Updates and Thoughts on CA-NV DEWS Activities

Justin Huntington, DRI, WRCC
CA-NV DEWS Meeting November 18, 2019

Last 3 Month Standardized Precipitation Evapotranspiration Drought Index
Developing and Supporting Applications that Rely on New Regional to Field Level Data Archives and Methods
Helping Land Managers Link Climate with Drought Impacts

March 27, 2018 USD
Helping Land Managers Link Climate with Drought Impacts

Lovelock Nevada - Summer 2015
Towards Linking Current Conditions to Experimental Subseasonal Forecasts

Precipitation Anomaly, Week 1-2, Next 1-14 Days
2019/11/18 - 2019/12/01

Multi-forecast mean from 48 downscaled CFSv2 forecasts - forecast made 12Z-14-Nov-2019 to 06Z-17-Nov-2019
Toward Field Level Water Use and Drought Mapping
Outreach and Engagement
Outreach and Engagement

State of Nevada
Department of Conservation & Natural Resources
Division of Water Resources
Jason King, P.E., State Engineer

Remote Sensing Workshop at DRI
Outreach and Engagement

Nevada Legislature and Rural Farmers
“The historical satellite and climate data and the tools in Climate Engine helped in a recent water right dispute by producing information showing the historical irrigation of a water right with respect to drought. Climate Engine analyzed massive amounts of Landsat data in a few minutes that would have taken weeks without.”

William J Kramber, Senior Remote Sensing Analyst, Idaho Dept. of Water Resources
Supporting Use of New Datasets in NEPA Reports

“Climate Engine provides specialists with the opportunity to essentially go back in time and see how our Western landscapes have changed due to climate, drought, and management over the past few decades. It’s able to quantitatively analyze years of data in a matter of a few seconds.”

— Sarah Peterson, Bureau of Land Management, Nevada State Office, Soil-Water-Air-Riparian Programs Lead
Summary

• **Advancements**
  • Over the past 7 years, big advancements have been made in computing, new drought metrics, data availability, and data discovery

• **Challenges**
  • Making timely data summaries that are relevant and simple to interpret by multiple end users (farmers, ranchers, managers, decision makers, scientists),
  • Performing extensive stakeholder engagement and training on new tools, data usage, interpretation, adoption, and integration into decision making and reports

• **Need**
  • Combining regional and place-based current condition and forecast summaries for assessing drought at multiple time scales (vegetative vs hydrologic).
  • Release of all forecast variables needed for evaporative demand forecasts (solar, temperature, humidity, wind speed)
  • Simple depictions of drought for hydrologic and vegetative conditions – try to boil everything down to 2 maps…

• **The Future**
  • Field level data
  • Advanced visualization and summaries of open data that the public can easily consume
  • Automated integration of pre-computed maps, time series, and spatial summary tables at multiple spatial and temporal scales via machine-to-machine API queries
Some Useful Links

- Climate Engine – [https://app.climateengine.org/](https://app.climateengine.org/)
- EDDI slider page - [https://eddi-noaa.appspot.com/](https://eddi-noaa.appspot.com/)
- Climate Toolbox - [https://climatetoolbox.org/](https://climatetoolbox.org/)
- Climate Mapper - [https://climatetoolbox.org/tool/Climate-Mapper](https://climatetoolbox.org/tool/Climate-Mapper)
- West Wide Drought Tracker - [https://wrcc.dri.edu/wwdt/](https://wrcc.dri.edu/wwdt/)
- SW Climate and Environmental Information Collaborative - [https://wrcc.dri.edu/csc/scenic/](https://wrcc.dri.edu/csc/scenic/)