



## Climate Change Databases and Dashboards

*This commentary provides a compendium of some of the often-cited open-source databases and dashboards focused on climate change and climate-related issues. This compendium is a resource for analysts and policymakers who conduct data-driven research or use data to underpin their assumptions. The below data sources are organized into 11 broad categories, though some data sources referenced in one category may overlap with the subject of another, therefore users should use a keyword search (Ctrl-f) to quickly find all relevant information. We assess that these data sources are thought to be reputable, however INR cannot guarantee their accuracy. These databases do not necessarily reflect the views of INR or the U.S. government.*

## Datasets and Repositories:

### General

[AidData \(The College of William & Mary\)](https://www.aiddata.org/datasets) [https://www.aiddata.org/datasets]

AidData is a research lab at [William & Mary's Global Research Institute](#). AidData equips policymakers and practitioners with evidence to improve how sustainable development investments are targeted, monitored, and evaluated. AidData uses rigorous methods, cutting-edge tools, and granular data to answer the question: who is doing what, where, for whom, and to what effect?

[Climate Change Knowledge Portal \(World Bank\)](https://climateknowledgeportal.worldbank.org/about) [https://climateknowledgeportal.worldbank.org/about]

The World Bank created the Climate Change Knowledge Portal (CCKP) to serve as a hub for climate-related information, data and tools. The Portal provides an online platform for access to comprehensive global, regional, and country data related to climate change and development.

[Climate Change Performance Index \(GermanWatch\)](https://germanwatch.org/en/CCPI) [https://germanwatch.org/en/CCPI]

Published annually since 2005, the Climate Change Performance Index (CCPI) tracks countries' efforts to combat climate change. As an independent monitoring tool, it aims to enhance transparency in international climate politics and enables comparison of climate protection efforts and progress made by individual countries.

[Climate Transparency Report](https://www.climate-transparency.org/g20-climate-performance/the-climate-transparency-report-2020#1531904263713-04b62b8d-e708) [https://www.climate-transparency.org/g20-climate-performance/the-climate-transparency-report-2020#1531904263713-04b62b8d-e708]

The Climate Transparency Report (previously known as "Brown to Green Report") is a comprehensive annual review of G20 countries' climate action and their transition to a net-zero emissions economy. The review is based on 100 indicators for adaptation, mitigation and finance and aims to make good practices and gaps transparent. The summary report and 20 country profiles allow the report to be a reference tool for users.

[Climate Watch Slide Desk \(WRI\)](https://www.wri.org/data/climate-watch-slide-deck) [https://www.wri.org/data/climate-watch-slide-deck]

The Climate Watch Slide Deck is a PowerPoint deck of 27 curated slides providing answers to the most common climate change questions with data, visualizations and explanations. WRI updates the slides every two weeks (as of summer 2021) and more frequently if major countries change their commitments. In the Notes section of each slide, WRI includes source links and additional information to help you better interpret the data for messaging.

[CORVI: Understanding and Measuring Climate Risk \(The Stimson Center\)](https://www.stimson.org/2020/corvi-understanding-and-measuring-climate-risk/) [https://www.stimson.org/2020/corvi-understanding-and-measuring-climate-risk/]

Stimson Center developed the Climate and Ocean Risk Vulnerability Index (CORVI), a decision support tool which compares a diverse range of ecological, financial, and political risks connected to climate change, to produce a coastal city risk profile. This information can identify and categorize risk across sectors, aid in the design of integrated policy solutions, and access climate investment to build resilient coastal cities.

Earth Timelapse Videos (Google Earth Engine) [<https://developers.google.com/earth-engine/timelapse/videos>]  
 Earth Timelapse is a global, zoomable video that lets users see how our planet has changed since 1984. On this website there is a curated selection of videos that highlight different types of planetary change, including urban expansion, mining impacts, river meandering, the growth of megacities, deforestation, and agricultural expansion.

GeoPlatform.gov (Federal Geographic Data Committee) [<https://www.geoplatform.gov/search>]  
 The Geospatial Platform is a cross-agency collaborative effort and Shared Service that embodies the principles and spirit of Open Government, emphasizing government-to-citizen communication, accountability, and transparency. In 2020, GeoPlatform.gov, operating under the authority of the Geospatial Data Act of 2018, transformed to establish its primary role of discovering geospatial data assets with special emphasis as the authorized source for all the official National Geospatial Data Assets (NGDAs) across 17 Data themes as guided by the U.S. Federal Geographic Data Committee (FGDC).

GIS for Climate HUB (ESRI) [<https://climate-arcgis-content.hub.arcgis.com/>]  
 Hub of ESRI's climate-related open data and visualizations. See also ESRI's GIS for Climate Change webinars.

GitHub Climate Datasets (Open Climate Data) [<https://openclimatedata.net/>]  
 A repository of GitHub climate datasets.

Global Climate Risk Index (Germanwatch) [paid content] [<https://bit.ly/3BHUbXH>]  
 The Global Climate Risk Index identifies the extent to which countries have been affected by extreme weather events. These can be meteorological events such as tropical storms or tornados, hydrological events such as storm surges or flash floods, or climatological events such as wildfires or droughts.

Global Risk Dashboard, GRiD (Verisk Maplecroft) [paid content] [<https://www.maplecroft.com/risk-indices/global-risk-dashboard-grid/>]  
 Private paid-for content which evaluates risks to key global markets.

International Renewable Energy Agency Country Profiles (IRENA) [<https://www.irena.org/Statistics/View-Data-by-Topic/Renewable-Energy-Balances/Country-Profiles>]  
 This dashboard provides an overview on the renewable energy balances for a selected number of countries.

IPCC WG1 Interactive Atlas: Regional information (IPCC) [<https://interactive-atlas.ipcc.ch/>]  
 The Interactive Atlas regional information supports the assessment done in the AR6-WGI chapters, the Technical Summary (TS) and the Summary for Policymakers (SPM), allowing for flexible temporal and spatial analyses of trends and changes in key atmospheric and oceanic variables, extreme indices and climatic impact-drivers (CIDs), as obtained from several global and regional observational and model simulated datasets used in the report. A description of the tool is provided in Section Atlas.2 and technical information (and resources) are available in the GitHub repository.

NASA Climate Change Database (NASA) [<https://climate.nasa.gov/evidence/>]  
 Web portal with easily digestible explanations of the evidence, causes, and effects of climate change.

NASA Earth Observing System Data and Information System: EarthData Search (NASA) [<https://search.earthdata.nasa.gov/search>]  
 Earth Observing System Data and Information System (EOSDIS) is a core capability in NASA's Earth Science Data Systems Program for archiving and distributing Earth science data from multiple missions to users. Earthdata Search provides easy-to-use access to EOSDIS services for Earth science data discovery, filtering, visualization, and access.

ND-GAIN Country Index (University of Notre Dame) [<https://gain.nd.edu/our-work/country-index/rankings/>]

The ND-GAIN Country Index summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. A country's ND-GAIN index score is composed of a vulnerability score and a readiness score.

- Vulnerability Index [<https://gain.nd.edu/our-work/country-index/rankings/>]
  - Vulnerability measures a country's exposure, sensitivity and ability to adapt to the negative impact of climate change. ND-GAIN measures the overall vulnerability by considering vulnerability in six life-supporting sectors—food, water, health, ecosystem service, human habitat and infrastructure.
- Readiness Index [<https://gain.nd.edu/our-work/country-index/rankings/>]
  - Readiness measures a country's ability to leverage investments and convert them to adaptation actions. ND-GAIN measures overall readiness by considering three components—economic readiness, governance readiness and social readiness.

The Opportunity Project (Census Bureau) [<https://opportunity.census.gov/data/>]

Issue-specific data recommended by government experts and tested by teams working to solve the nation's biggest challenges. Includes "Climate-Smart Communities," "Natural Environment," and "Built Environment" datasets.

Our World in Data: Biodiversity (Our World in Data) [<https://ourworldindata.org/biodiversity>]

Various dashboards showing how the distribution and population of mammals, birds, fish, coral reefs and more have changed over time as well as information on extinctions in the wildlife trade.

U.S. Global Change Research Program (USGCRP) [<https://www.globalchange.gov/browse>]

The U.S. Global Change Research Program (USGCRP) is a federal program mandated by Congress to coordinate federal research and investments in understanding the forces shaping the global environment, both human and natural, and their impacts on society. USGCRP facilitates collaboration and cooperation across its 13 federal member agencies to advance understanding of the changing Earth system and maximize efficiencies in federal global change research.

U.S. National Center for Atmospheric Research, Data Hub (NCAR) [<https://climatedataguide.ucar.edu/climate-data>]

The Climate Data Guide provides concise and reliable information on the strengths and limitations of the key observational data sets, tools and methods used to evaluate Earth system models and to understand the climate system. Citable expert commentaries are authored by experienced data users and developers, enabling scientists to multiply the impacts of their work and the diverse user community to access and understand the essential data.

- TerraClimate: Global High-Resolution Gridded Temperature, Precipitation and Other Water Balance Variables [<https://climatedataguide.ucar.edu/climate-data/terraclimate-global-high-resolution-gridded-temperature-precipitation-and-other-water>]
  - TerraClimate is a global gridded dataset of meteorological and water balance variables for 1958-present, available on a monthly timestep. Its relatively fine spatial resolution, global extent, and long length are a unique combination that fills a void in climate data. In addition to maximum and minimum temperatures and precipitation, TerraClimate provides derived variables including reference evapotranspiration, vapor pressure deficit, and PDSI. Read more [here](#).

## GHG Emissions

Carbon Mapper (Carbon Mapper, Inc.) [paid content] [in beta testing] [<https://carbonmapper.org/data/>] Carbon Mapper will make methane and CO2 data available to the public on an ongoing basis through a global open data portal. Visit the prototype (as of fall 2021) data portal to explore multi-scale methane data for California and stay tuned for updates as Carbon Mapper expands coverage to other regions.

Climate Watch (WRI) [<http://cait.wri.org/>]

Climate Watch is an online platform designed to empower policymakers, researchers, media and other stakeholders with the climate data, visualizations and resources they need to gather insights on national and global progress on climate change. Climate Watch brings together dozens of datasets for the first time to let users analyze and compare national climate pledges under the Paris Agreement, access historical greenhouse gas (GHG) emissions data, discover how climate objectives can help achieve sustainable development goals, understand vulnerabilities and readiness to climate impacts, and use models to map new pathways to a lower-carbon future.

- Historical GHG Emission [[https://www.climatewatchdata.org/ghg-emissions?end\\_year=2018&start\\_year=1990](https://www.climatewatchdata.org/ghg-emissions?end_year=2018&start_year=1990)]
  - Data and visuals of historical emissions by country, sector and type of gas.
- Emission Pathways [[https://www.climatewatchdata.org/ghg-emissions?end\\_year=2018&start\\_year=1990](https://www.climatewatchdata.org/ghg-emissions?end_year=2018&start_year=1990)]
  - Data and visuals of emissions scenario pathways for major emitting countries and sectors, derived from a growing library of models.
- Key Visualizations [<https://www.climatewatchdata.org/key-visualizations>]
  - Infographics and slide decks
- Climate Watch Data Methodology [[http://cait.wri.org/docs/CAIT2.0\\_CountryGHG\\_Methods.pdf](http://cait.wri.org/docs/CAIT2.0_CountryGHG_Methods.pdf)]
  - This document accompanies the CAIT Climate Data Explorer – Historical Emissions – Country GHG Emissions dataset.

Copernicus Open Access Hub (European Space Agency) [<https://scihub.copernicus.eu/>]

The Copernicus Open Access Hub (previously known as Sentinels Scientific Data Hub) provides complete, free and open access to Sentinel-1, Sentinel-2, Sentinel-3 and Sentinel-5P user products, starting from the In-Orbit Commissioning Review (IOCR).

Earth Observing Laboratory Data Archive (National Center for Atmospheric Research) [<https://data.eol.ucar.edu/>]

The Earth Observing Laboratory (EOL) data archive contains atmospheric, meteorological, and other geophysical datasets from operational sources and the scientific research programs and projects for which NCAR/EOL has provided data management support. The project list may be sorted by selecting the header keys and full project descriptions and dataset lists are available by selecting the project title; may search for projects with the form below, or also search for datasets by keyword or space and time.

Emissions Database for Global Atmospheric Research (EDGAR) [<https://edgar.jrc.ec.europa.eu/>]

EDGAR is a multipurpose, independent, global database of anthropogenic emissions of greenhouse gases and air pollution on Earth. EDGAR provides independent emission estimates compared to what reported by European Member States or by Parties under the United Nations Framework Convention on Climate Change (UNFCCC), using international statistics and a consistent IPCC methodology. EDGAR provides both emissions as national totals and grid maps at 0.1 x 0.1 degree resolution at global level, with yearly, monthly and up to hourly data.

Fossil Fuel Assimilation System (Professors from the Universities of Melbourne and North Arizona) [<https://ffdas.rc.nau.edu/Data.html>]

The fossil fuel data assimilation system (FFDAS) estimates global high-resolution fossil fuel CO2 emissions. Current results cover the years 1997 to 2015 at a spatial resolution of 0.1°.

Global Emissions Initiative (GEIA Scientific Steering Committee) [<http://www.geiacenter.org/analysis/new-papers-reports>]

GEIA is a community effort dedicated to emissions information exchange and competence building, was created in 1990 under the International Geosphere-Biosphere Programme (IGBP) and is now an IGAC activity. GEIA maintains an extensive network of emissions experts covering most source types and world regions, builds emissions data access and analysis platforms, and communicates with the emissions community through online resources and in-person meetings. The GEIA web site is the initiative's virtual communications center.

NASA Emissions Data (NASA) [<https://climate.nasa.gov/vital-signs/carbon-dioxide/>]  
 Download carbon dioxide data

Ocean Carbon Data System (NOAA) [<https://www.ncei.noaa.gov/access/ocean-carbon-data-system/>]  
 OCADS is responsible for hosting and providing access for ocean carbon data collected from around the world, as previously performed by the Oceans component of the Carbon Dioxide Information Analysis Center (CDIAC-Oceans) at the Oak Ridge National Laboratory.

OECD Annual Emissions by Country (OECD) [[https://stats.oecd.org/Index.aspx?DataSetCode=AIR\\_GHG](https://stats.oecd.org/Index.aspx?DataSetCode=AIR_GHG)]  
 OECD.Stat is the statistical online platform of the OECD where users can search and access OECD's statistical databases.

Our World in Data: CO2 and Greenhouse Gas Emissions (Our World in Data) [<https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions>]  
 Contains 207 country profiles allowing users to explore the statistics for every country in the world. Each profile includes interactive visualizations, explanations of the presented metrics, and the details on sources of the data.

PULSE (GHGSat) [<https://pulse.ghgsat.com/>]  
 A free-to-use, high-resolution map of methane around the world.

Total Carbon Column Observing Network (TCCON) [<http://www.tccon.caltech.edu/>]  
 TCCON is a network of ground-based Fourier Transform Spectrometers recording direct solar spectra in the near-infrared spectral region. From these spectra, accurate and precise column-averaged abundance of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HF, CO, H<sub>2</sub>O, and HDO are retrieved. TCCON provides an essential validation resource for the Orbiting Carbon Observatory-2 (OCO-2), OCO-3, the Greenhouse Gases Observing Satellites GOSAT and GOSAT-2, the Sentinel 5P instrument TROPOMI, TanSat, and other missions.

UNFCCC Datahub (UNFCCC) [[https://di.unfccc.int/ghg\\_profile\\_annex1](https://di.unfccc.int/ghg_profile_annex1)]  
 Repository of mostly Annex I GHG profiles and detailed data comparisons. Annex I Parties include the industrialized countries that were members of the OECD in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States. Annex II Parties consist of the OECD members of Annex I, but not the EIT Parties. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the Convention and to help them adapt to adverse effects of climate change.

### **Nationally Determined Contributions (NDCs)**

Climate Action Tracker Dashboard (Climate Action Tracker) [<https://climateactiontracker.org/climate-target-update-tracker/>]  
 The Climate Action Tracker (CAT) tracks and reports on NDC updates.

NDC Enhancement Tracker (WRI) [<https://www.climatewatchdata.org/2020-ndc-tracker?search=>]  
 Track which countries are submitting their national climate commitments in the lead up to COP26. To compare countries' submissions side-by-side click [here](#).

NDC IPCC Registry (IPCC) [<https://www4.unfccc.int/sites/ndcstaging/Pages/LatestSubmissions.aspx>] IPCC official registry of NDCs.

NDC Partnership (Hosted by WRI and UNFCCC) [<https://ndcpartnership.org/countries-map>]  
 Use this site to explore national-level snapshots of climate progress and information. This site also provides an overview of NDC Partnership country members, countries where the NDC Partnership is actively engaged, and countries with validated NDC Partnership Plans, with country pages providing specific information on processes and results, as well as relevant news, resources and data.

## Temperature and Water

Aqueduct (WRI) [<https://www.wri.org/aqueduct>]  
 Aqueduct's tools maps water risks such as floods, droughts, and stress, using open-source, peer reviewed data. Beyond the tools, the Aqueduct team works with companies, governments, and research partners to help advance best practices in water resources management and enable sustainable growth in a water-constrained world.

ESRI Temperature and Water Data (ESRI)

- ESRI Total Annual Precipitation [<https://hub.arcgis.com/maps/a727a4f6d5ab4fc5b1683d32dee45f54/explore?location=6.963250%2C148.496400%2C2.75>]
- ESRI Drought Data [<https://climate-arcgis-content.hub.arcgis.com/search?q=drought>]
- ESRI Drought Tracker [<https://www.arcgis.com/home/item.html?id=5714b85eb1a341cb8cdf207178449709>]

Global High-Resolution Soil-Water Balance (CGIAR Consortium for Spatial Information) [<https://cgiarcsi.community/data/global-high-resolution-soil-water-balance/>]  
 The Global High-Resolution Soil-Water Balance dataset provides hydrological raster data (ESRI Grid format) describing actual evapotranspiration and soil water deficit with the resolution of 30 arc seconds (~920 m at the equator). This Soil-Water Balance utilizes the WorldClim and Global-PET database as primary input.

Global Surface Water Explorer (European Commission) [<https://global-surface-water.appspot.com/#features>]  
 The European Commission's Joint Research Centre developed this water dataset in the framework of the Copernicus Programme. This maps the location and temporal distribution of water surfaces at the global scale over the past 3.7 decades and provides statistics on the extent and change of those water surfaces. The dataset is produced from Landsat imagery.

Global Temperature and Precipitation Maps (NOAA) [<https://www.ncdc.noaa.gov/temp-and-precip/ghcn-gridded-products/maps#global-maps-select>]  
 Global Temperature, Precipitation and Weather Event maps from January 1880 to (near) present. Select a year and month/season from the options below and click "Submit" to view the selection.

Hydrological data and maps based on Shuttle Elevation Derivatives at multiple Scales (World Wildlife Fund) [<https://www.hydrosheds.org/page/overview>]  
 HydroSHEDS provides hydrographic information in a consistent and comprehensive format for regional and global-scale applications. HydroSHEDS offers a suite of geo-referenced data sets in raster and vector format, including stream networks, watershed boundaries, drainage directions, and ancillary data layers such as flow accumulations, distances, and river topology information.

MODIS Optical Global Water Intelligence (NGA and Army Corps of Engineers) [<https://umip.erd.c.dren.mil/apps/dort/>]  
 The MODIS Optical Global Water Intelligence (MOGWAI) platform is a near real-time, remote sensing-based lake/reservoir surface area monitoring system created and maintained by the National Geospatial-Intelligence

Agency and U.S. Army Corps of Engineers. The surface area estimates are based on an implementation of the Dynamic Surface Water Extent (DSWE) algorithm that was adapted to use 8-day composites of surface reflectance data from NASA's MODIS (Moderate Resolution Imaging Spectroradiometer) sensor. Surface area is monitored for all large water bodies (>10 km<sup>2</sup>) south of 60N that are included in the WWF's HydroLakes database. For more information or to recommend new water bodies for monitoring, please contact [MOGWAI@nga.mil](mailto:MOGWAI@nga.mil). MOGWAI is available via the USACE Model Interface Platform with access available via CAC/PIV or Login/Password at <https://umip.ercd.dren.mil/apps/dort/>.

[NASA Arctic Sea Ice Minimum Data \(NASA\)](https://climate.nasa.gov/vital-signs/arctic-sea-ice/) [<https://climate.nasa.gov/vital-signs/arctic-sea-ice/>]  
Downloadable annual Arctic sea ice minimum data in Excel format.

[NASA Global Precipitation Measurement Data Directory \(NASA\)](https://gpm.nasa.gov/data/directory) [<https://gpm.nasa.gov/data/directory>]  
Various NASA precipitation datasets and information about them. A few select datasets/sites are below:

- [Global Precipitation Measurement Mission \(GPM\) \(NASA\)](https://gpm.nasa.gov/) [<https://gpm.nasa.gov/>]
  - GPM uses satellites to measure Earth's rain and snowfall. Launched by [NASA](#) and [JAXA](#) on Feb. 27th, 2014, GPM is an international mission that sets the standard for spaceborne precipitation measurements. Using a network of satellites united by the [GPM Core Observatory](#), GPM expands on the legacy of the [Tropical Rainfall Measuring Mission \(TRMM\)](#) by providing high quality estimates of Earth's rain and snowfall every 30 minutes.
- [IMERG: Integrated Multi-satellitE Retrievals for GPM \(NASA\)](https://gpm.nasa.gov/data/IMERG) [<https://gpm.nasa.gov/data/IMERG>]
  - There are several sources for downloading and viewing data which allows sub-setting the data to only include specific parameters and/or geographic locations. These include the [GES DISC](#), [Giovanni](#), and [STORM](#). In Giovanni data is available for a specific country, U.S. state, or watershed by using the "Show Shapes" option in the "Select Region" pane.

[NASA Global Temperature Data \(NASA\)](https://climate.nasa.gov/vital-signs/global-temperature/) [<https://climate.nasa.gov/vital-signs/global-temperature/>]  
Downloadable annual temperature data. Requires free Earthdata account login.

[NASA Sea-Level Rise Data \(NASA\)](https://climate.nasa.gov/vital-signs/sea-level/) [<https://climate.nasa.gov/vital-signs/sea-level/>]  
Downloadable annual sea-level rise data. Requires free Earthdata account login.

[NOAA Gridded Climate Data \(NOAA\)](https://psl.noaa.gov/data/gridded/) [<https://psl.noaa.gov/data/gridded/>]  
Various datasets from NOAA's Physical Sciences Laboratory (PSL). PSL's mission is to conduct scientific research to observe, understand, model, predict, and forecast weather, water and climate extremes and their impacts ([Fact Sheet](#)).

[Paleo Data Search \(NOAA\)](https://www.ncdc.noaa.gov/paleo-search/?dataTypeId=12) [<https://www.ncdc.noaa.gov/paleo-search/?dataTypeId=12>]  
National Centers for Environmental Information (NCEI) offers search and download of Paleoclimatic proxy data and Paleoclimate Reconstructions from the NOAA/World Data Service for Paleoclimatology archives. Over 10,000 data sets are available, derived from natural sources such as tree rings, ice cores, corals, and ocean and lake sediments. Use the General search box or Advanced search to improve filtering by investigators, locations, keywords and time periods. Data files for the entire result set, or a subset of it, can be downloaded as a single compressed file. A web service also is provided for use to get Paleo studies' metadata in JSON format. See the [API help page](#) for details.

[Water Management and Conflict Database \(Oregon State University\)](https://transboundarywaters.science.oregonstate.edu/content/transboundary-freshwater-dispute-database) [<https://transboundarywaters.science.oregonstate.edu/content/transboundary-freshwater-dispute-database>]

The Transboundary Freshwater Dispute Database is developed and maintained by the OSU College of Earth, Ocean, and Atmospheric Sciences, in collaboration with the Northwest Alliance for Computational Science and Engineering. There are six main components of the database:

- [Data](https://transboundarywaters.science.oregonstate.edu/content/data-and-datasets) [https://transboundarywaters.science.oregonstate.edu/content/data-and-datasets] contains both global and regional information in searchable tabular and spatial datasets, treaty and compact libraries, and GIS shapefiles available for download.
- [Research and Projects](https://transboundarywaters.science.oregonstate.edu/content/research-and-projects) [https://transboundarywaters.science.oregonstate.edu/content/research-and-projects] includes completed and ongoing projects and links to projects either conducted at or collaborated with Oregon State University faculty and students.
- [Bibliographies and Digital Collections](http://www.transboundarywaters.orst.edu/database/index.html) [http://www.transboundarywaters.orst.edu/database/index.html] contains the Water Conflict and Cooperation Bibliography and the Middle East Water Collection of scholarly papers ranging from the historic perspective to the present day.
- [Publications](https://transboundarywaters.science.oregonstate.edu/content/publications-tfdd-and-related-works) [https://transboundarywaters.science.oregonstate.edu/content/publications-tfdd-and-related-works] includes papers and books related to water conflict and/or cooperation, with links to download.
- [Map and Image Gallery](https://transboundarywaters.science.oregonstate.edu/gallery-collections/galleries) [https://transboundarywaters.science.oregonstate.edu/gallery-collections/galleries] features maps and images for download created by current and former students and faculty and collaborating partners.
- [Useful Resources and External Links](https://transboundarywaters.science.oregonstate.edu/content/useful-resources-and-external-links) [https://transboundarywaters.science.oregonstate.edu/content/useful-resources-and-external-links] is a list of related water conflict and cooperation websites.

[Water Point Viewer Overview \(USGS and USAID\)](https://earlywarning.usgs.gov/fews/software-tools/21) [https://earlywarning.usgs.gov/fews/software-tools/21]  
The water point map viewer, part of FEWS NET, monitors 234 water points from Mali to Somalia.

## Climate and Weather

[NOAA Climate Prediction Center \(NOAA\)](https://www.cpc.ncep.noaa.gov/) [https://www.cpc.ncep.noaa.gov/]

The Climate Prediction Center (CPC) delivers real-time products and information that predict and describe climate variations on timescales from weeks to years thereby promoting effective management of climate risk and a climate-resilient society.

[Royal Dutch Meteorological Institute \(KNMI\) Climate Explorer \(World Metrological Organization\)](http://climexp.knmi.nl/start.cgi) [http://climexp.knmi.nl/start.cgi]

The KNMI Climate Explorer is a tool to investigate the climate. Start by selecting a class of climate data from the right-hand menu. After you have selected the time series or fields of interest, you will be able to investigate it, correlate it to other data, and generate derived data from it.

[U.S. Billion-Dollar Weather and Climate Disasters: Overview \(NOAA\)](https://www.ncdc.noaa.gov/billions/) [https://www.ncdc.noaa.gov/billions/]  
Comparative data on severe weather event's cost, impacts, and deaths over time in the US.

[WorldClim Database \(WorldClim\)](https://worldclim.org/data/index.html) [https://worldclim.org/data/index.html]

WorldClim is a database of high spatial resolution global weather and climate data. These data can be used for mapping and spatial modeling. The data are provided for use in research and related activities; and some specialized skill and knowledge is needed to use them ([here is some help](#)). More easily available data for the general public will soon be [available here](#).

## Air Pollution

[AirNow \(U.S. Department of State and U.S. EPA\)](https://www.airnow.gov/international/us-embassies-and-consulates/) [https://www.airnow.gov/international/us-embassies-and-consulates/]  
AirNow collects Air Quality Monitoring data from U.S. embassies and consulates around the world to inform U.S. personnel and citizens overseas.

[Our World in Data: Air Pollution \(Our World in Data\)](https://ourworldindata.org/air-pollution) [https://ourworldindata.org/air-pollution]

Interactive visualizations and linked data-sources that look in detail at the data and research on the health impacts of [Indoor Air Pollution](#) and [Outdoor Air Pollution](#), attributed deaths, and its causes across the world.

## Agriculture and Food

Famine Early Warning Systems Network (USGS and USAID) [<https://earlywarning.usgs.gov/fews/>]

The Famine Early Warning Systems Network (FEWS NET) is a leading provider of early warning and analysis on acute food insecurity around the world. Created in 1985 by the United States Agency for International Development (USAID) in response to devastating famines in East and West Africa, FEWS NET provides unbiased, evidence-based analysis to governments and relief agencies who plan for and respond to humanitarian crises. FEWS NET analyses support resilience and development programming as well.

FAO Food Price Index (Food and Agriculture Organization of the United Nations)

[<http://www.fao.org/worldfoodsituation/foodpricesindex/en/>]

The FAO Food Price Index (FFPI) is a measure of the monthly change in international prices of a basket of food commodities. It consists of the average of five commodity group price indices weighted by the average export shares of each of the groups over 2014-2016.

Global Assessment of Human-induced Soil Degradation

(GLASOD) [[https://data.isric.org/geonetwork/srv/eng/catalog.search#/metadata/Global%20Assessment%20of%20Human-induced%20Soil%20Degradation%20\(GLASOD\)-cb46-45e2-9126-1ca38bd5cd22](https://data.isric.org/geonetwork/srv/eng/catalog.search#/metadata/Global%20Assessment%20of%20Human-induced%20Soil%20Degradation%20(GLASOD)-cb46-45e2-9126-1ca38bd5cd22)]

The GLASOD project (1987-1990), carried out for UNEP, has produced a world map of human-induced soil degradation. Data were compiled in cooperation with soil scientists throughout the world, using uniform Guidelines and international correlation. The status of soil degradation was mapped within loosely defined physiographic units (polygons), based on expert judgement. The type, extent, degree, rate and main causes of degradation have been printed on a global map (scale of 1:10 million) and documented in a downloadable database. Information about the areal extent of human-induced soil degradation is in an explanatory note.

Global Food Security Index (The Economist Intelligence Unit) [<https://foodsecurityindex.eiu.com/>]

The Global Food Security Index (GFSI) considers the issues of food affordability, availability, quality and safety, and natural resources and resilience across a set of 113 countries. The index is a dynamic quantitative and qualitative benchmarking model constructed from 59 unique indicators that measure the drivers of food security across both developing and developed countries.

Integrated Food Security Phase Classification (IPC) [<http://www.ipcinfo.org/>]

The Integrated Food Security Phase Classification (IPC) is a multi-partner initiative for improving food security and nutrition analysis and decision-making. Measures and reports on the severity and magnitude of acute and chronic food insecurity, and acute malnutrition situations in a country.

International Soil Reference and Information Centre (ISRIC)

[<https://data.isric.org/geonetwork/srv/eng/catalog.search#/home>]

Our World in Data: Environmental Impacts of Food Production (Our World in Data)

[<https://ourworldindata.org/environmental-impacts-of-food>]

Interactive visualizations and linked data sources exploring the environmental impacts of food and agriculture.

## Infrastructure

Europe Gas Tracker (Global Energy Monitor) [<https://globalenergymonitor.org/projects/europe-gas-tracker/>]

The Europe Gas Tracker provides a comprehensive picture and data set for fossil gas infrastructure across the European Union, with some components covered in non-EU countries. The tracker includes gas pipelines, LNG terminals, gas-fired power plants, and gas extraction sites. Each project has a wiki page that provides more detail on the project, such as the project's status, capacity, and owner.

Global Coal Mine Tracker (Global Energy Monitor) [<https://globalenergymonitor.org/projects/global-coal-mine-tracker/>]

The Global Coal Mine Tracker (GCMT) provides information on the world’s major coal mines: every operating mine producing 3 million tonnes per annum (mtpa) or greater, and every proposed mine with a capacity of 1 mtpa or greater. The map and underlying data are updated bi-annually, in January and July. With each update, coverage is expanded to include smaller mines. By January 2022, GCMT will have cataloged every coal mine producing 1 mtpa or greater. Each mine included in the tracker is linked to a wiki page on GEM.wiki, which provides additional details.

Global Coal Plant Tracker (Global Energy Monitor) [<https://globalenergymonitor.org/projects/global-coal-plant-tracker/>]

The Global Coal Plant Tracker (GCPT) provides information on coal-fired power units from around the world generating 30 megawatts and above. The GCPT catalogues every operating coal-fired generating unit, every new unit proposed since 2010, and every unit retired since 2000. Units often consist of a boiler and turbine, and several units may make up one coal-fired power station. The map and underlying data are updated bi-annually, in January and July. Each plant included in the tracker is linked to a wiki page on GEM.wiki, which provides additional details.

Global Fossil Infrastructure Tracker (Global Energy Monitor) [<https://globalenergymonitor.org/projects/global-fossil-infrastructure-tracker/>]

The Global Fossil Infrastructure Tracker aggregates information from wiki pages on oil and gas projects such as pipelines and terminals. Summaries of GFIT data are released twice a year and posted at Global Gas & Oil Network.

Global Steel Plant Tracker (Global Energy Monitor) [<https://globalenergymonitor.org/projects/global-steel-plant-tracker/>]

The Global Steel Plant Tracker (GSPT) provides information on global crude steel production plants and includes information on every plant currently operating at a capacity of one million tonnes per year (mtpa) or more of crude steel. The GSPT currently is being expanded to include all plants meeting the one mtpa threshold that have been proposed since 2017 or retired or mothballed since 2020. Steel plants consist of multiple units, depending on the iron and steel production method used. Crude steel typically is produced through coal-based methods (blast furnace and basic oxygen furnace or open-hearth furnace) or electricity-based production (electric arc furnace charged with scrap metal, pig iron, direct reduced iron, or a combination). The GSPT map and underlying data are updated annually in January. Each plant included in the tracker is linked to a wiki page on GEM.wiki, which provides additional details.

## **Economic**

China’s Global Energy Finance Dashboard (The Global Development Policy Center)  
 [<https://www.bu.edu/cgef/#/all/EnergySource/GasLNG>]

The China’s Global Energy Finance Database is an interactive data project that exhibits financing for global energy projects by China’s two global policy banks—the China Development Bank (CDB) and the Export-Import Bank of China (CHEXI).

Global Coal Exit List (Urgewald) [<https://coalexit.org/finance-data>]

The Global Coal Exit List (GCEL) is a database that identifies all companies which play a significant role in the thermal coal value chain. It includes not only coal miners and coal power producers but also companies involved in coal exploration, processing, trading, logistics, coal equipment manufacturing, coal-related operations, management and EPC services, coal-to-liquids and coal-to-gas production. It lists 935 parent companies and over 1,800 subsidiaries and joint ventures.

Green Climate Fund Funding Data (Green Climate Fund) [<https://www.greenclimate.fund/about/resource-mobilisation/irm>]

Tracking data for Green Climate Fund (GCF) contributions, agreements, projects, and programs.

OECD Environment Data (OECD) [<https://data.oecd.org/environment.htm#profile-Air%20and%20climate>]  
 Hub of OECD environment data.

## Minerals

Critical Minerals Mapping Initiative (CMMI) Portal (USGS, Geoscience Australia, the Geological Survey of Canada) [<https://portal.ga.gov.au/persona/cmmi>]

The Critical Minerals Mapping Initiative (CMMI) Portal is a free interactive mapping tool designed to share outputs from the geoscientific collaboration between Geoscience Australia (GA), the Geological Survey of Canada (GSC) and the United States Geological Survey (USGS).

European Mineral Resources (European Geological Data Infrastructure) [<http://www.europe-geology.eu/mineral-resources/mineral-resources-map/>]

EGDI is EuroGeoSurveys' European Geological Data Infrastructure. It provides access to Pan-European and national geological datasets and services from the Geological Survey Organisations of Europe. Through, EGDI data from a number of European data harmonization projects are accessible. EGDI was launched in June 2016 in a Version 1 and has since then been extended to include more data sets.

USGS Global Mineral Resources Map (USGS) [<https://mrdata.usgs.gov/general/map-global.html>]

Interactive maps and downloadable data for regional and global Geology, Geochemistry, Geophysics, and Mineral Resources.

## Humanitarian

Emergency Events Database (Centre for Research on the Epidemiology of Disasters) [requires registration [here](#)] [<https://www.emdat.be/>]

The Emergency Events Database (EM-DAT) was created with the initial support of the World Health Organization (WHO) and the Belgian Government. EM-DAT contains data on the occurrence and effects of over 22,000 mass disasters from 1900 to the present day. The database is compiled from various sources, including UN agencies, non-governmental organizations, insurance companies, research institutes and press agencies.

Humanitarian Data Exchange (UN Office for the Coordination of Humanitarian Affairs) [<https://data.humdata.org/search?q=climate+change>]

The Humanitarian Data Exchange (HDX) is an open platform for sharing data across crises and organizations. Launched in July 2014, the goal of HDX is to make humanitarian data easy to find and use for analysis. HDX is managed by OCHA's Centre for Humanitarian Data. OCHA is part of the United Nations Secretariat and is responsible for bringing together humanitarian actors to ensure a coherent response to emergencies. This link leads to climate change databases listed on HDX.

Recent Internal Displacement from Conflict, Natural Disasters, and Development (Internal Displacement Monitoring Centre) [<https://resourcewatch.org/data/explore/soc062c-Internal-Displacement-NRT>]

This dataset tracks the number of people who have been internally displaced recently due to conflict, natural disasters, or development projects worldwide, and is updated daily. This link leads to a WRI portal to preview and download this data.

UN World Population Data (UN Department of Economic and Social Affairs) [<https://population.un.org/wpp/Maps/>]

World population data.

*INR/GGI prepared this Commentary.*

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