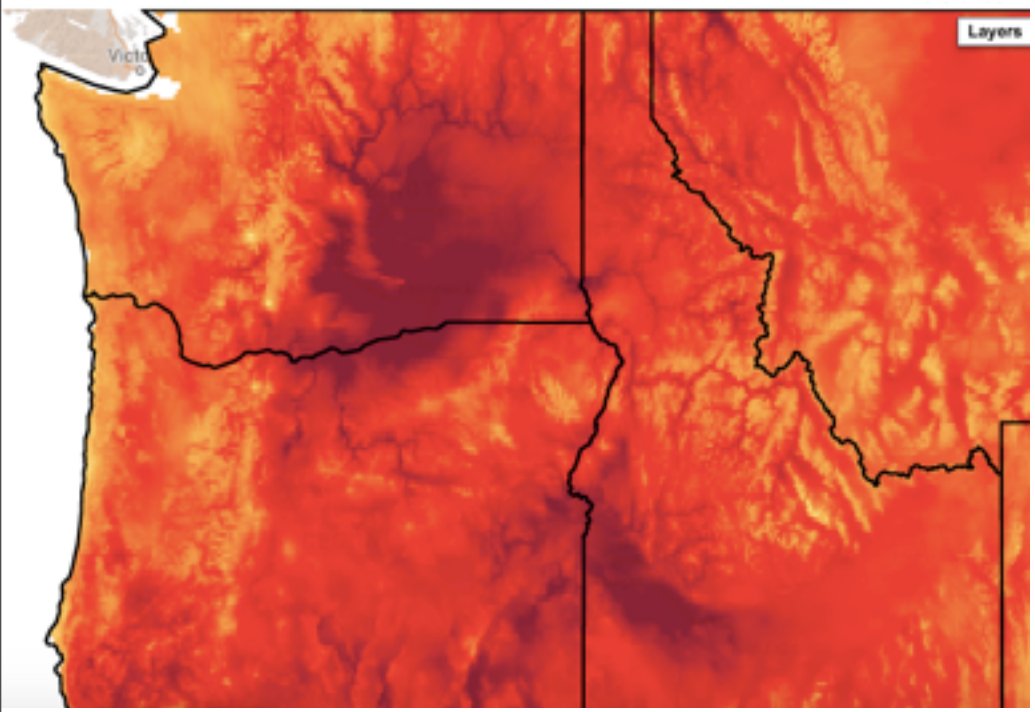
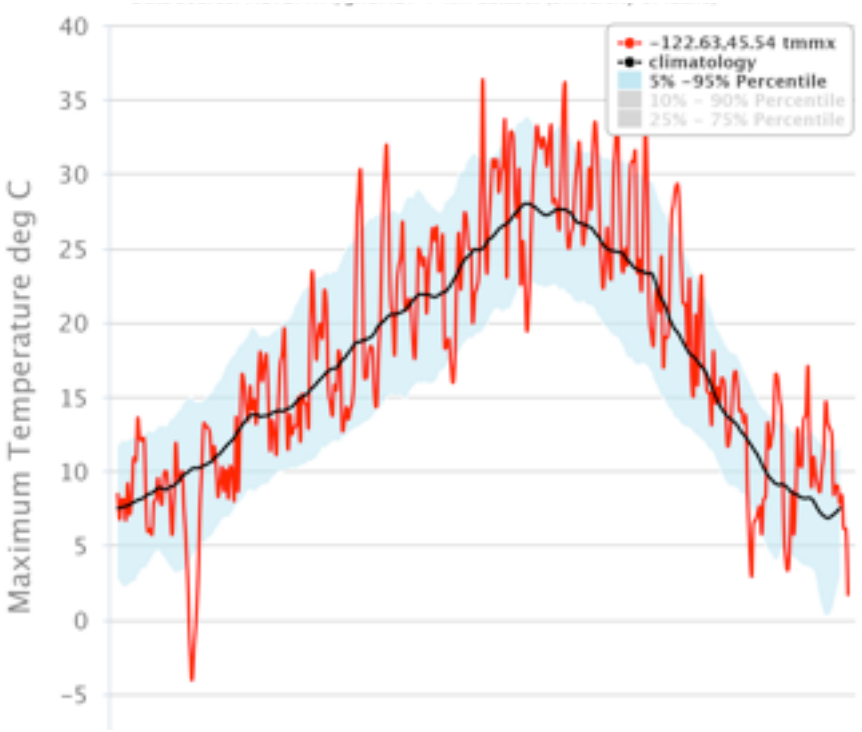
The NW Climate Toolbox

Beyond Big Climate Data





Kathie Dello, Oregon State University
John Abatzoglou, University of Idaho
Bart Nijssen, University of Washington
Katherine Hegewisch, University of Idaho

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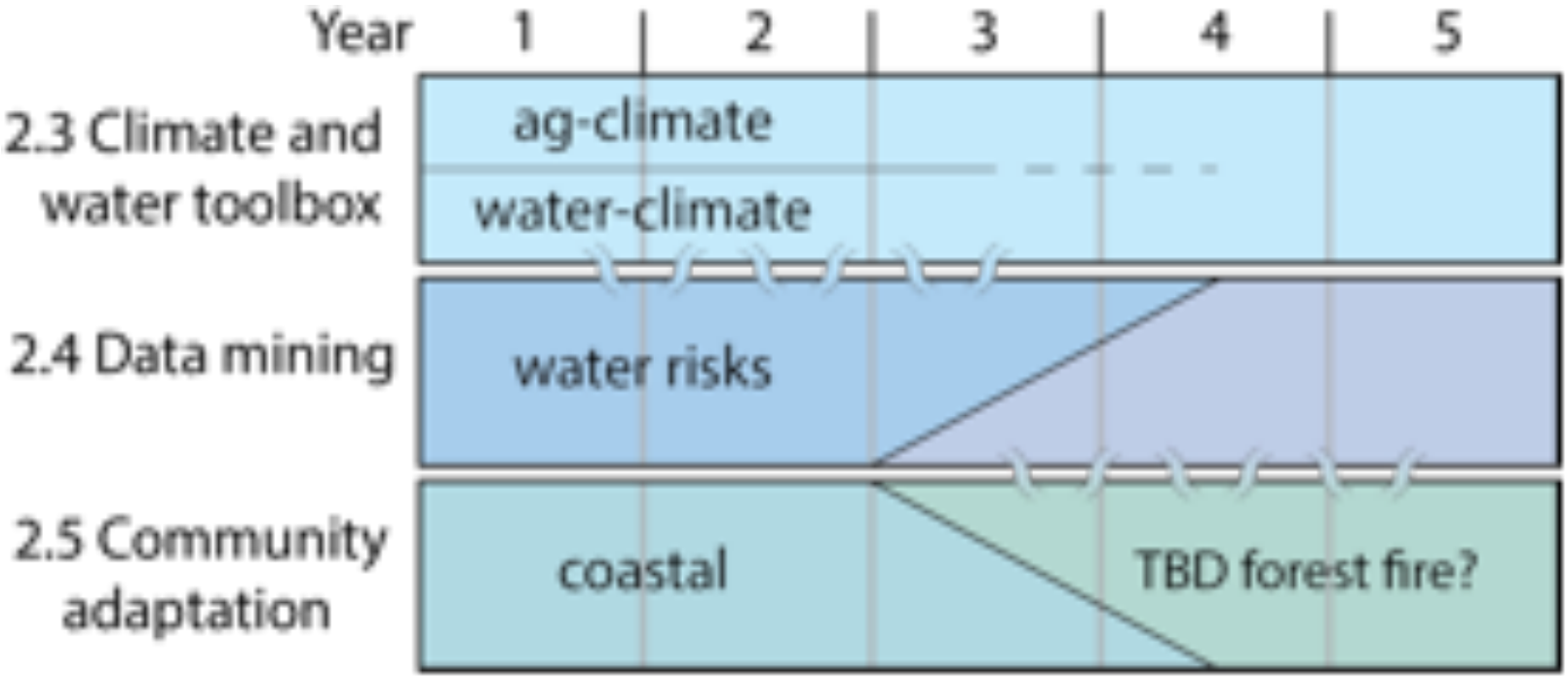
Climate Impacts Research Consortium



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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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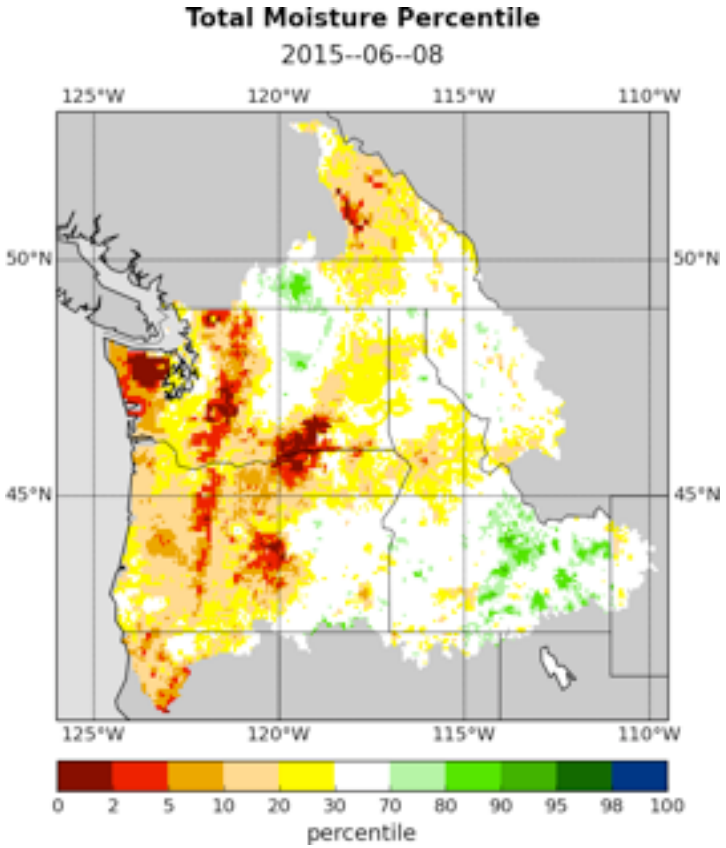
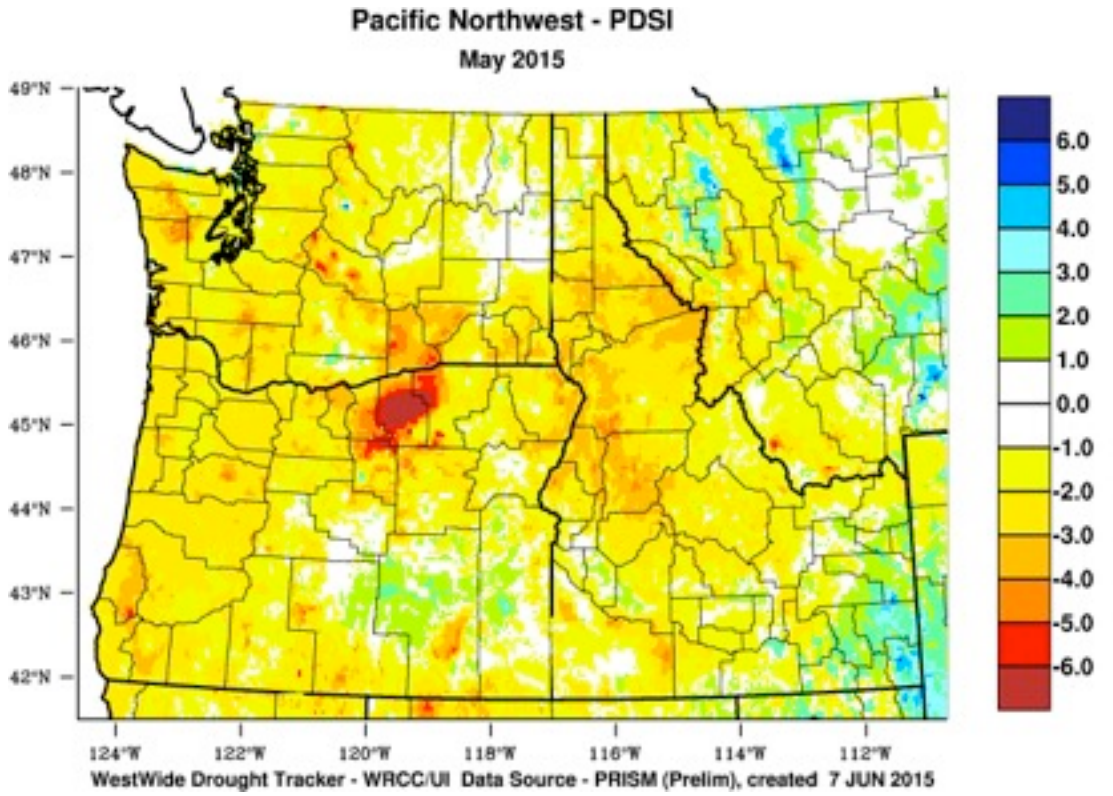
UW Hydrologic Monitor + WestWide Drought Tracker





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

White House Climate Data Initiative

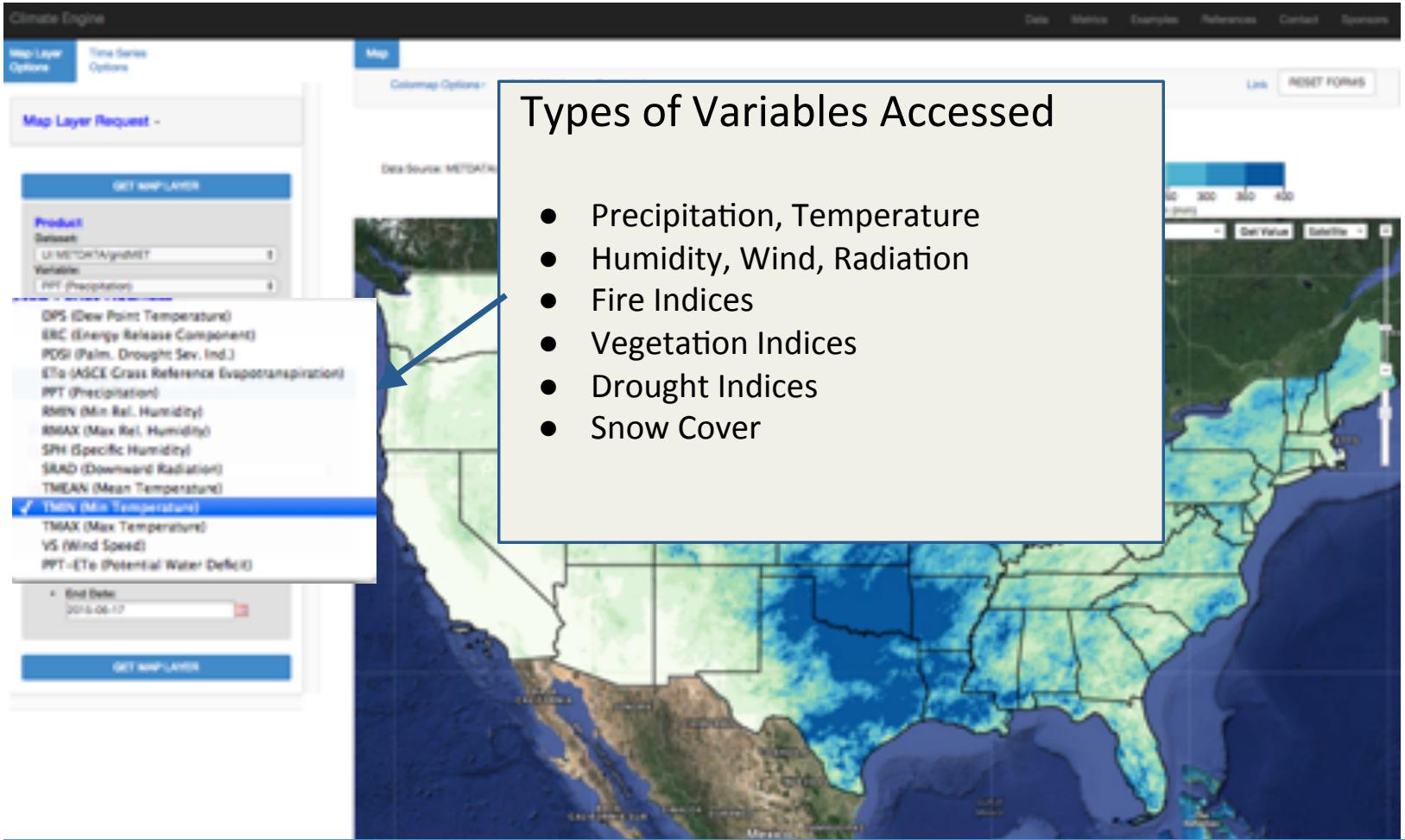
Google

DRI
Desert Research Institute

University of Idaho

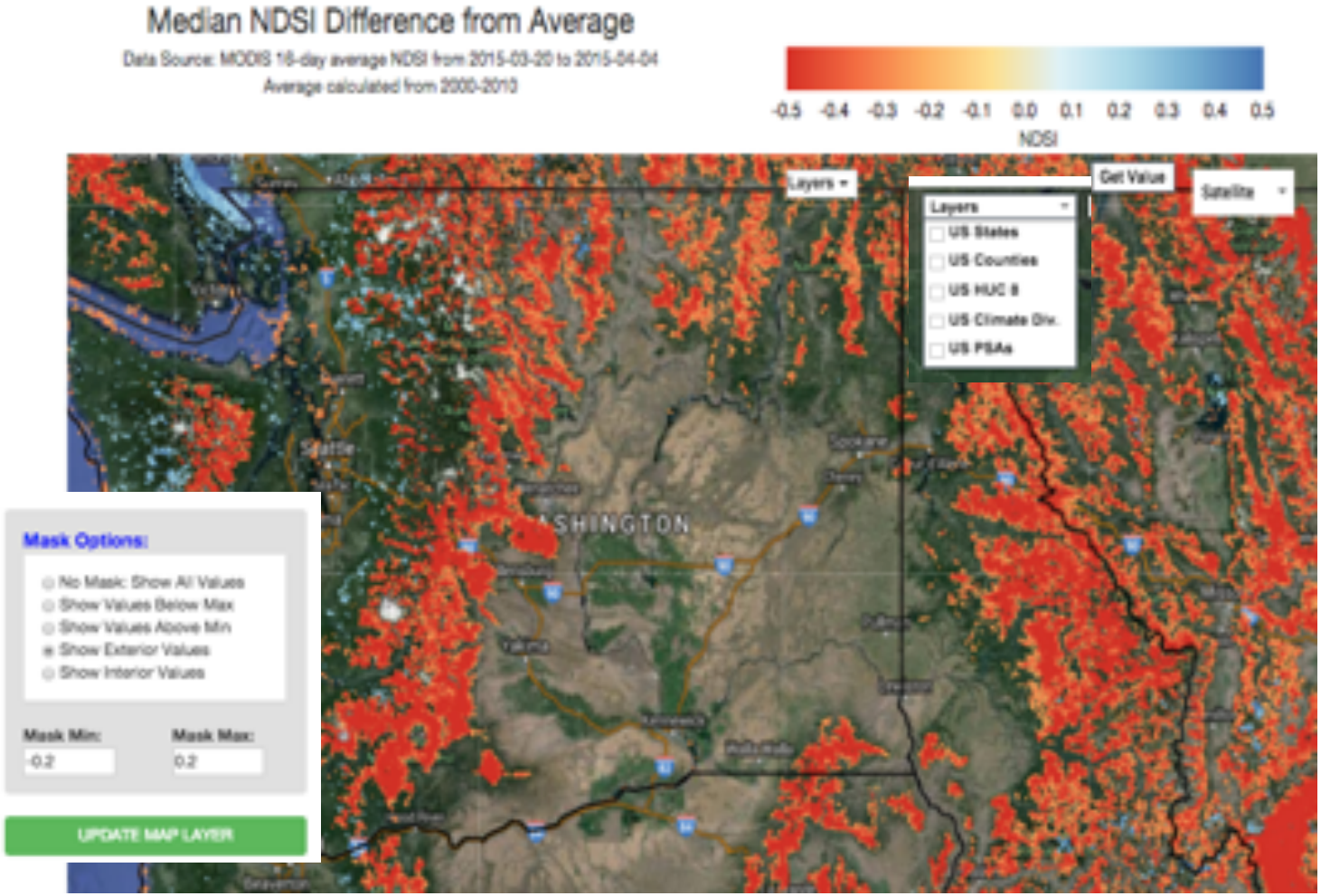
- Brings together data and design to develop data-driven planning and resilience tools for local communities.
- US Gov't, Google, ESRI

Variables Accessed



2015 WA - Snowpack Drought

2015 Winter Snow Anomalies ~ April 1st



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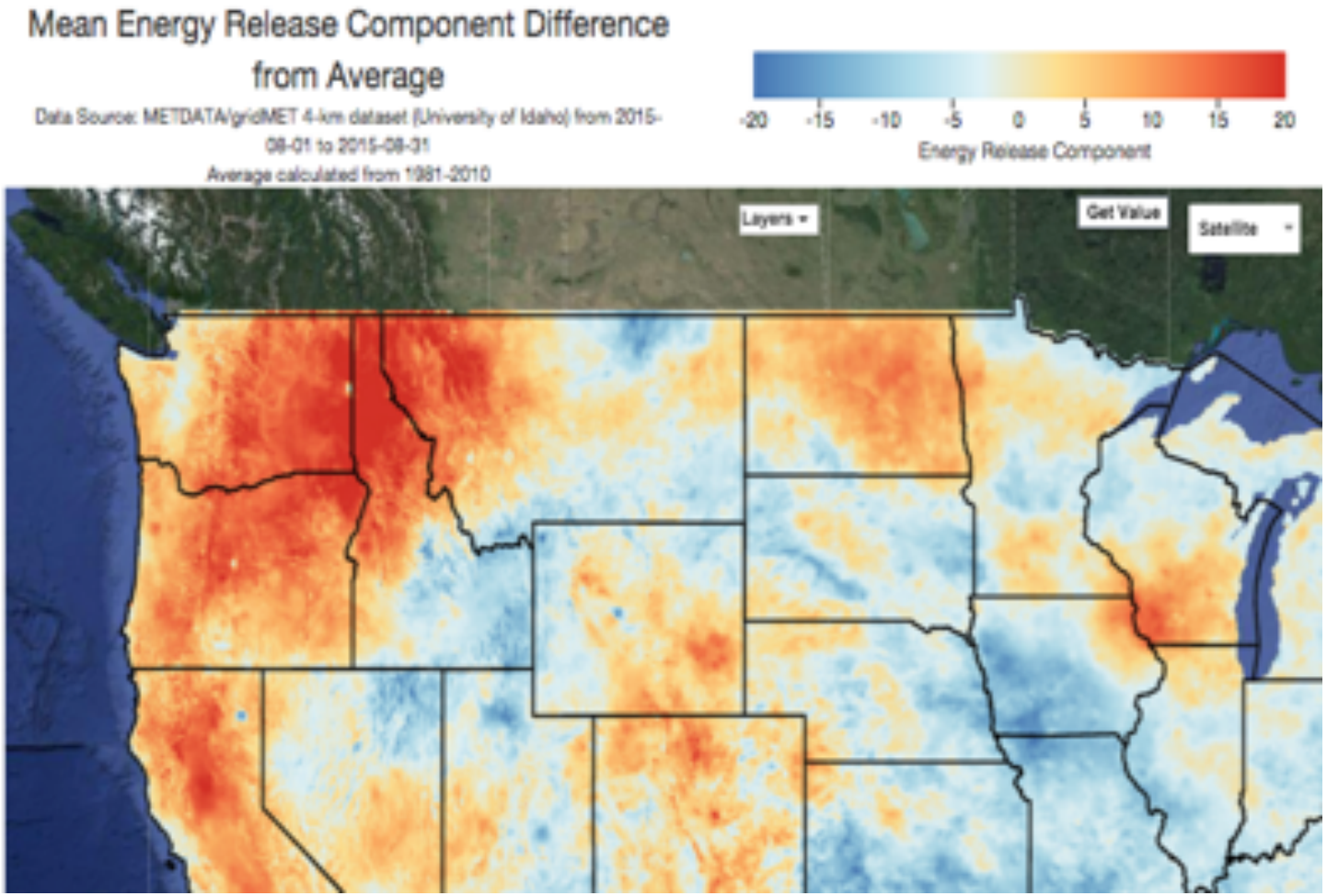
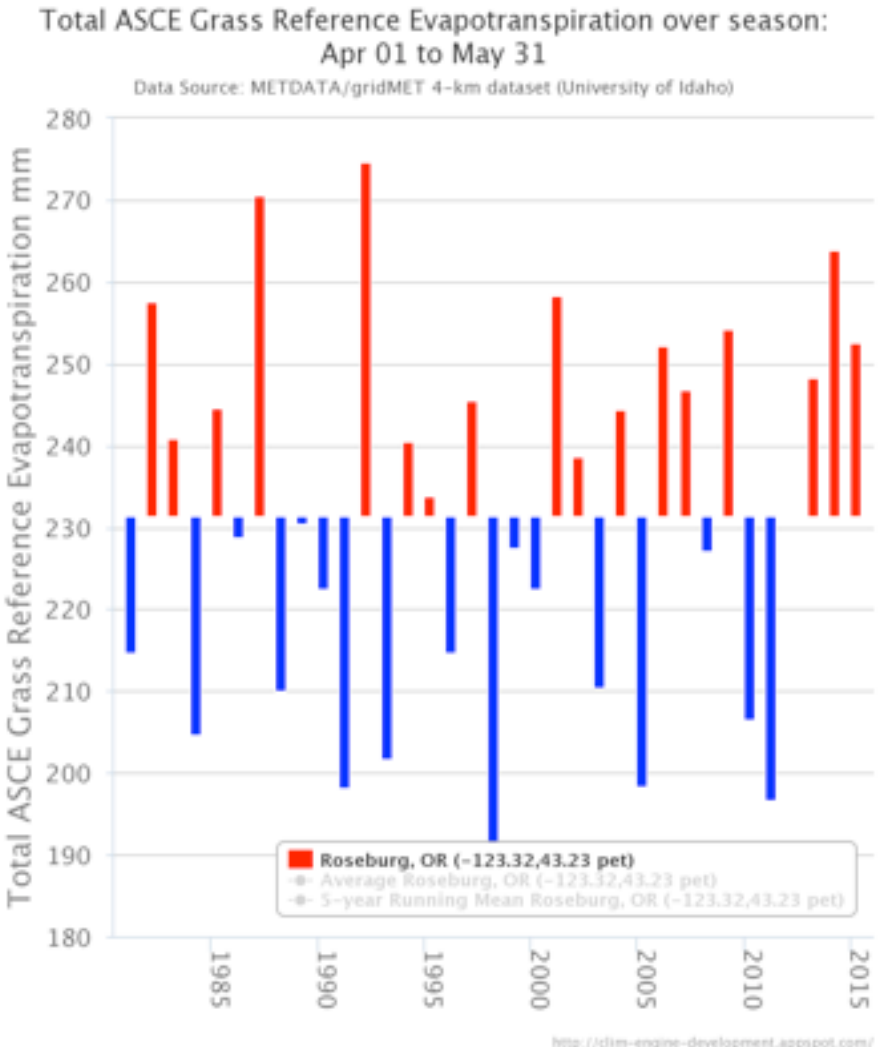
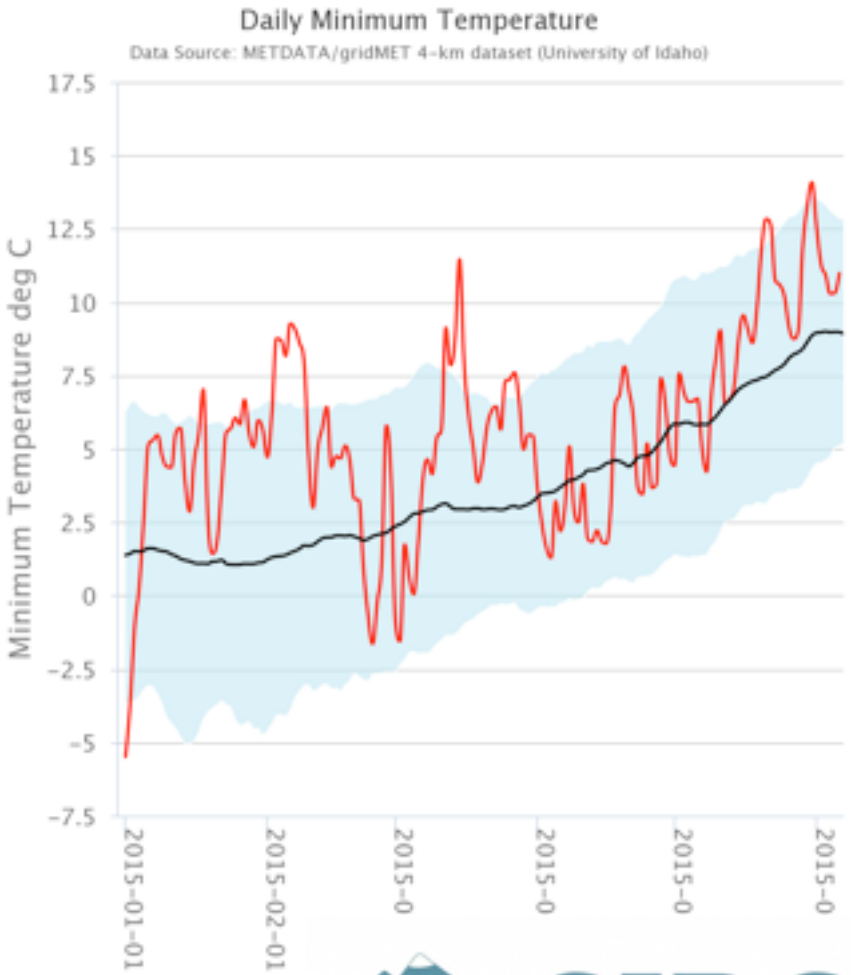
2015 WA - Vegetation Drought

2015 Summer Vegetation Dryness: ERC



Customized Time Series Extraction





Dynamic graphics, csv output

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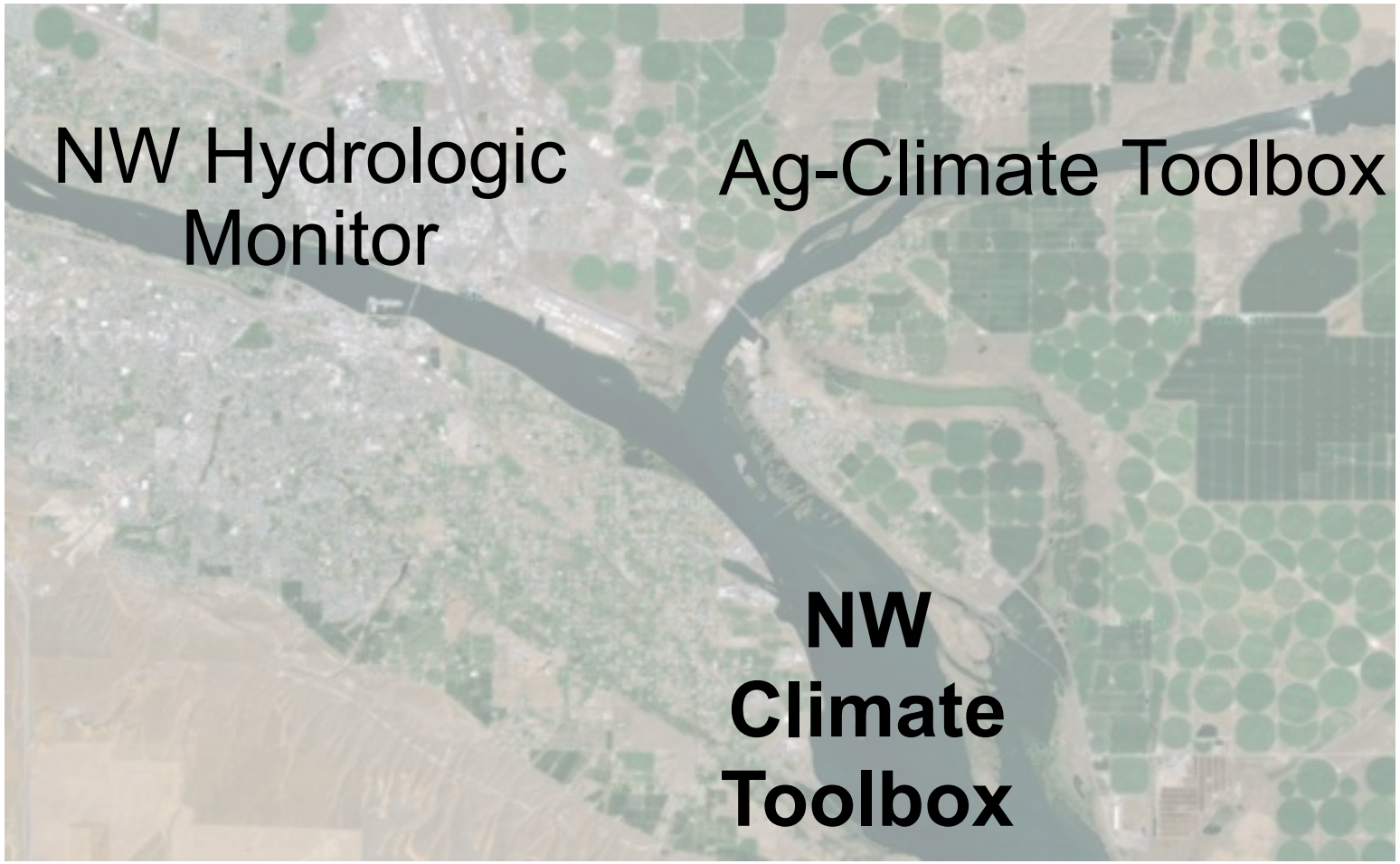
The confluence



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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thank you!

Summary: NW Climate Toolbox Goals

(1) Alleviate data/information accessibility barriers

(2) Climate information that addresses NW needs on a range of timescales

(3) Create dynamic decision support tools

(4) Influence real world decision making in the NW

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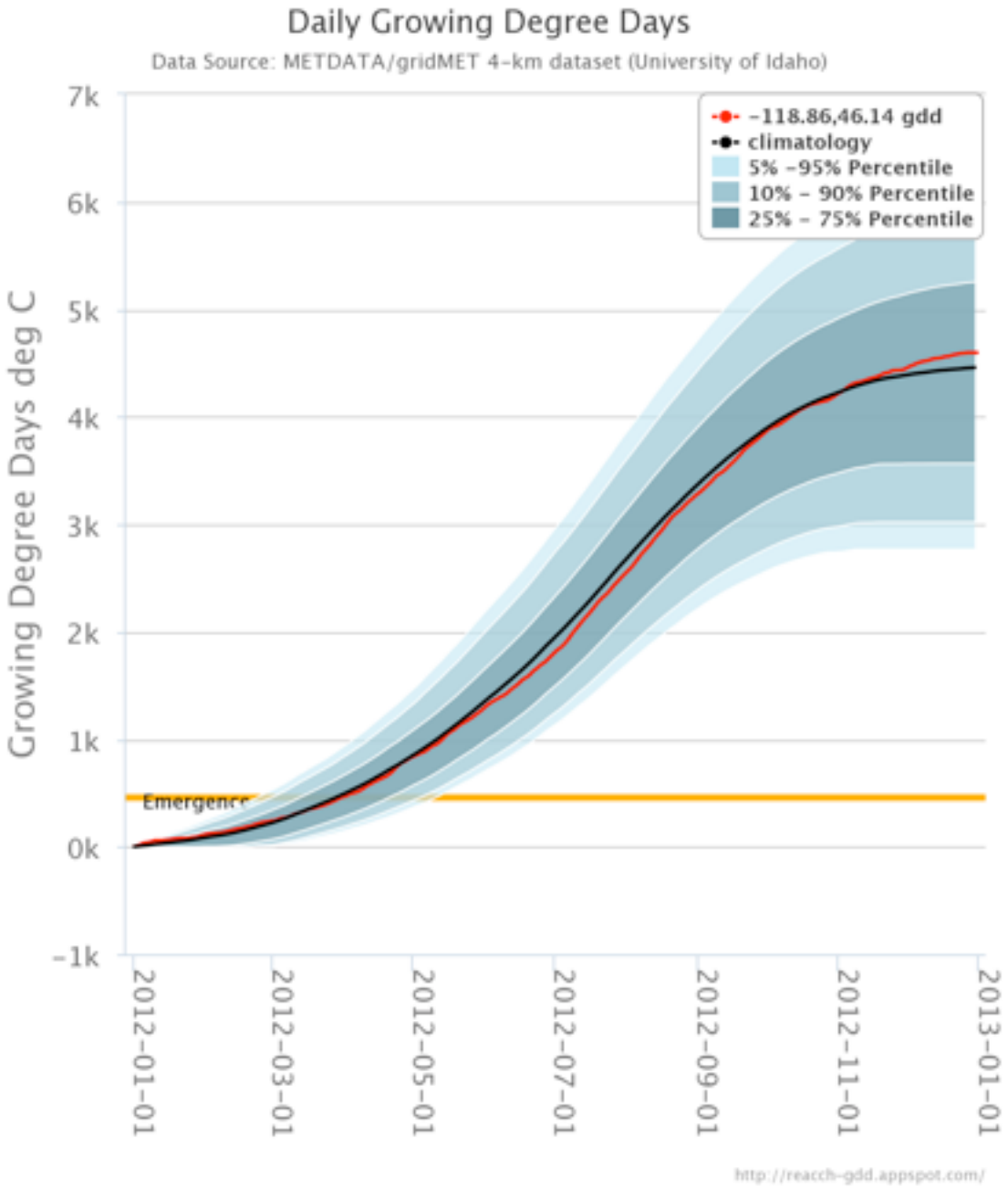
Diverse agricultural commodities

REACCH
Regional Approaches to Climate Change – PACIFIC NORTHWEST AGRICULTURE

USDA

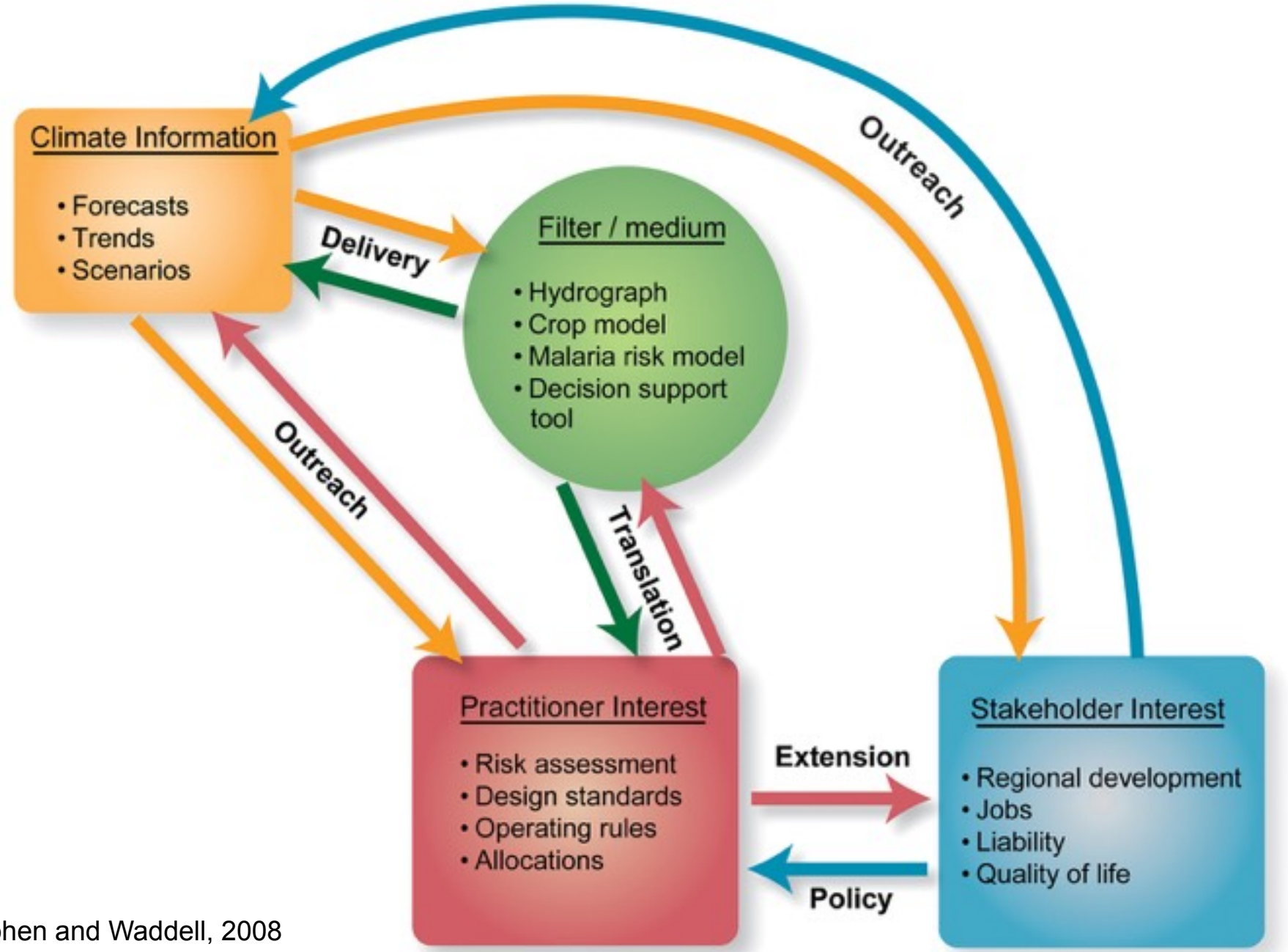
Tri-State University Extension


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

Cohen and Waddell, 2008

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