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NOAA-CSI Project
"Collaborative Development of Public Water Supply Utility Relevant Climate Information
for Improved Operations and Planning."

Executive Advisory Committee
Notes of Meeting #1, 570 Weil Hall
Tuesday November 22nd, 2011

Attended by (in person): Wendy Graham, Tracy Irani, Keith Ingram, Alison Adams, Lauren Hendrick, Lisette Staal. (by phone): Doug Yoder, Nancy Gallinaro, Jayantha Obeysekara, Mike Cullen, Doug Yoder, Tirusew Asefa. Not available; Penni Redford

Background: At the PWSU-CIWG Workshop on October 27th Dr. Wendy Graham presented the proposed activities as well as the short term and longer term desired project outcomes of the newly awarded NOAA-CSI project. During the meeting, collaborative planning took place in small group discussion focused on different aspects of the project. An Executive Advisory Committee (EAC) for the NOAA-CSI project was constituted (EAC members include: Nancy Gallinaro, Jaynatha Obeysekara, Mike Cullen, Doug Yoder, Alison Adams, Penni Redford, Tirusew Asefa). The role of the EAC is to help make sure the PIs are moving in a direction that is pulling together and evaluating climate information that is important to utilities, and to help effectively communicate with people in Utilities and their stakeholders.

The initial meeting of the EAC was held on November 22nd, with the Project PIs (Wendy Graham, Vasu Misra, Tracy Irani, and Keith Ingram).

Meeting Objectives:

1. Identify "Climate predictions" of interest to the utilities and water management districts, and types of analyses needed to assure usefulness to utilities and water managers.
   a. What "climate predictions" are currently available, or could be made available, that might be of interest to the utilities and water management districts?
   b. What analysis(es) would be needed for utilities to evaluate the usability of the "climate predictions" at the seasonal/interannual timescale?
   c. What analysis(es) would be needed for utilities to evaluate the usability of the "climate predictions" at the 30-50 year timescale?
   d. Is further bias correction or spatial disaggregation required to make these climate predictions useful at space-scales important to utilities/water management districts.
2. Identify specific "Climate predictions/forecasts" that we could use in their models and decisions and to evaluate hydrologic/water management risks of forecast errors.
3. Discuss knowledge management plan and specific data needs.
4. Develop a concrete plan of action – next steps.

Meeting Outcomes:

The ultimate aim of the project is to help make the climate data/models/information more available, understandable and usable for all utilities. The EAC suggested that building climate and sea level rise scenarios that utilities could use to evaluate impacts (water supply, water demand, efficacy of water conservation programs) at two distinct timeframes (seasonal and long term) would be of most interest to Utilities. Interests in these scenarios and timeframes will vary by location (coastal versus inland) and water source (i.e., ground or surface). Three technical groups were identified to develop work plans for evaluations within seasonal and long term frames (see descriptions below). As the smaller technical group identifies then conducts the tasks, experiments, and/or studies, they will bring their findings and work through them with the rest of the PWSU-CIWG at the workshops.

1. SEASONAL SCALE– Precipitation/temperature – (Vasu (lead), Tirusew, Mike, Obey, Chris)

Discussion:
Tropical events are very important to water supply. Utilities depending on surface water are most directly impacted by seasonal variations (i.e. Peace River, Tampa Bay Water, City of West Palm Beach) SJRWMD is moving toward more surface water use in NE Florida.

Vasu asked whether it would be worthwhile to review seasonal weather patterns since 1979 to determine where ahd significant flood/drought, then assess whether having an accurate climate forecast would have helped. Alison, Obey and Mike all indicated that the water supply, water demand and hydrologic systems have all changed a lot over the last two decades so this might not be a useful exercise.

9 to 0 month lead seasonal predictions are archived and available from 1979 to present. These are available at 200 km to 50 km resolution). Daily rainfall, radiation, temperature are available for the CFS model from 1979. FSU model has only monthly mean forecasts archived since 1950. Skills of these historic forecasts could be assessed. IRI (Ben Kirtman) is working on a multi-model seasonal forecast project (CFS is one of the models. Vasu suggests chosing one or two models (CFS, FSU) to evaluate first.

Suggested Possible Actions:
a) Think about a workshop to bring CWIG group up to speed on the basic concepts of seasonal climate forecasts. What they predict, what the skill of predictions are, etc. Some utilities will have the capacity to respond to this information (mostly those with surface water supply) and others won't. SFWMD has to respond to this information for the operation of Lake Okeechobee. Eventually SJRWMD may have to develop the capacity to respond to this information.
b) Vasu is currently quantifying the skills of the CFS model for SE US(Chris Martinez has also done some work with this). Could bring these results to the group.
c) Could conduct a real-time experiment this year. Use FSU and CFS models to create an ensemble (15 member) seasonal forecasts of rainfall, temperature, solar radiation (1-6 month outlook beginning Nov 2011 through March 2012). Evaluate skill of the forecasts for this season.
d) Forecasts currently available at 200km. Syewoon could explore statistical downscaling of seasonal climate forecasts to 12 km scale.

Action Item: Vasu will call a phone meeting of the group to develop plan of action. Plan of action and preliminary results will be shared with CWIG group at the next meeting for their review and comment.

2. **LONG TERM SCALE – Precipitation and Temperature (Wendy (lead), Syewoon, Alison, Obey, Vasu)**

Discussion:
   a) Need to develop common climate scenarios for use in Florida. Include precipitation, temperature and perhaps other climate variables (relative humidity, wind speed, solar radiation etc).
   b) Come up with recommendations for best historic gridded data sets to use for Florida (PRISM, Maurer dataset, NLDAS)
   c) Settle on emission scenarios, or RCP scenarios, that are most appropriate for analysis. Should we be using CMIP3 or CMIP5.
   d) Come up with recommendations regarding dynamic downscaling (FSU model, NARCAAP, WERF, MMF) versus the various statistical downscaling approaches (e.g. Maurer, Hayhoe, Hwang) for Florida.
   e) Decide on what types of events to use for evaluation (seasonal means and variances, monthly means and variances , magnitude of extreme events and recurrence intervals (e.g. 25 year 1-day storm, 100 year storm)
   f) Develop quantitative estimates of uncertainty due to natural variability, model uncertainty, scenario uncertainty
   g) Check into what Aris Geogakakos has done, what Vasu current post-doc is doing (23 watersheds in SE using bias corrected Claresse predictions)

Action Item: Wendy will call a phone meeting of the group to develop plan of action. . Plan of action and preliminary results will be shared with CWIG group at the next meeting for their review and comment.

3. **LONG TERM SCALE – Sea level rise (Keith (lead) Doug, Obey , Nancy)**

Discussion:
   a) Need to look at effect of various projections of sea level rise (SE Florida Climate Compact, NCA, USACE, National Academy of Sciences, Gary Mitchem's SECC report) on return period for extreme flooding events, impacts of storm surge, salt water intrusion into coastal rivers and aquifers. SE Florida has a good start on this, but it is time to operationalize the information that has been developed.
   b) Have not used sea level rise projections to evaluate vulnerabilities yet. Could pilot with Miami-Dade.
   c) Need to evaluate what sea level rise projection is best for what time/space scale impact evaluation.

Action Item: Keith will call a phone meeting of the group to develop plan of action. Plan of action and preliminary results will be shared with CWIG group at the next meeting for their review and comment.

4.   KNOWLEDGE MANAGEMENT – (Tracy Irani (lead), Lauren Hendrick)

Discussion: Three elements of Knowledge Management were discussed. It was noted that open-source shareware should be used:
  a) Data sharing (need to think about data types, data sources, whether to store data on our server or point to data)
  b) Data archiving (need to think about data catalog, meta data, data versioning, level of access for various types of data, scalability and sustainability of a web based system)
  c) 3. Dissemination of information/data to stakeholders and policy makers

Action item: Tracy and Lauren will develop a Needs Assessment Survey to distribute to the CWIG group. Survey will be discussed and conducted at the next CWIG meeting.

5. BUILDING THE GROUP (Lisette (lead), Rob Teegarden, Kevin Morris, Tirusew Asefa, Jessica Bolson, Nancy Gallinaro)

Discussion: Potential ideas for the next PWSU-CIWG workshop anticipated for January or February 2012:
  a) Clarify how what is being done in the NOAA project matters to the group;
  b) Tutorial by Obey?
  c) Sea level rise?
  d) Follow what SECC is doing?
Action Item: Lisette will schedule next meeting and begin discussion with '=planning team identified at last CWIG meeting.