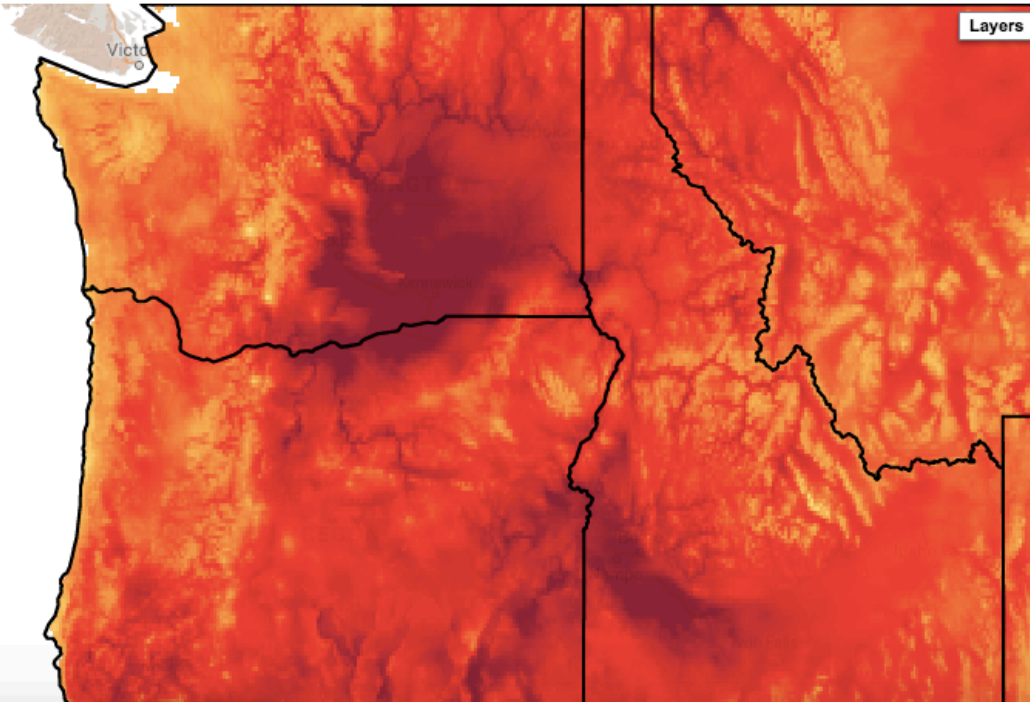
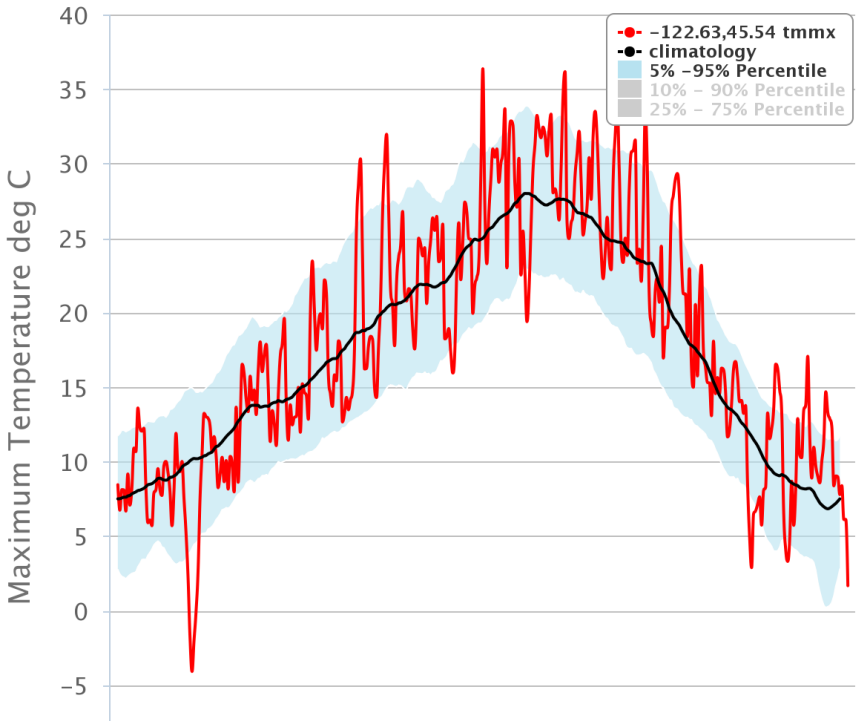
# The Climate Toolbox

## Beyond Big Climate Data

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# Translating climate data to usable information

## Underlying Goal

Improve decision-makers' ability and knowledge in incorporating climate information including past data, seasonal climate forecasts and climate projections to achieve productivity and sustainability.

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# Building on Data + Tools

- Data
- Historical and real time
- UW gridded hydrologic output from VIC (snow, soil moisture)
- Gridded meteorological data of Abatzoglou (2013)
- Modeled data
- MACA/Integrated Scenarios archive

- Tools
- UW Drought Monitoring System
- West-Wide Drought Tracker
- Google Earth Engine Framework

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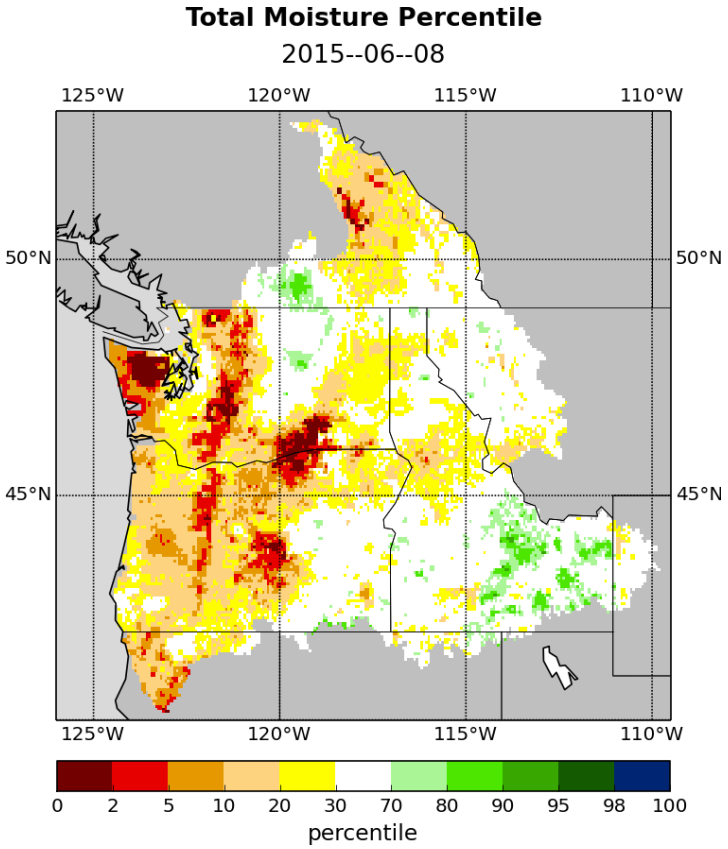
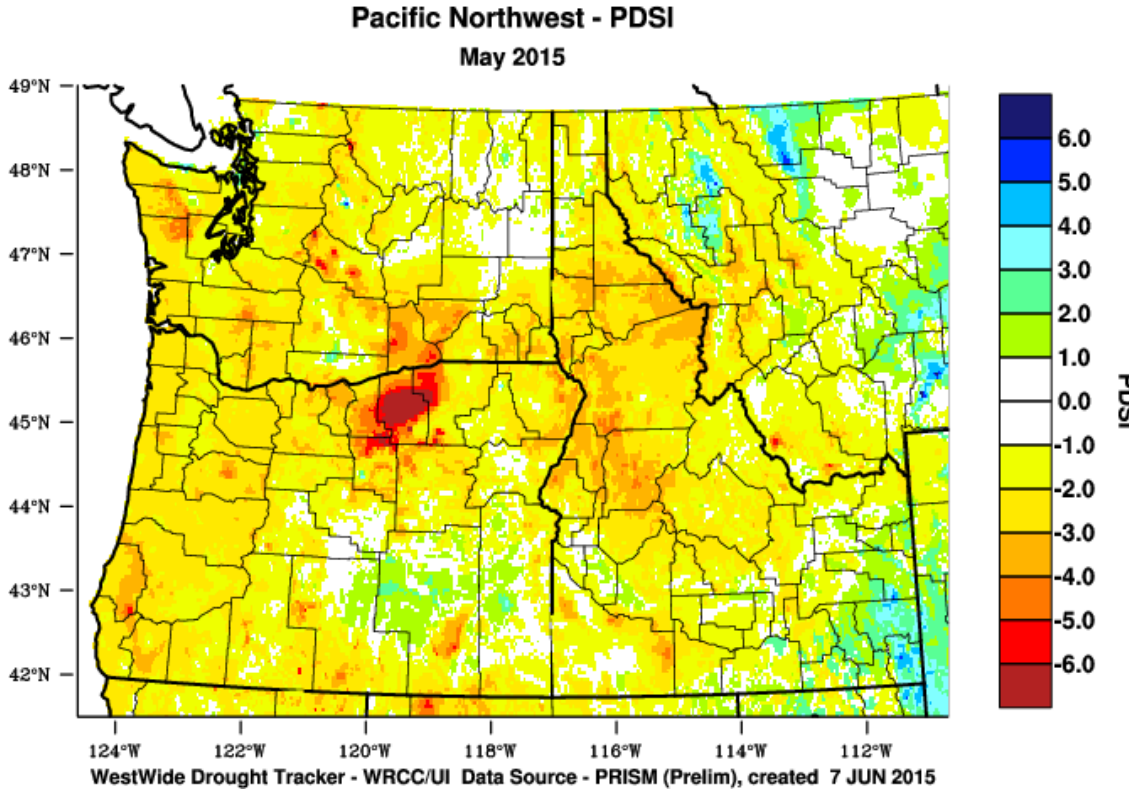
# UW Hydrologic Monitor + WestWide Drought Tracker




-High spatial resolution drought information
-Maps and timeseries, limited interaction capability

# White house Climate Data Initiative

Google

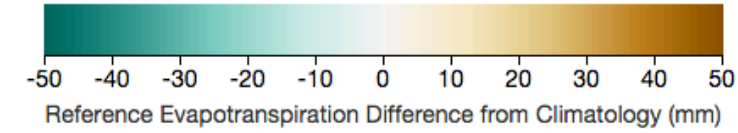
DRI
Desert Research Institute

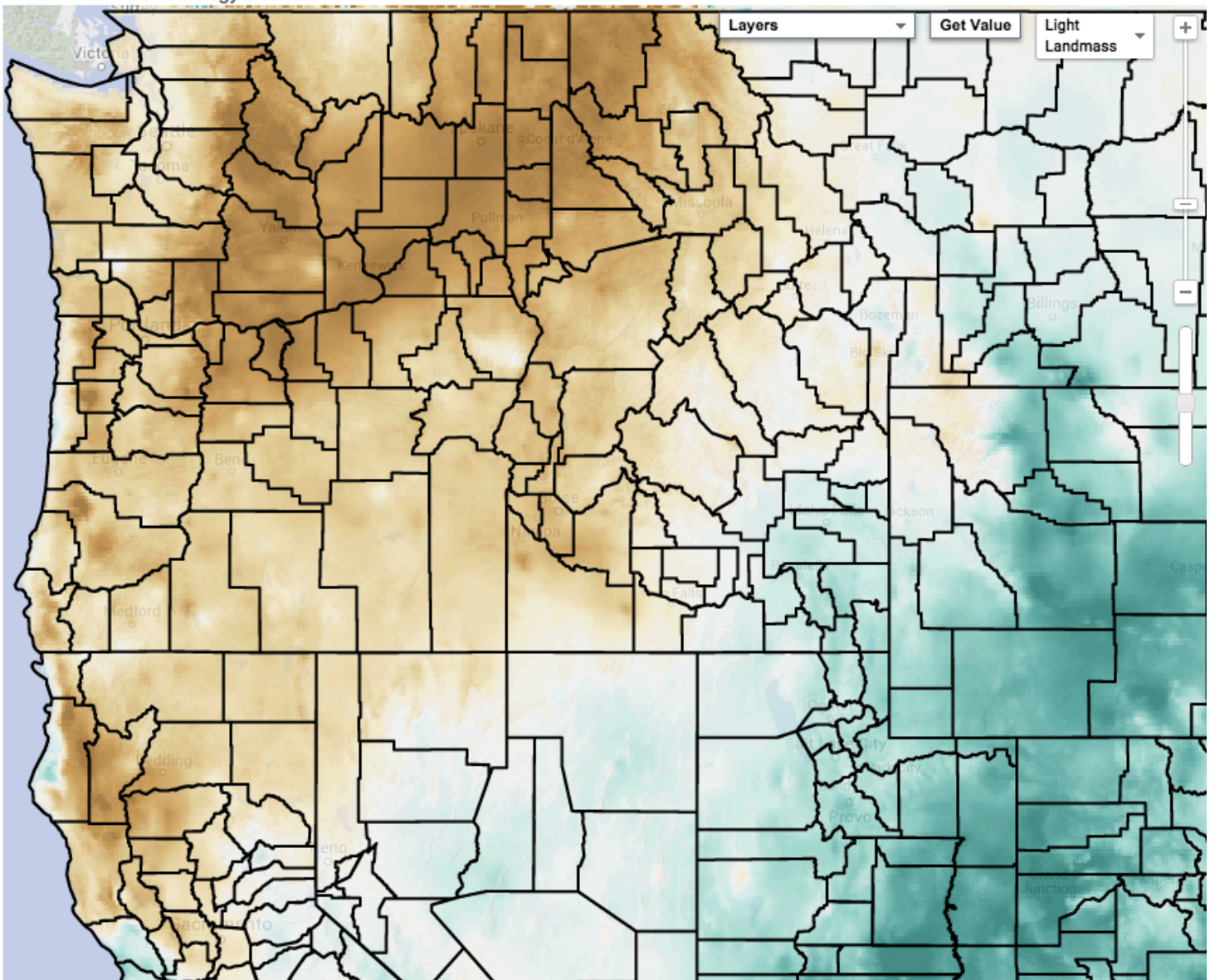
University of Idaho


- Brings together data and design to develop data-driven planning and resilience tools for local communities.
- US Gov't, Google, ESRI

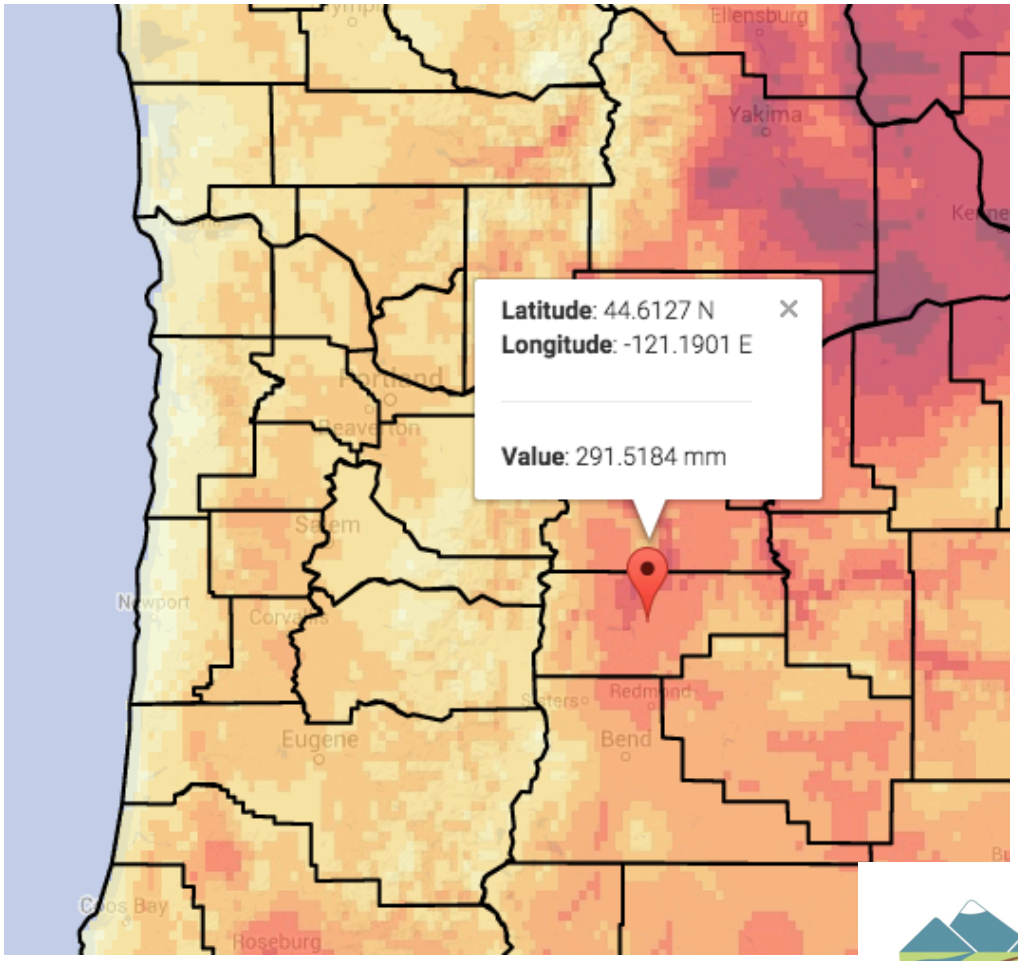
# Total ASCE Grass Reference Evapotranspiration Difference from Climatology

Data Source: METDATA/gridMET 4-km dataset (University of Idaho) from 2015-04-11 to 2015-06-11
Climatology calculated from 1981-2010



# Dynamic Maps

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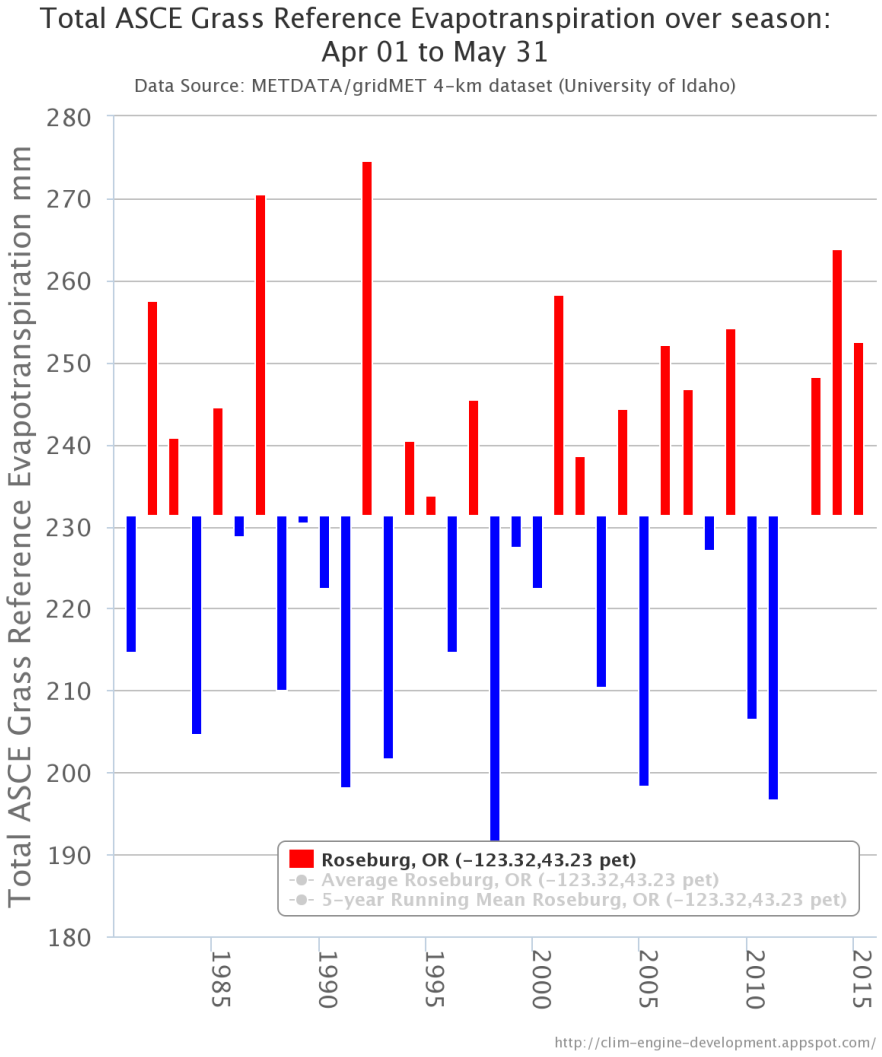
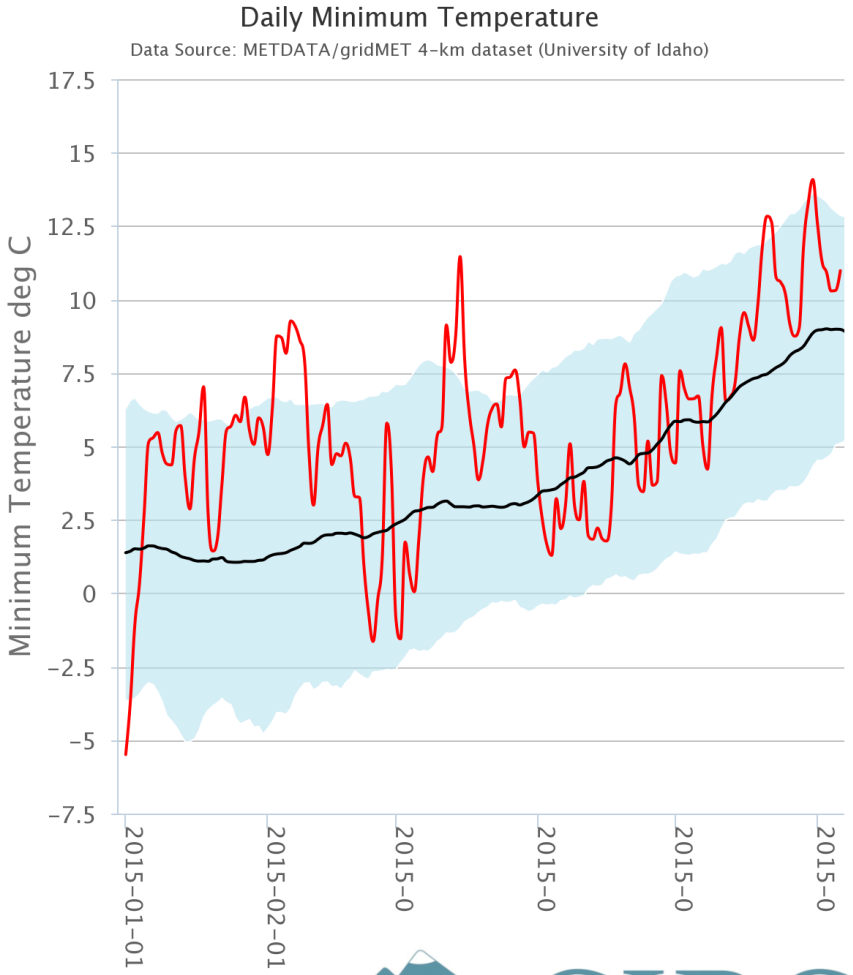
# Customized Time Series Extraction




Dynamic graphics, csv output

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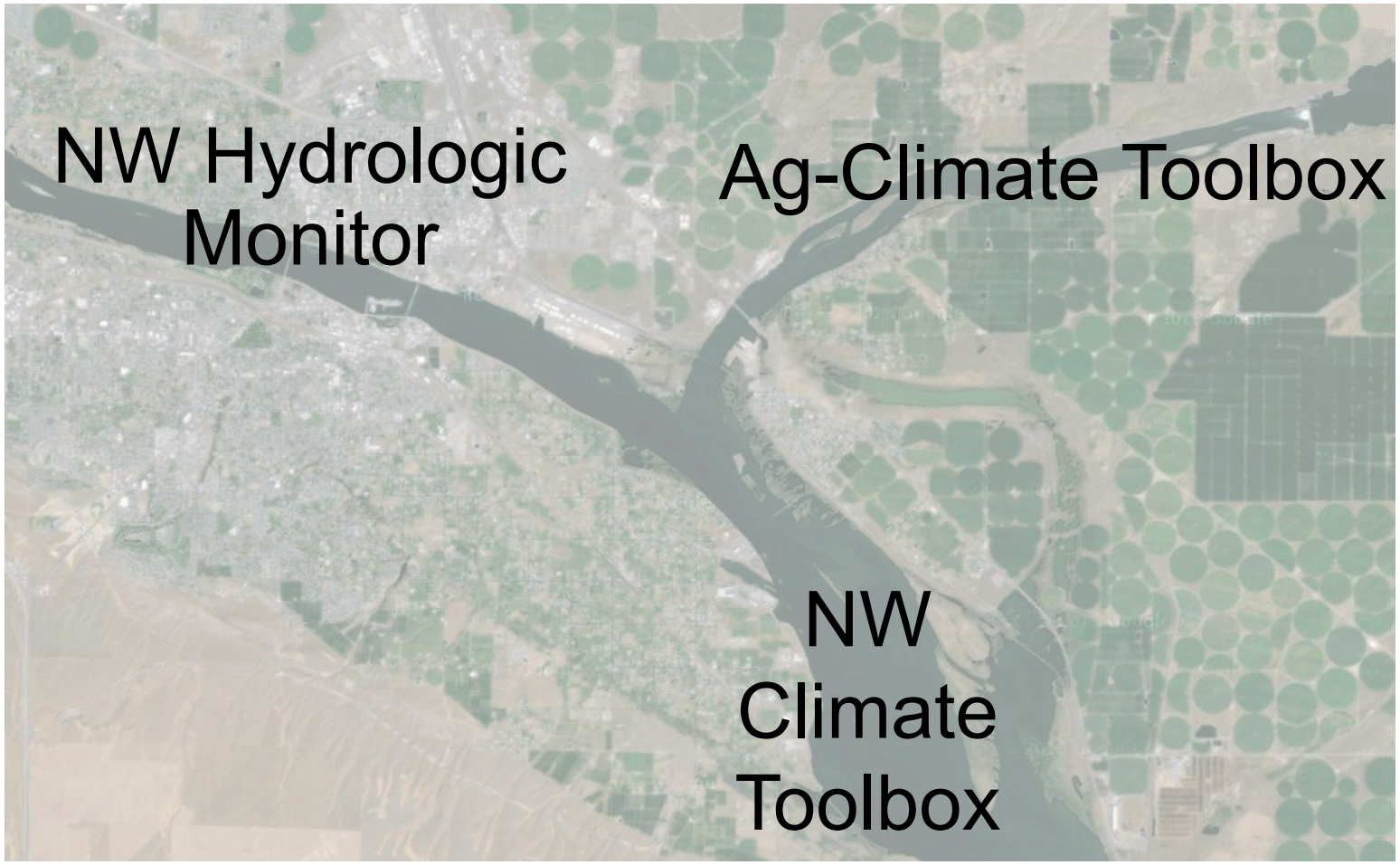
# The confluence




USDA United States Department of Agriculture CLIMATE HUBS

PACIFIC NORTHWEST HUB

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# NW Agricultural Needs

1. Broad reaching derived climate information
- Growing degree days
- Irrigation demand
- Climate suitability

2. Targeted agricultural commodities

Needs assessment of agricultural sector through stakeholder interactions/growers meetings

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# Summary: NW Climate Toolbox Goals

Alleviate data/information accessibility barriers

Climate information that addresses NW needs on a range of timescales

Create dynamic decision support tools

Influence real world decision making in the NW

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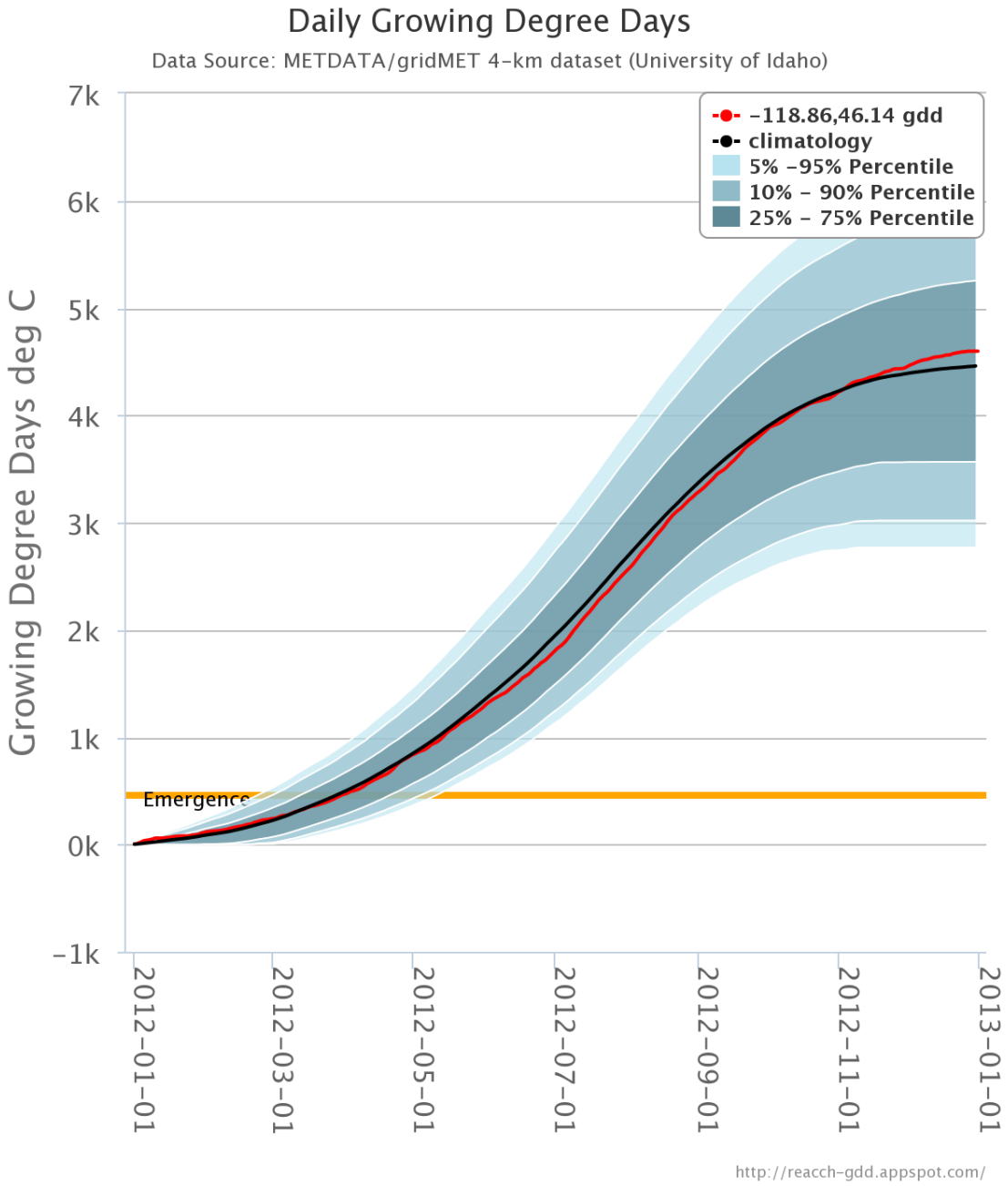
# Diverse agricultural commodities



REACCH
Regional Approaches to Climate Change – PACIFIC NORTHWEST AGRICULTURE

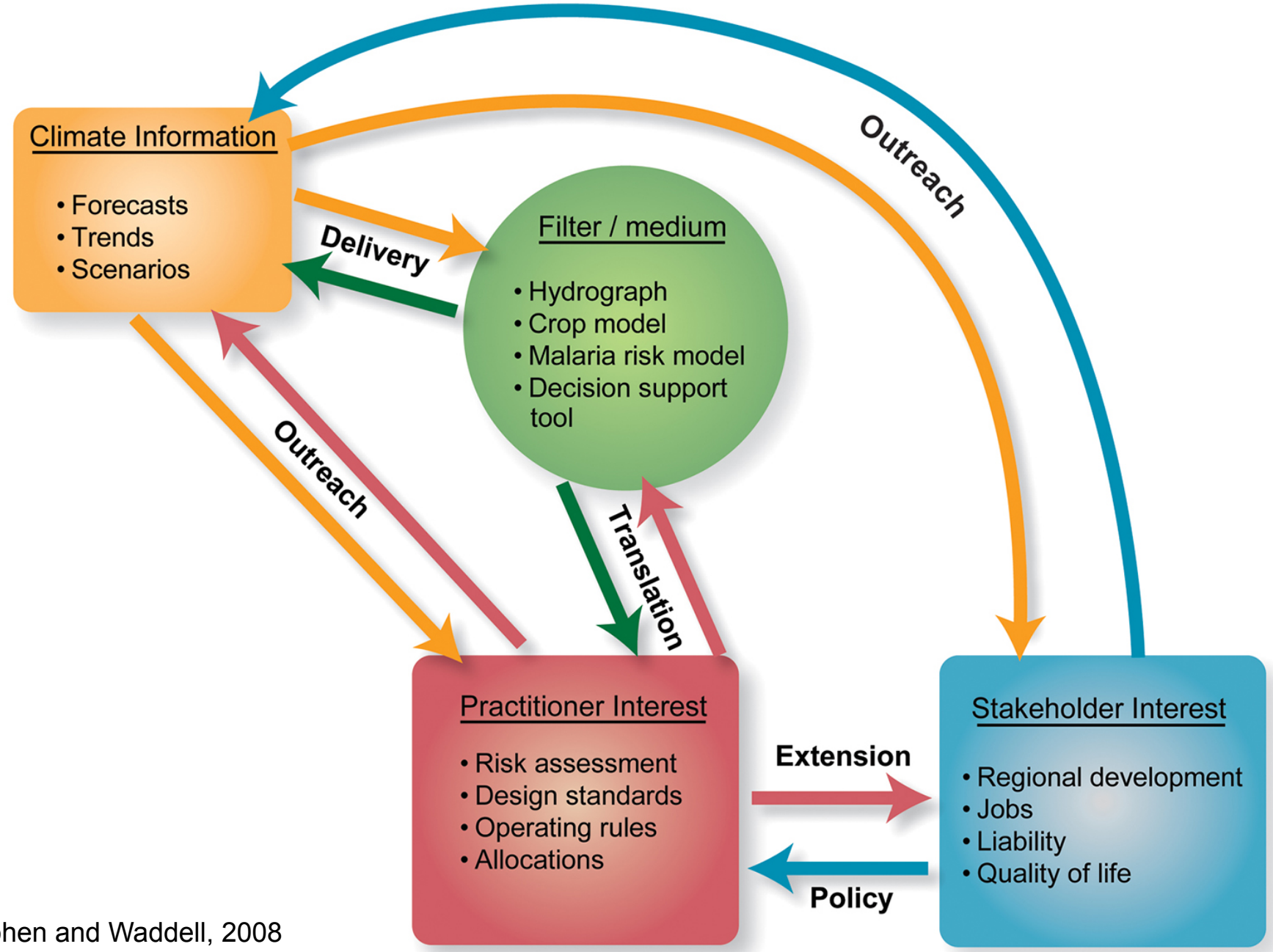
USDA

Tri-State University Extension


Daily Growing Degree Days
Data Source: METDATA/gridMET 4-km dataset (University of Idaho)
-118.86,46.14 gdd
climatology
5% -95% Percentile
10% - 90% Percentile
25% - 75% Percentile
Growing Degree Days deg C
7k
6k
5k
4k
3k
2k
1k
0k
-1k
Emergence
2012-01-01
2012-03-01
2012-05-01
2012-07-01
2012-09-01
2012-11-01
2013-01-01
http://reacch-gdd.appspot.com/

# Extras

# Climate Information and Decision-Making




Cohen and Waddell, 2008

# Summary

Beta-beta version of this available

http://clim-engine-development.appspot.com/

So far:

- User friendly interface
- Unprecedented access to large climate/remote sensing data
- Dynamic interface

Possible Next steps (not supported):

- Decision support tools for agriculture and wildfire
- User defined input region (e.g., polygons)
- Variety of output formats
- NMME outputs
- MACA climate projections