**WERA 102**

Annual Meeting | DRI, Reno

Monday September 30, 2019

**Participants:** Dan McEvoy, Nina Oakley, Lauren Parker, Amanda Sheffield, Stephanie McAfee, Jama Hamel, Dave Dubois, Ed Martin, David Yates, Mike Anderson (via zoom)

**9:45- Report from Ed Martin**

1. Ed provides review of WERA 102 justification and requirements; NIMSS.org

2. Ed notes that reports should focus on broad impacts of activities

3. Group ends in 2022; will need to come up with a new mission (more than just tweak existing)

4. Will need to reach out to someone in Oregon to replace Kathie’s place in 102

**10:15- Report from Jama Hamel**

1. Jama reports on USBR AgriMet Network

2. In 2012 the system wind sensors were bumped up to 3m, relocated solar sensor, and made other adjustments. Metadata on these changes should be live on their website this winter. Some administrative changes may slow updates.

3. BPA no longer funding AgriMet; Army Corps stepped in and now covering ~75% of former BPA funding; AgriMet is looking into other funders (private/local/gov); looking into restructuring funding to incorporate more, smaller funding sources

4. Two new stations in June 2019 in SE Oregon; one is funded by private landowner (underscoring public support)

5. Idaho Youth Challenge Academy (at risk youth); collaborative project with USBR; 50 cadets & 5 staff with interactive curriculum; long-term vision is to over time build in effect a teaching experimental watershed (?)

6. Flathead Reservation in Montana; 4 stations installed with Confederated Kootenai Salish tribe; cooperative with USBR, Tribe, & DNRC; USBR Tribal assistance funded the installation

7. AgriMet stations are used as groundtruth for Landsat; Jama has installed additional sites to fill in the Landsat scenes for improved interpolation of temp/ET.

8. Two new Idaho sites

9. Irrigation Scheduler Mobile – joint with WSU; mobile app; customizable; downloadable at weather.wsu.edu/is (more info on this app at WERA 1022, Las Vegas

10. Will be working on 30-year averages soon as they enter their 30s (currently have ~15-20 sites with true 30-years of data)

**11:00-**

Discussion on varying uses of AgriMet data, noise in 15min precip data, details on sensor types pros & cons.

**11:30- Report from Lauren**

1. Overview of the Hubs mission and activities

2. Current projects include:

- Research on grapevine heat and drought tolerance that is cultivar specific

- Reports / synthesis menus on forestland and agricultural lands adaptation strategies, approaches, tactics

- Developing decision support tools for California (Cal Agroclimate) based on weather.wsu.edu or agroclimate.net

- Outreach and Education (e.g. “Climate 101” with NRCS agency partners)

**12:00- Lunch**

**1:00- Report from Nina**

Sub-Daily Meteorological Observations: Current Uses, Challenges, and Next Steps

1. Requests for WRCC data come from CA folks wanting fire weather, law inforcement wanting weather data for car accident reports, ski resorts for planning operations & avy control, environmental studies, environmental or engineering consultants, geohazards research, investor-owned utilities, personal interest

2. “Does ET need to be sub-daily?” discussion. Consensus is there seems to be limited need for this.

3. Limitations of sub-daily data: data quality can be unreliable (esp. precip), detailed QC often required, lots of different networks/operators that all do things a little differently, lack of documentation, different formats/instrumentation between networks & operators

4. Discussion: (1) Uses of sub-daily data in ag/resource mngment, (2) Are there enough sub-daily stations? (3) What would the ideal sub-daily data access site look like? (4) What analysis tools would you like to see?

5. Jama notes “Pisces” – an in-house USBR tool that pulls in sub-daily data from multiple sources

6. Discussion on what the ideal access site would look like, given unlimited resources

**1:50- Report from David Yates**

Forecasting ETo for met stations

1. Forecasting from GFS, CFSv2, etc. used for supply-side forecasting for hydro models; now working on demand-side forecasting of ETo --- West-wide ETo Forecast (WwET4Cast)

2. Goals: develop web-based plateform of daily ETo forecasts at agmet stations on short to medium range forecasts for water-management and planning purposes (daily-weekly-seasonal)

3. Working on hindcasts to evaluate skill of the forecasts

4. Able to use ensemble GFS models to show forecast range

5. Error rate of 1-2mm is problematic in early season when daily observed ETo is low (e.g. 1mm error is big deal when observed ETo is 2mm, but in later season when daily obs is 25mm, 1mm is not a problem)

6. <https://ral.ucar.edu/solutions/products/hydroinspector>

**3:00- Report from Mike Anderson**

1. Surface water monitoring work group sites in CA; multiple offices/agencies are responsible for the sites; groups all banded together and formed a working group for surface water monitoring;

2. Mike’s program is going through budget change process with the state. Current request for increase in 6mil/yr & 5 new positions

3. Post-fire monitoring stations deployed (6) for Carr, Ferguson, & Holy fire sites

4. PG&E is putting in lots of Campbell scientific stations (designed to mount on fire towers); San Diego Electric also putting in stations to monitor fire weather

5. Looking to create a fire-water pairing within network to monitor during both critical fire season and during winter flood season

6. Sonoma county putting fire cameras on water towers

7. Mike’s comments on sub-daily data: important for emergency response; useful for post-event analysis/diagnosis; human-health issues (smoke, algal blooms, etc)

8. Bay Area’s Advanced Quantitative Precipitation Project --- putting in 4x band radar around Bay to provide gap-filling data for where doppler radar systems miss, coupling with high res weather forecast. Using obs & forecasts and building in decision support for storm water mngment, conjunctive use, and some reservoir management

9. Collaborative platform for emergency services agencies to evaluate data and models to support the collaborative decision making that has to happen during emergencies, as well as during post-emergency recovery period.

10. Both #8 & #9 projects will be good uses for sub-daily data

**3:30- Report from Amanda**

1. Overview of what NIDIS is and what they do

2. NIDIS was reauthorized this year with a ~$1m increase in funding (total) over the period 2019-2023

3. 2nd National Drought Forum held this year with a greater policy/econ focus (plus nat’l security)

4. National Soil Moisture Network – In development, called for in 2018; identifies a roadmap forward and resources needed for implementing a coordinated network for soil moisture monitoring

5. Redesign of Drought.gov – launch expected spring 2020; will improve site navigation and mobile experience; provide new up-to-date drought statistics; sector-specific pages (ag, ecosystems, utilities, etc); getting ready to launch beta-version for stakeholder feedback

6. Climate Engine will probably be a part of the new site – particularly for figures/visualization

7. Topics across all regions --- public health, wildfire, impact reporting & analysis, indicators & triggers

 a. Public Health: National drought and public health forum

 b. Wildfire: Management and Strategic planning

8. CA/NV DEWS Strategic plan & Needs and Gaps assessment

9. CA/NV DEWS partner meeting in Sac Nov 18-19, 2019 --- will include discussion of drought impact reporting (drought.gov/drought/calendar/events/)

10. Hiring a coordinator for Southern Plains / Intermountain West (one coordinator, two regions)

11. Discussion on flash drought. What is the definition? What does flash drought look like in the West?

**4:00- Drought Impact and Reporting Discussion**

1. Discussion on education and outreach surrounding drought and extension training.

2. Dave: way to get drought data – work with county farm service agency folks

3. When we ask for info from stakeholders on drought, we should also ask what kind of information do they need from us? This way we can ask them for the most appropriate/useful information for the drought folks to develop useful info to feed back to stakeholders

4. Tribes aren’t often at the discussion table – engagement depends on region; development of relationships with tribes is helpful in bringing them in as active stakeholders.

**4:30- Adjourn**

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Tuesday, October 1, 2019

Dan started the morning giving his report on the NICE NET network. Discussed the locations of the stations and the instrumentation. However, NICE NET is no longer being funded by the state. A total of 18 stations, support for these sites is hard to find. A discussion ensued concerning the lack of funding for O&M for all networks across the states. This has been an issue for several years. Funding to install a station can be found but no one wants to fund the upkeep and maintenance on the stations. Dan continued to present the data collected by the stations and the locations of the stations. He discussed his Forecast Reference ET (FRET) validation process, comparing the forecast with the calculated ETo values from NICE NET. He continued to discuss some of the open-source data available thru github.com. He discussed the state climate trackers in various states in the west. This included AZ, CA, CO, ID, MT, NV, NM, OR, UT, WA, and WY. He showed some examples of the data that will be available through the system. The hope is to have this available to the public in the next few months. Finally, he talked about Snow Drought Tracker. Starting with all the SNOTEL stations, they hope to incorporate the CA Snow Survey data into the system. Asked how the WRCC can assist other and what climate tools are needed. Discuss ensued about different types of requests that are made for data and also questions about who is making the request and what they are using the data for.

Dave DuBois from New Mexico started to discuss the funding and the support for his weather network system. He is working with others across the nation trying to lobby to get addition funding for Mesonets nationwide. He talked about the importance of the data collected. Dave talked about working to tell stories of how the data are being used. Their aim was to tell a personal story – how the data impacted a person – sort of a marketing campaign for Mesonet stations. Dave continued to discuss the network he works with and looking at some of the data from the past year. He showed a graphic of the locations of the stations and the various parameters measured. He discussed the partnership between NM Dept. of Transportation with CoCo RaHS. He went on to talk about working closer with NMDOT and forecast or identifying dust storms. He concluded with discussing the ongoing challenge of funding the Mesonet network.