Hydrologic Data Sources

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Hydrologic Studies & Reports:

- **Water Rights Library Viewer** [https://www.waterrights.utah.gov/cgi-bin/libview.exe]
- **USGS Publications Warehouse** [https://pubs.er.usgs.gov/]
- **UGS Publications** [https://geology.utah.gov/apps/publications/]
- **USU Water Laboratory Reports** [https://digitalcommons.usu.edu/water_rep/]

Surface Water Data:

Measurements of streamflow & reservoir content:

- **USGS NWIS Database** [https://waterdata.usgs.gov/nwis]
    - **NWIS Mapper** [https://maps.waterdata.usgs.gov/mapper/index.html] - The mapper provides an easy way to find current and historical data for a specific location.
    - **Real-Time Streamflow** [https://waterdata.usgs.gov/ut/nwis/rt] - Legacy page for real-time streamflow data
    - **National Water Dashboard** [https://dashboard.waterdata.usgs.gov/app/nwd/] - New interface for displaying real-time water data, including streamflow
- **USBR Reservoir Data** [https://www.usbr.gov/uc/water/index.html]
    - **Tea-Cup Diagrams** [https://www.usbr.gov/uc/water/basin/index.html]
    - **Weekly Summary PDF** [https://www.usbr.gov/uc/water/rsvrs/ops/WeeklyHydrologySummary/Weekly_Hydro.pdf]
    - **Historic Data (Old Page)** [https://www.usbr.gov/rsvrWater/HistoricalApp.html]
    - **RISE App (New Page)** [https://data.usbr.gov/]
- **Water Rights Data:**
    - **Realtime Distribution System Information** [https://www.waterrights.utah.gov/distinfo/realtime_info.asp]
    - **Water Use and Streamflow Records** [https://www.waterrights.utah.gov/distinfo/]

Forecast & modeled data products:

- **Colorado Basin River Forecast Center** [https://www.cbrfc.noaa.gov/]
- **NOAA Streamflow Forecasts** [https://water.weather.gov/ahps/region.php?state=ut]

- **USGS StreamStats** [https://streamstats.usgs.gov/ss/] - Provides flow exceedance estimates for ungagged streams using regression equations developed by USGS. See SIR 2008-5230 and SIR 2007-5158 for details about the Utah regression equations.
- **USBR Projected Operations of Colorado River (24-Month Study Reports)** [https://www.usbr.gov/uc/water/crsp/studies/index.html]
- **USBR Interactive Visualization and Exploration Resource (RIVER)** [https://data.usbr.gov/river/] - A new web application to visualize USBR water modeling results.

Groundwater Data:

Groundwater level measurements:

- **Trend Viewer** [https://maps.waterrights.utah.gov/EsriMap/gw-graphs.asp] - Using USGS and UGS water level data, this tool provides a quick view into how water levels are changing in a specific area.
- **USGS NWIS Database** - USGS is the primary source of groundwater level data in Utah.
    - Map search [https://maps.waterdata.usgs.gov/mapper/index.html]
    - Non-map search [https://nwis.waterdata.usgs.gov/ut/nwis/gwlevels]
- **UGS Database** [https://apps.geology.utah.gov/gwdp/] - Includes a large collection of high-frequency measurements, particularly in the Snake Valley area.

Additional historical groundwater level measurements can sometimes be found in USGS reports:

1935	https://doi.org/10.3133/wsp777	1943	https://doi.org/10.3133/wsp990
1936	https://doi.org/10.3133/wsp817	1944	https://doi.org/10.3133/wsp1020
1937	https://doi.org/10.3133/wsp840	1945	https://doi.org/10.3133/wsp1027
1938	https://doi.org/10.3133/wsp845	1946	https://doi.org/10.3133/wsp1075
1939	https://doi.org/10.3133/wsp886	1947	https://doi.org/10.3133/wsp1100
1940	https://doi.org/10.3133/wsp910	1948	https://doi.org/10.3133/wsp1130
1941	https://doi.org/10.3133/wsp940	1949	https://doi.org/10.3133/wsp1160
1942	https://doi.org/10.3133/wsp948	1950	https://doi.org/10.3133/wsp1169

Well logs:

- **Well Logs** [https://waterrights.utah.gov/wellinfo/wellsearch.asp]
- **Geologic Logs** [https://waterrights.utah.gov/wellInfo/GeologWellLogs.asp]

Groundwater diversion estimates:

- **Ground-Water Conditions in Utah** - This publication was published annually by USGS from 1964-2018. Moving forward, this data will be published in an online format. [https://www.waterrights.utah.gov/cgi-bin/libview.exe?Modinfo=Pubmain&Submod=Pubtype&Key=List+Publications&QSTRING=00000012]

Snowpack & Soil Data:

Snowpack and snow water content:

- **SNOTEL** [https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/snow/] - Data "showing snow water equivalent (SWE), snow depth, precipitation, temperature, and other climatic elements in hourly, daily, monthly, and yearly increments."

Soil moisture:

- **SCAN** [https://www.wcc.nrcs.usda.gov/scan/] - This is a network of soil and climate measurement stations. Each station monitors "soil moisture and soil temperature data along with precipitation, wind, and solar radiation data." SCAN stands for Soil Climate Analysis Network.
- **Soil Moisture Visualizer** [https://airmoss.ornl.gov/visualize/] - This website helps visualize soil moisture data, including not only SCAN station data but also satellite data products like SMAP.

Soil survey data:

- **NRCS Map Viewer** [https://websoilsurvey.nrcs.usda.gov/app/] - Provides spatial soil data that can be viewed and downloaded. Includes information to evaluate a soils suitability for irrigation, its permeability and water storage properties, etc.

Drought index info:

- **National Integrated Drought Information System** [https://www.drought.gov/]

Meteorological Data:

Weather station data:

- **NOAA Weather Station Archive** [https://www.ncdc.noaa.gov/cdo-web/datatools/findstation]
  - **Station Metadata** [https://www.ncdc.noaa.gov/homr/]
- **USU Climate Center - Ag Stations** [https://climate.usu.edu/mchd/index.php]
- **USU Climate Center - Map** [https://climate.usu.edu/mapServer/mapGUI/index.php]
- **Western Regional Climate Center** [https://wrcc.dri.edu/]
- **MesoWest** [https://mesowest.utah.edu/]

Interpolated/gridded weather data products:

- **Climate Engine** [http://climateengine.org/] - Displays and makes available several gridded meteorological products.

- **PRISM** [https://prism.oregonstate.edu/] - Provides interpolated daily, monthly, and annual meteorological values (precipitation, temperature, and humidity) for North America. Monthly and annual interpolations go back to 1895. A popular product is the 30-yr normal dataset.

Evapotranspiration & Land Cover:

Irrigation consumptive use reports:

- Consumptive Use Report (Hill, 1998)
- Consumptive Use Report (Hill, 2011)
- GridET

Actual ET:

- **OpenET** (coming soon?) [https://openetdata.org/] - When available, the OpenET platform will provide satellite-based estimates of actual evaporation at field-scale resolution. Estimates will be available for a number of different models (METRIC, SEBAL, SSEBOP, SIMS, etc.) for daily, monthly, and annual time steps.
- **USGS SSEBOP** [https://earlywarning.usgs.gov/ssebop] - Lower resolution actual ET estimates

Reference ET data:

- **USU Climate Center Agriculture Weather Data** [https://climate.usu.edu/mchd/index.php] -
- **Climate Engine** [http://climateengine.org/] - Among its many datasets, Climate Engine contains reference ET computed from gridded weather data.
- **GRIDMET** [http://www.climatologylab.org/gridmet.html] - Provides spatially interpolated daily data such as minimum and maximum temperature, precipitation, solar radiation, wind speed, and humidity for North America for daily periods back to 1980. It also provides derived datasets such as reference evapotranspiration and drought index. This data can also be accessed via Climate Engine.

Land Cover:

- **Cropland Data Layer (CDL)** [https://nassgeodata.gmu.edu/CropScape/]
- **National Land Cover Database (NLCD)** [https://www.mrlc.gov/viewer/]

Other:

Remote sensing data:

- **Water Rights Map Layers** [https://maps.waterrights.utah.gov/EsriMap/map.asp]
    - Imagery Base Maps
    - Historical Imagery (UGS)
    - Historical Imagery (USGS)
    - Historical Imagery (NAPP/NHAP)
    - Historical Imagery (USDA)
    - Recent Imagery
- **EOSDIS Worldview** [https://worldview.earthdata.nasa.gov/] - Amazing!
- **USGS EarthExplorer** [https://earthexplorer.usgs.gov/] - Amazing (& sometimes useful)! Requires a free account for data downloads
- **Climate Engine** [http://climateengine.org/] - Amazing (& sometimes useful)!

Miscellaneous data repositories:

- **USGS Geo Data Portal** [https://cida.usgs.gov/gdp/]
- **HydroShare** [https://www.hydroshare.org/search/]