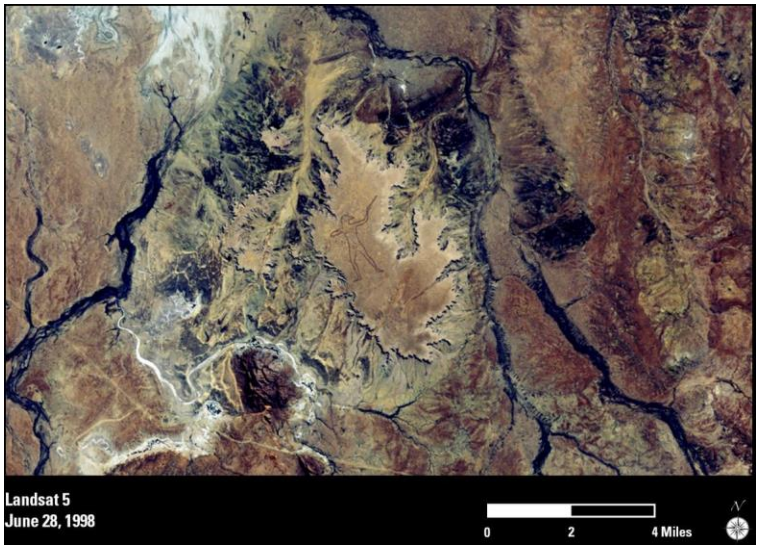
If the rainy season, which is from April to September, brings adequate rainfall, then Landsat can help monitor the extent of the reservoir as it begins to refill.

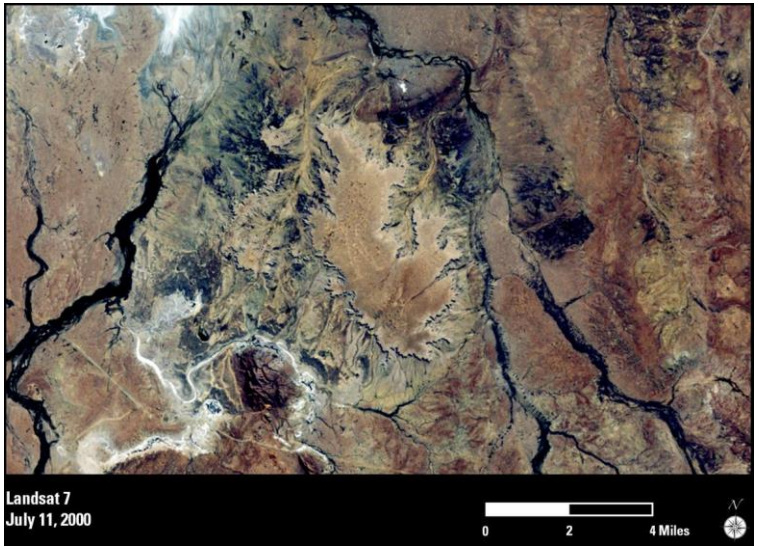
USGS

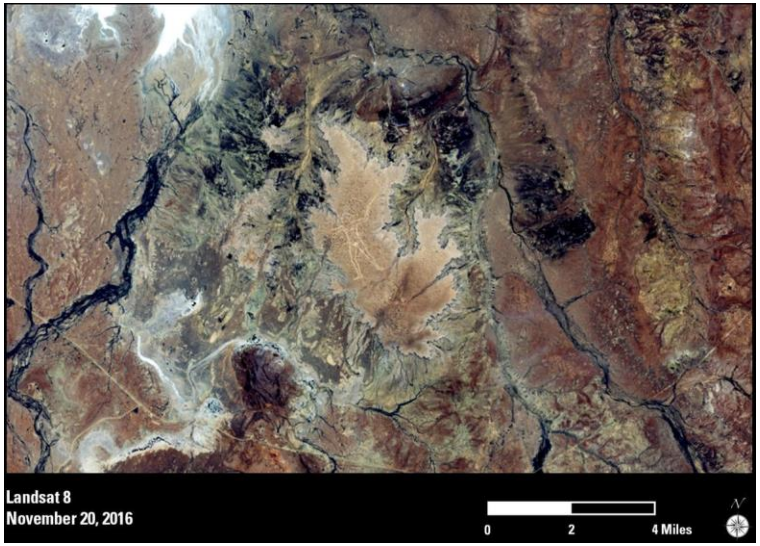
https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#735

Marree Man Geoglyph in Australia Does Reappearing Act









USGS

https://www.usgs.gov/news/earthview-marree-man-geoglyph-australia-does-reappearing-act

Irma Churns Up Sediment in the Florida Keys

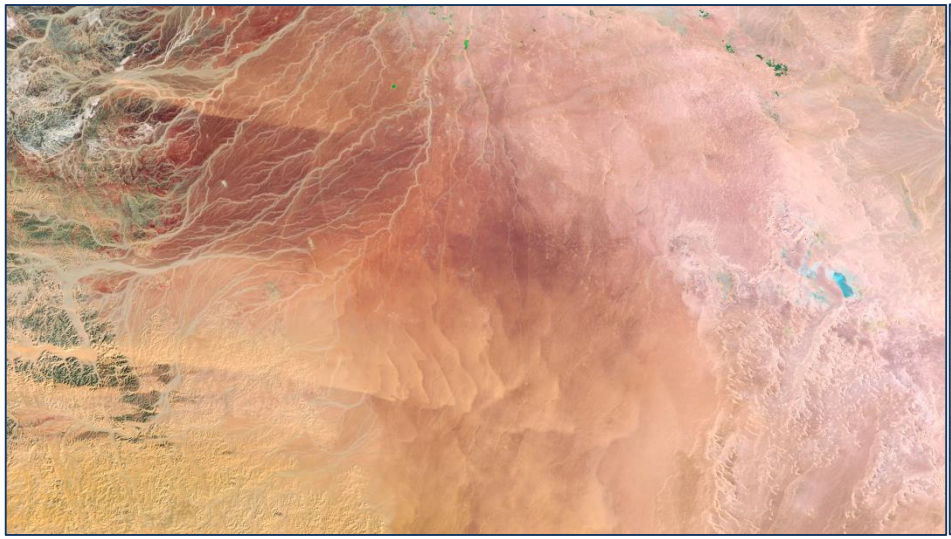
March 22, 2017

September 14, 2017

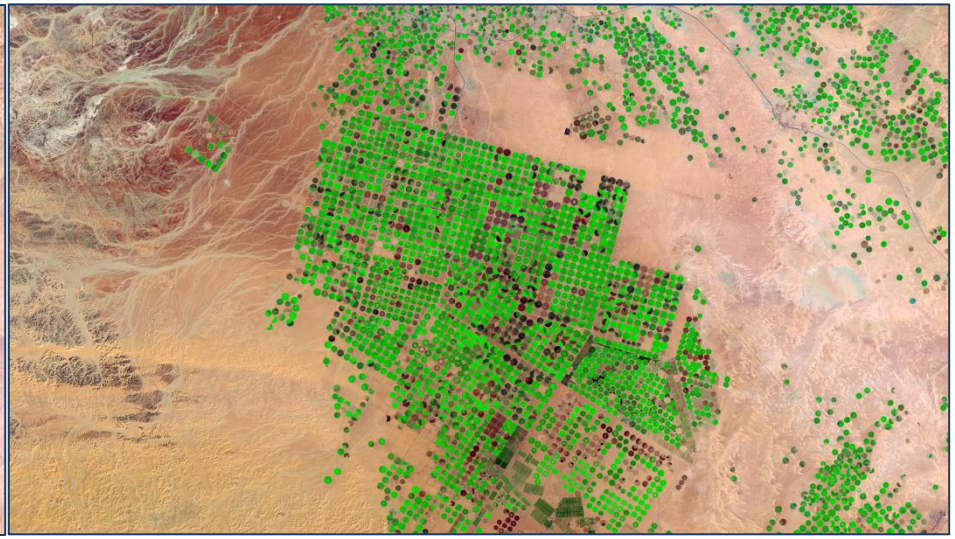
USGS

https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#723

Saudi Wheat Experiment Relied on Fossil Water



February 2, 1986



February 21, 2016

In the mid-1980s, Saudi Arabia embarked on an ambitious agricultural plan to grow crops in its desert areas using ancient fossil water deep beneath the sand, and installed center-pivot irrigation systems in the barren Wadi As-Sirhan basin in the northwest part of the country. The water, which was once used to grow fruit, vegetables and wheat, was buried deep underground for thousands of years.

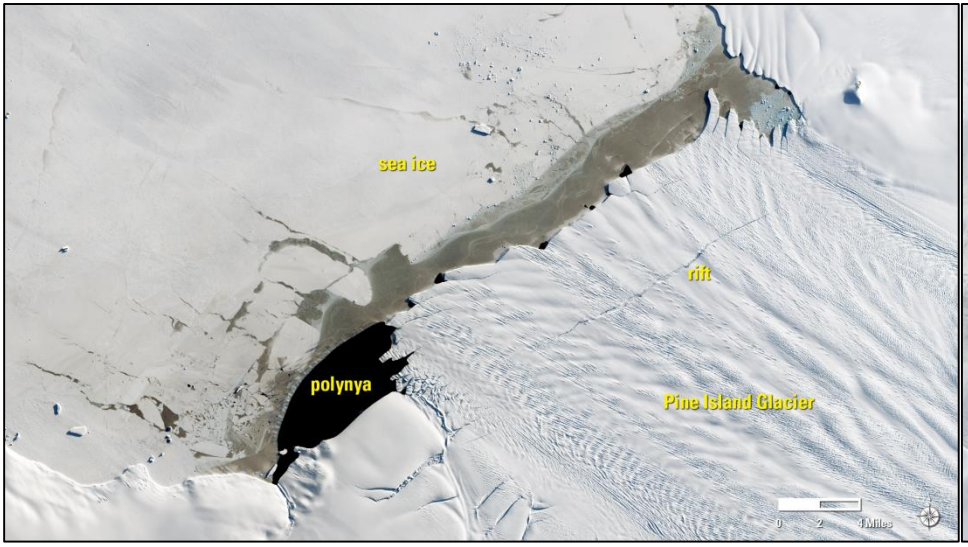
These Landsat images show the remarkable transformation of desert sand in 1986 into green, circular fields—some as large as 1 kilometer across—by 2016.

The drawback with center-pivot irrigation lies in the fact that water in these aquifers is not recharged. Rainfall here only averages 100 to 200 millimeters per year, making groundwater in the area a nonrenewable resource. Hydrologists predict it will only be feasible to pump the groundwater for another 50 years, so domestic wheat production will be phased out. Local farmers are being encouraged to engage in alternative sustainable agricultural activities, such as greenhouse farming using advance drip irrigation techniques, to produce fruits and vegetables. Future Landsat data acquisitions will be useful in monitoring and seeing how the changes in farming techniques affect the landscape.

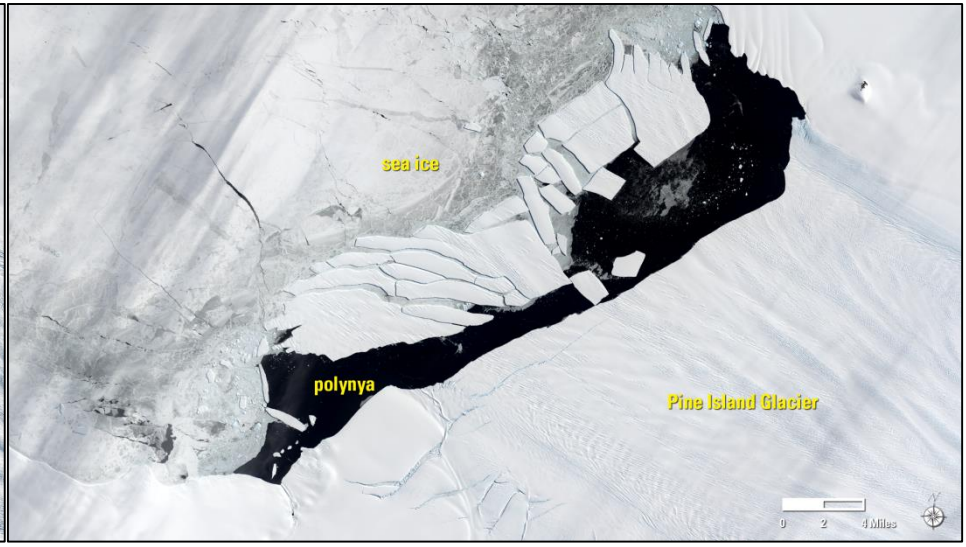
USGS

https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#571

Update on Pine Island Glacier



September 12, 2017



January 2, 2018

A massive iceberg broke off Pine Island Glacier, Antarctica, in September 2017. Instead of drifting out to sea after calving, sea ice impeded the iceberg's movement, and it cracked up into countless pieces nearly on the spot. Even though it broke up relatively quickly for an iceberg, it is more of a slow-motion shattering.

These Landsat images show the change at the end of the glacier. The September 21 image was acquired days before the iceberg broke off. A rift is visible running across the glacier almost 8 kilometers from the calving face.

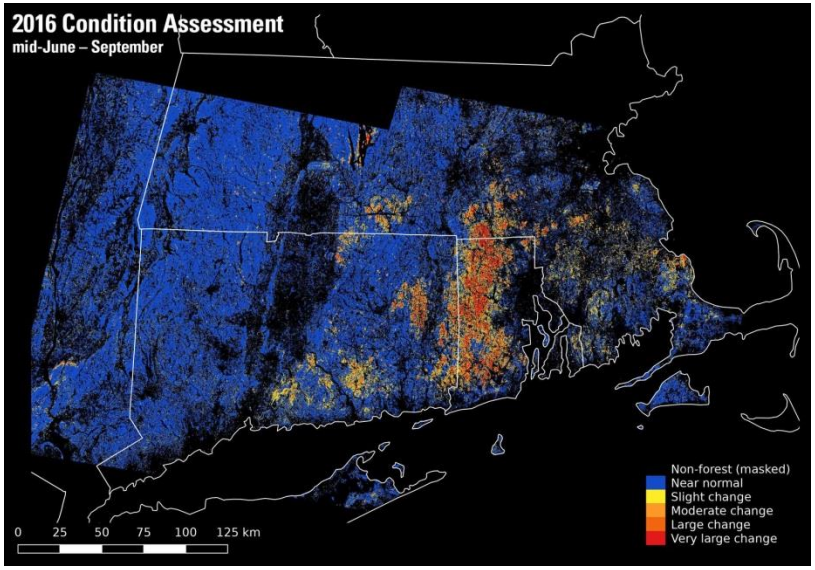
By January 2, 2018, the iceberg had broken into fragments of varying size. The dark feature is a polynya, an area of relatively warmer water, which likely caused the iceberg's breakup.

Landsat 8 has been acquiring observable images roughly every three days from early December to January because of its ability to acquire sunlit nighttime images during Antarctic summer. Frequent acquisitions aid in tracking the movements of the ice pieces and project future behavior of the glacier.

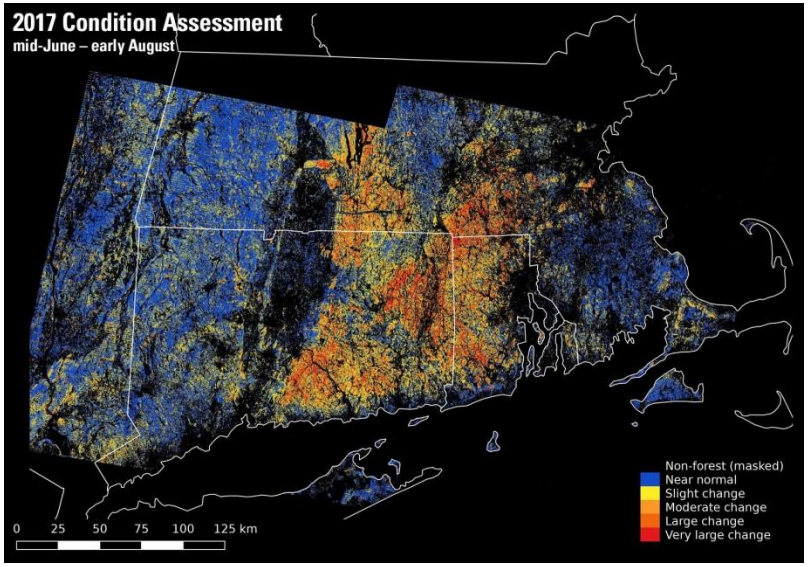
USGS

https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#733

Gypsy Moth Infestation Continues in New England



September 1, 2016



August 1, 2017

A large outbreak of gypsy moth (*Lymantria dispar*) caterpillars attacked the hardwood forests of the northeastern United States in 2016. A fungus (*Entomophaga maimaigaM*) introduced from Japan has kept gypsy moth populations at relatively low levels since the late 1980s. However, abnormally low rainfall during May and June in 2014, 2015, and 2016 reduced the effectiveness of the fungus, resulting in the worst outbreak seen in New England in over 30 years.

Gypsy moth caterpillars devour the leaves of hardwood trees, causing the greatest damage in late June as the larvae reach maturity. While the gypsy moth caterpillars thrived in the 2016 drought conditions, this spring's rainfall made the fungus effective again and caused high levels of mortality. However, mortality reached a peak at the end of the larval stages, after the caterpillars had already caused most of the damage. Oak-dominated forests in Rhode Island and eastern Connecticut were hit particularly hard this year.

USGS

https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#718

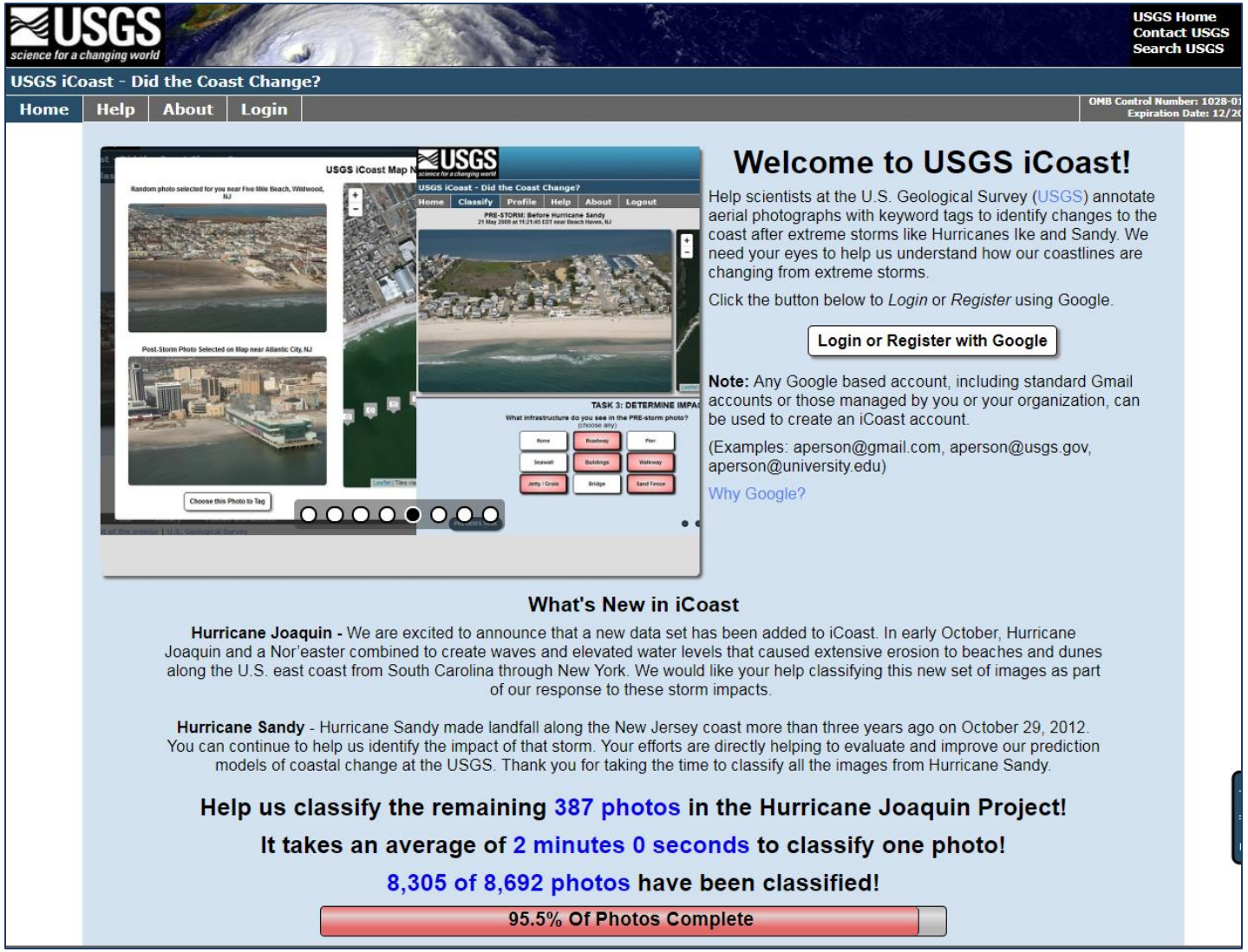
Gypsy Moth Records

USGS

https://bison.usgs.gov/#home

Citizen Science: iCoast, Did the Coast Change?

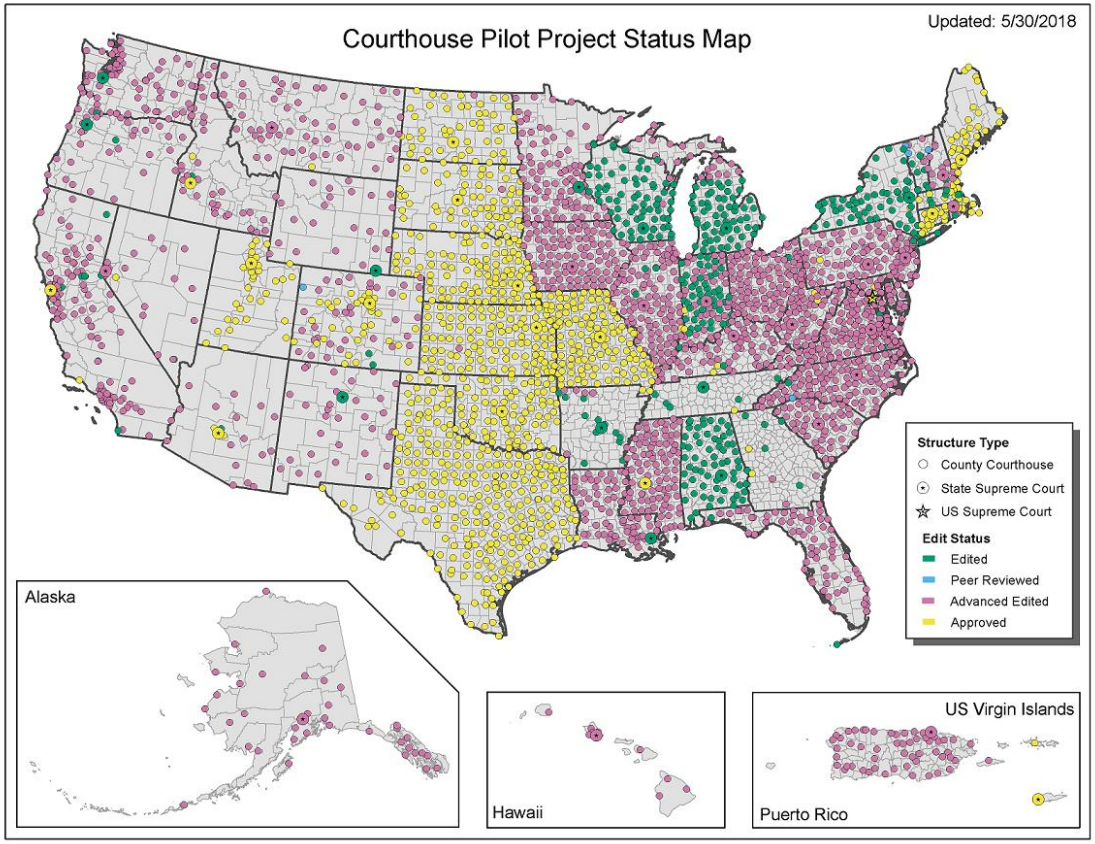
https://coastal.er.usgs.gov/icoast/



USGS

Citizen Science: *The National Map* Corps

https://nationalmap.gov/TheNationalMapCorps/



The National Map

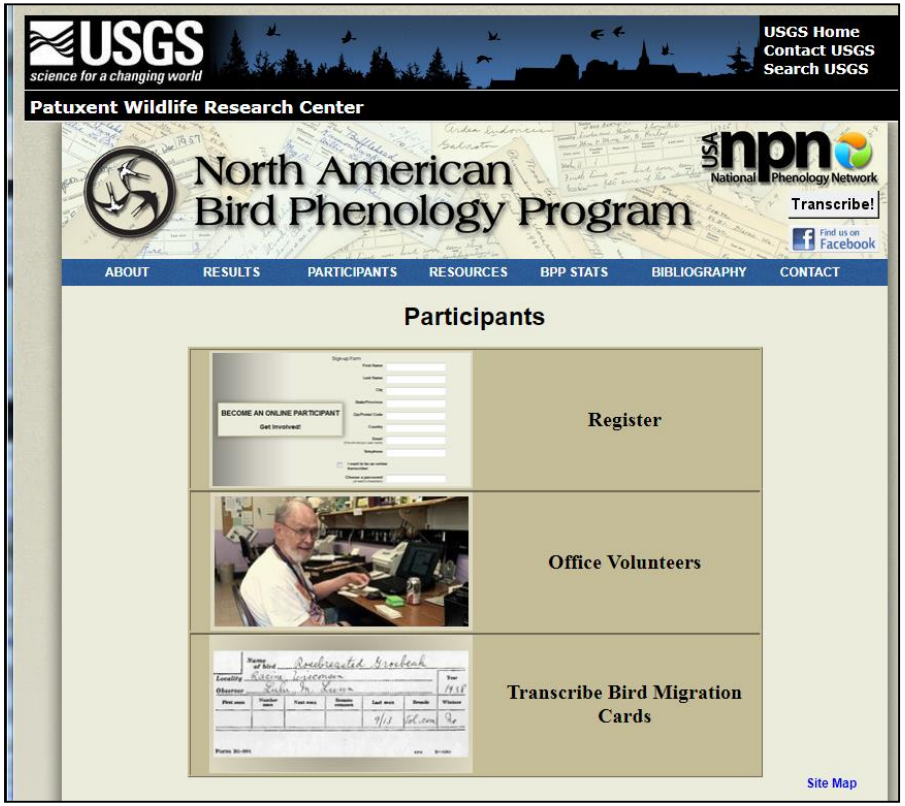
Volunteer Recognition Program

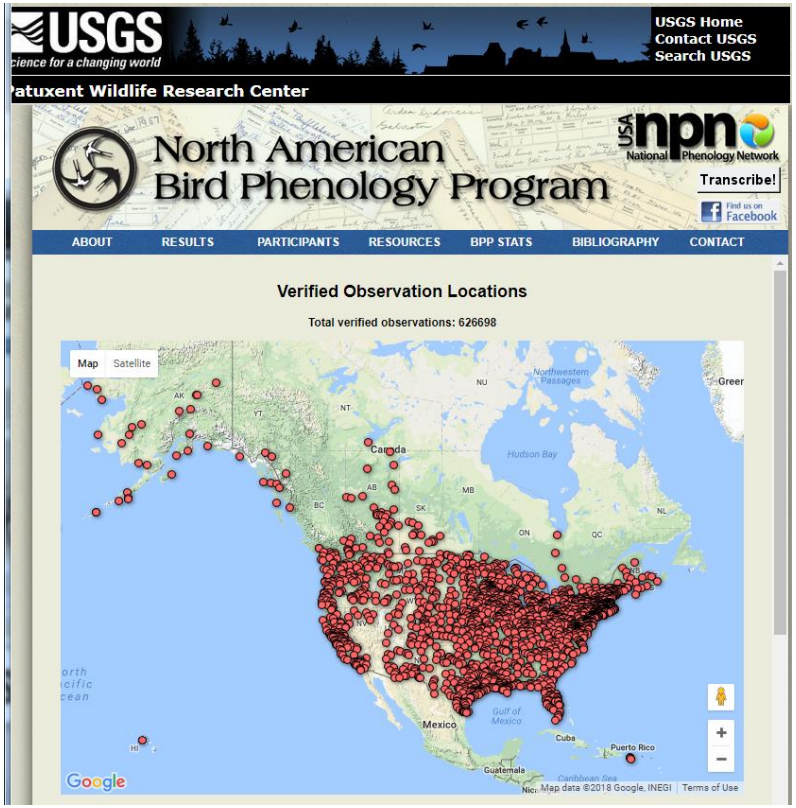
TNMCorps is an online crowdsourcing mapping project with volunteers successfully editing structures in all 50 States, Puerto Rico, and the U.S. Virgin Islands. As part of The National Map, structures include schools, hospitals, post offices, police stations, cemeteries, and other important public buildings. By updating and verifying structures data, volunteers are making significant contributions to USGS National Structures Database, The National Map, and ultimately U.S. Topo Maps!

USGS

Citizen Science: North American Bird Phenology Program

https://www.pwrc.usgs.gov/bpp/index.cfm





Migration Cards are categorized by species and locality

USGS

Citizen Science: Nature's Notebook

https://www.usanpn.org/natures_notebook

Become an Observer

When you participate in the program, you'll go outside to observe nature in your backyard or nearby area weekly and enter this information online.

Time commitment to...

Become an observer: About 10 minutes

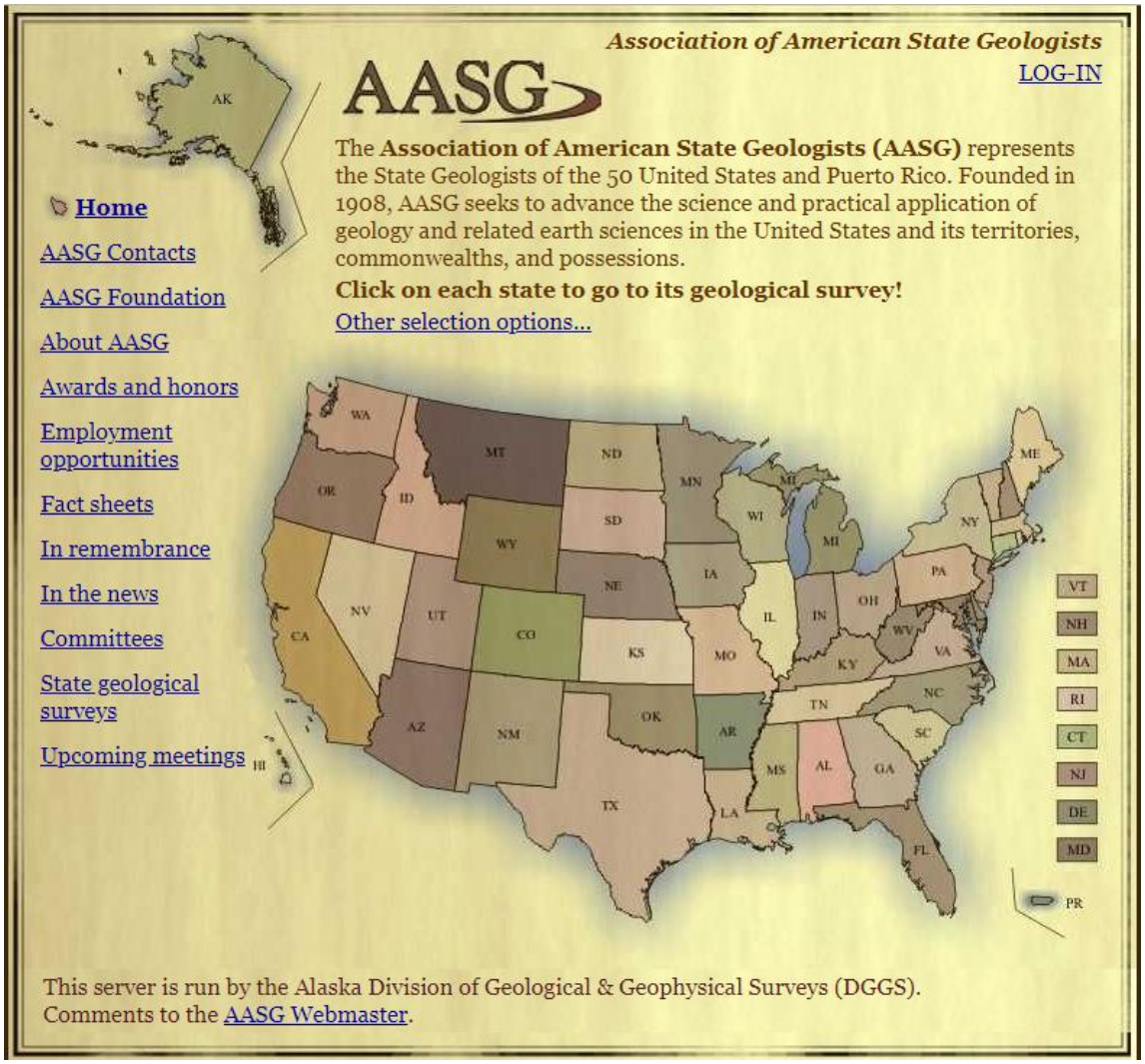
Observe: About 2 minutes per individual plant or animal (once you've familiarized yourself with the program and learned how to observe).

For assistance with getting started visit our Learn How to Observe page where you will find step-by-step instructions and video tutorials to help you through the process.

USGS

More information about hazards in your state

http://www.stategeologists.org/

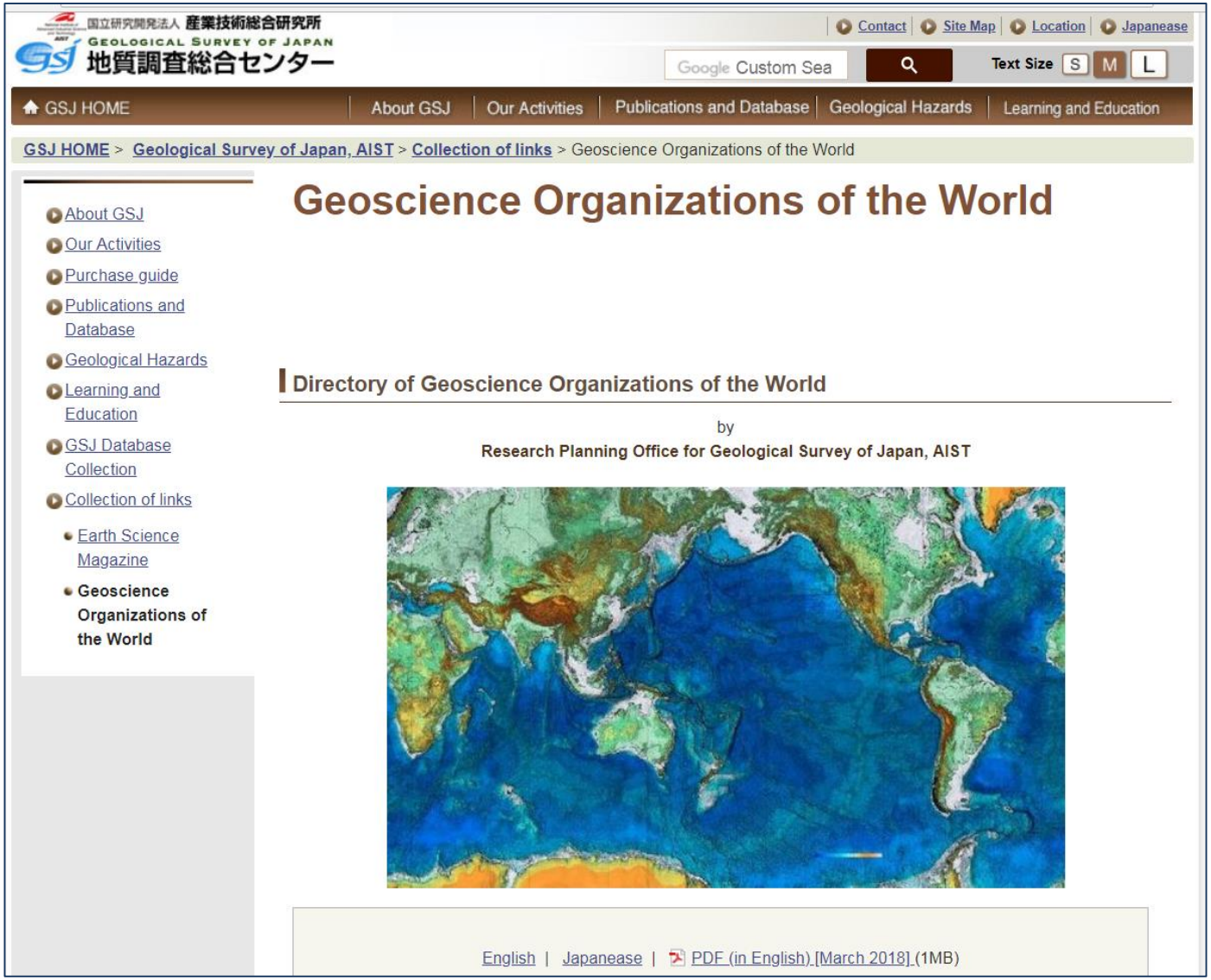


USGS

Geological Survey of Japan,

Geoscience Organizations of the World, List updated March 2018

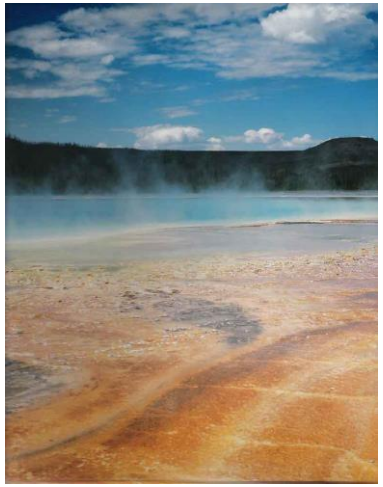
https://www.gsj.jp/en/gsj-link/directory/index.html



USGS

Additional USGS Projects that may be of interest:

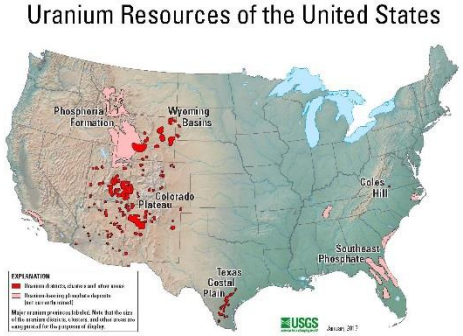
Yellowstone National Park Integrated Studies



Fifty-gallon barrel containing uranium oxide (U_3O_8), or yellowcake, produced by the Hobson Processing Plant in southern Texas. (Photo used with permission from Uranium Energy Corporation.)

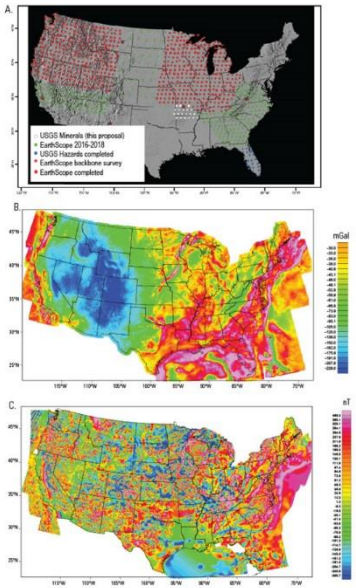
Critical Analysis of World Uranium Resources

Uranium Resources and the Environment - National Uranium Assessment

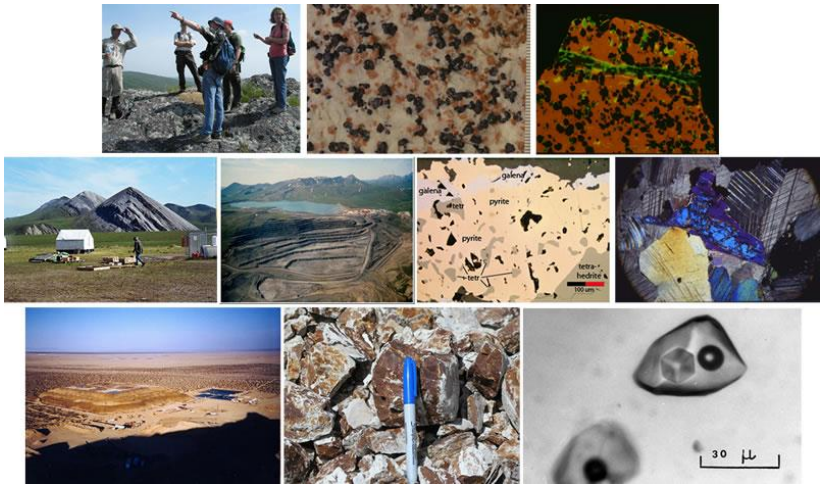


USGS Fact Sheet 2015-3069

Continental Scale Geophysics — Integrated Approaches to Delineate Prospective Environments for Critical Metals



Isotope and Chemical Methods for Mineral and Geoenvironmental Assessments and Support of USGS Science Strategy Project



USGS

Thank You!

For more information about the U.S Geological Survey (USGS):
ASK USGS: https://answers.usgs.gov/
Social Media: https://www.usgs.gov/connect/social-media

ASK-A-Geologist: https://walrus.wr.usgs.gov/ask-a-geologist/

Sunrise over the Atlantic Ocean
https://www.usgs.gov/media/images/sunrise-over-atlantic-ocean

USGS