

Evapotranspiration (ET)

- **Before 2008:**
 - **Model:** PT-JPL
 - **Units:** mm/month (daylight hours)
 - **Satellites:** Landsat 5, 7, 8
 - **Resolution:** 30 m
 - **Source:** <https://landsat.gsfc.nasa.gov/satellites/>
 - **Data Availability:** 1985 - 2007
 - **Description:** Daily (when Landsat passes occur) evapotranspiration calculated using the PT-JPL model. Data is then temporally interpolated on request for each pixel across each day in a month using the closest-date scan with a non-cloudy pixel to upscale to a monthly mm/month product.
- **2008 and Later:**
 - **Model:** OpenET Ensemble
 - **Units:** mm/month
 - **Satellites:** Landsat 5, 7, 8, 9
 - **Resolution:** 30 m
 - **Source:**
 - <https://etdata.org/methodologies>
 - https://developers.google.com/earth-engine/datasets/catalog/OpenET_ENSEMBLE_CONUS_GRIDMET_MONTHLY_v2_0
 - **Data Availability:** 2008 - 2023
 - **Description:** Monthly evapotranspiration provided by OpenET. Ensemble evapotranspiration value is computed as the mean of the ensemble after filtering outliers using the median absolute deviation. The Ensemble model takes into account the ALEXI/DisALEXI, eeMETRIC, geeSEBAL, PT-JPL, SIMS, and SSEBop models.

Potential Evapotranspiration (PET)

- **Before 2008:**
 - **Model:** PT-JPL
 - **Units:** mm/month (daylight hours)
 - **Satellites:** Landsat 5, 7, 8
 - **Resolution:** 30 m
 - **Source:** <https://landsat.gsfc.nasa.gov/satellites/>
 - **Data Availability:** 1985 - 2007
 - **Description:** Daily (when Landsat passes occur) potential evapotranspiration calculated on request by dividing Evapotranspiration (ET) by the Evaporative Stress Index (ESI). ET and ESI are calculated via the PT-JPL model. Data is then temporally interpolated on request for each pixel across each day in a month using the closest-date scan with a non-cloudy pixel to upscale to a monthly mm/month product.

Reference Evapotranspiration (ETo)

- **2008 and Later:**
 - **Dataset:** University of Idaho EPSCOR GRIDMET (modified)
 - **Units:** mm/month (daylight hours scaled, ET-corrected)
 - **Resolution:** 4 km
 - **Source:**
 - <https://www.climatologylab.org/gridmet.html>
 - https://developers.google.com/earth-engine/datasets/catalog/IDAHO_EPSCOR_GRIDMET
 - **Data Availability:** 2008 - 2023
 - **Description:** Raw daily-grass reference evapotranspiration (ETo) data is provided by the University of Idaho EPSCOR GRIDMET dataset, which uses the Penman-Monteith method. ETo is a 24-hour product that is then summed for every day in the month to get a mm/month product. To make this comparable to our daylight-hours ET product, we determine the number of hours of daylight in a day by using the average latitude for the region of interest and the day of year. ETo is then divided by the number of hours in a day and multiplied by the number of daylight hours. Since Penman-Monteith ETo is not a perfect stand-in for PET, we also correct using the Ensemble ET maximum value. If ETo falls below the maximum value produced by any one of the 6 Ensemble ET models, the maximum Ensemble ET model value is used instead. For transparency, both the non-ET-adjusted and adjusted version of ETo is provided in the CSV export.

Precipitation (PPT)

- **Dataset:** Oregon State PRISM
- **Units:** mm/month
- **Resolution:** 4 km
- **Source:** <https://prism.oregonstate.edu>
- **Data Availability:** 1985 - 2023
- **Description:** Monthly mm/month precipitation data is provided by the Oregon State PRISM dataset.

Cloud Cover and Missing Data (*Computed*)

- **Before 2008:**
 - Cloud cover and missing data are calculated as the ratio of cloudy or missing pixels to the total number of pixels in a region, averaged monthly.
- **2008 and Later:**
 - Cloud cover and missing data are calculated by comparing the number of Landsat passes with valid, good-visibility pixels (as provided by OpenET) to the total number of Landsat passes available for the month. Total available passes are determined on-demand via the Microsoft Planetary Computer STAC API.
 - Algorithm: (Number of Landsat Passes – Average Passes Used per Pixel) / Number of Landsat Passes