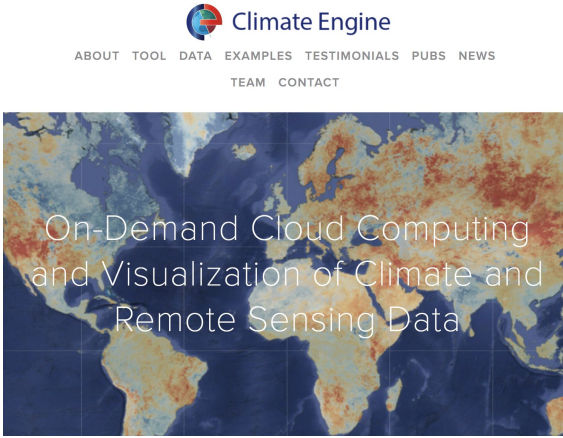


Background: This document outlines the differences, strengths, and synergies between the [Northwest Climate Toolbox](#) and [Climate Engine](#). Both the Northwest Climate Toolbox and Climate Engine use common datasets that address similar concerns related to climate, such as drought and impacts to agriculture. However, the Northwest Climate Toolbox and Climate Engine have different functionality and, as a result, different end-users. Below we describe and contrast the attributes of the Northwest Climate Toolbox and Climate Engine.

Climate Engine



- <http://climateengine.org>
- **Funding Sources:** NIDIS (2016–2019); Google Faculty Award (2015); Famine Early Warning Systems Network (2016-2018)

 <p>Overview A single interface tool for enabling access to climate and remotely sensed data hosted on Google Earth Engine (GEE)</p>	<p>Suggested Uses</p> <ul style="list-style-type: none"> • Mapping of real-time and retrospective environmental and climatic conditions • Extraction of time series of data for a point, polygon, or user-defined region <p>Audience</p> <ul style="list-style-type: none"> • Researchers • State and federal agencies <p>Novelty</p> <ul style="list-style-type: none"> • Promotes accessibility to large geospatial datasets • On-the-fly computation with cloud computing makes full customization possible • Tool interoperability with existing gridded datasets (e.g. climate, remote sensing)
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Advantages	Disadvantages
<p>Functionality</p> <ul style="list-style-type: none"> • Ability to create custom visualizations and data requests • Ability to download time series and map layers <p>Datasets</p> <ul style="list-style-type: none"> • Accessibility to big gridded datasets of a variety of sources, variables, and scales • Global coverage of most datasets • Ease of adding any datasets hosted on Google’s Earth Engine or uploaded as a Google Asset 	<p>Functionality</p> <ul style="list-style-type: none"> • Can encounter errors during heavy use of GEE resources/traffic • Computations are limited to those GEE functions • Slow for certain computations <p>Scalability</p> <ul style="list-style-type: none"> • Difficulty in adding new functionality due to complicated backend code <p>Interface</p> <ul style="list-style-type: none"> • Complicated interface requires training for novice users <p>Datasets</p> <ul style="list-style-type: none"> • Some datasets cannot be reliably used for real-time monitoring due to data latencies (from several days to a month)

Northwest Climate Toolbox

- <http://climatetoolbox.org>
- **Funding Sources:** NOAA RISA/NIDIS (2015–2020); NW Climate Hub (2016–2019); and USGS Climate Science Center (2013–2015).

<p>The Northwest Climate Toolbox A collection of web tools for visualizing past and projected climate and hydrology of the Pacific Northwest, USA.</p> <p>Applications These tools are to help with decision making in fire, water management, agriculture and climate monitoring.</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Overview A collection of climate/weather tools developed by the Climate Impacts Research Consortium (CIRC) and related projects</p>	<p>Suggested Uses</p> <ul style="list-style-type: none"> • Communication of current climatic conditions and hazards • Visualization of short-term forecasts and long-term projections of climate • Implications for agriculture, water resources, and ecosystems <p>Audience</p> <ul style="list-style-type: none"> • Intermediary users, including extension, state climate offices, and media • Operational drought/forecasters at state and federal agencies <p>Novelty</p> <ul style="list-style-type: none"> • Seamless toggling between historical data, seasonal to sub-seasonal forecasts, and long-term climate projections through a common data framework • Dynamic interface for interacting with climate datasets desirable over static-based products
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Advantages	Disadvantages
<p>Functionality</p> <ul style="list-style-type: none"> • Contains several applied tools, including some decision support-based products • Fast visualization due to precomputed data summaries <p>Interface</p> <ul style="list-style-type: none"> • Ease of use of individual tools (i.e. few options, single display) • Similar design of all tools to aid in user learning <p>Scalability</p> <ul style="list-style-type: none"> • Ease in scaling by adding more individual tools • Ease in adding new derived variables (by calculating offline, e.g., chill hours) • Ease in adding gridded or vector datasets <p>Datasets</p> <ul style="list-style-type: none"> • Incorporates seasonal forecasts and hydrologic model output (Northwest United States only) • Dependable latency of real-time data products (updated daily by noon PST) 	<p>Functionality</p> <ul style="list-style-type: none"> • Not designed for customized analyses/mapping • Fixed temporal windows (e.g., <i>last 7 days</i>, etc.). <p>Datasets</p> <ul style="list-style-type: none"> • Primarily makes use of a single gridded climate dataset (gridMET) • Does not incorporate remotely sensed datasets