

Platte River High Plains Aquifer LTAR Update Meeting

Date: 29th September, 2015

Venue: Room 207 Hardin Hall

In attendance: Tala Awada, Brian Wienhold, Andrew Suyker, Archie Clutter, Arthur Zygielbaum, Elizabeth Walter-Shea, Hector Santiago, Jane Okalebo, Michael Hayes, Richard Ferguson, Suat Irmak, Timothy Arkebauer and Trenton Franz.

Tala Awada opened the meeting and gave a brief introduction. Brian Wienhold also gave a brief introduction.

Update by Jane Okalebo (LTAR Data Coordinator)

Jane Okalebo began her duties on the 1st of June. However she was able to attend the Great Plain Network Meeting held in Kansas City, Missouri, at the end of May, 2015. She is currently working on several priority tasks relating to ARD and LTAR. Specifically, she is developing an LTAR website that will be hosted by the UNL Content Management System (UNLcms). The website will be called platte-river-high-plains-aquifer. She is working closely with the LTAR network data management team to develop an efficient and reliable method for data streaming, storing, sharing and access (first test with climate data was sent using Ameriflux data). Andy Suyker has provided datasets from the US-Ne1, US-Ne2 and US-Ne3 Ameriflux sites towards the LTAR Meteorological Dataset that will be archived among other datasets from all 18 LTAR sites nationwide; at the National Agricultural Libraries.

Two LTAR related abstracts have been accepted at the AGU meeting. The first one will highlight our new LTAR site, partners and affiliates while the second focuses on collaborative research between regional LTARs. Jane and Marty Schmer of ARS-USDA Lincoln, NE will participate at the AGU, represent NE LTAR and make an oral and/or poster presentations. Jane continues to familiarize herself with activities of LTAR. She visited Roger's Memorial Farm. On the ARD front, she is participating in developing a data policy for the Consortium for Integrated Translational Biology (CITB). She is also preparing a document on the value of ARD research facilities. She will be sharing soon a draft on the ARDC.

Open Discussion

Faculty discussed current and future research plans and data collections. Suat pointed out the number of sites and data that have been collected by his team. Discussion evolved around optimizing data collection, sharing and team building.

Tala Awada acknowledged efforts into collecting field data in Nebraska. Current proposed LTAR site at ARDC and future sites in other locations were also discussed. Suat Irmak's datasets are unique in that they cover a broad range of variables. Suat Irmak recommended expanding aspiration research to the Panhandle in the western part of Nebraska. However, Brian Wienhold commented that this may overlap with the LTAR in Cheyenne (Wyoming).

Richard Ferguson commented that there is a need to work towards collection of large field micrometeorological data from sites other than ARDC which are representative of the Platte River/High Plains ecosystem. LTAR-NE could consider large-scale, micrometeorological data collection from UNL field sites at Brule (Water Resources Laboratory) or Sidney (High Plains Ag Lab), where UNL has potential large area research fields. Fields at Brule could be irrigated or rainfed; fields at Sidney are rainfed. LTAR-NE will visit with Don Adams (WCREC Director) or Jack Whittier (PREC Director).

Richard Ferguson also highlighted that there is a need to discuss what scientific questions are appropriate for aspirational studies, to be done in small plots. This would include discussion of locations which are relevant to the Platte River-High Plains Aquifer ecosystem. There is land available for such work at the South Central Ag Lab (up to 40 acre), but a commitment is needed soon if LTAR efforts would be conducted there - otherwise there is interest in the land from researchers for other use.

Archie Clutter acknowledged that he understood the concerns of scientists conducting long term research. He added that in the context of LTAR there is a need to look at LTAR as a great platform for conducting long term research and obtaining grants. Additionally, it would be necessary to look at the needs, priorities, systems and processes of ARD to weight strategic allocation of resources across the division. Mike Hayes asked whether ARD administration would complement the work that researchers were doing or would researchers need to rely on their resources. Archie responded that there is a need to plan for the resources so that research gaps are prioritized.

Suat Irmak emphasized that UNL NE LTAR site should stand out as a model for the rest of the LTAR sites. He also commented that NEBFLUX stands out from the long term research projects such as AMERIFLUX and ASIAFLUX since it measures more variables such as soil moisture etc. Tala emphasized the purpose of LTAR NE in to contributing to scientific knowledge locally, regionally and nationally. She underscored that data from LTAR sites are aimed at solving issues related to sustainable food and fuel production and the management of water resources.

Archie Clutter asked whether there were any actionable plans stemming from the LTAR meetings. Tala Awada mentioned that network is finalizing a list of core measurements from the common core experiments. There will be meetings with other LTAR sites in Minneapolis (mid-November) to discuss common core experiments, aspirational research, treatments etc.

Art Zygielbaum spoke of his efforts in data sharing and policy. He is currently developing metadata tools for CITB through NASA grant resources. He mentioned that there is a need for incentives for researchers to share data. He also mentioned that there will be a cost to facilitate data sharing that would need to be addressed. The interchange of data between researchers, and maintaining a repository would be useful while encouraging scientists to participate in data sharing.

Tala Awada responded that the UNL Library is facilitating data management (e.g. repository), and there is a need to follow up on this and work with them for our LTAR efforts.

Tala also stressed that members of LTAR are strategically placed to invest strategically, write proposals together. LTAR members should take advantage of internal funding since they are well positioned to work together and prepare for grants and new calls such as the INFEWS. In order to meet our visions and objectives, it will be necessary to meet regularly, continue the dialogue, and involve junior faculty members who have new ideas and innovations to offer. Trenton for instance is a newly employee who is researching and working on the application of cosmic-ray probes to measure soil water content. Suat Irmak also agreed that there was a need for more “horizontal” discourse to meet more faculty and know what research faculty are involved in for LTAR’s research visions and objectives.

Tala Awada recommended that an inventory be established of research members, their expertise and skills. Additionally there was support for establishing a LTAR box which would include a database of ideas (proposals) so that when a call for proposals is sent out, there would be joint proposals ready. Tala encouraged members to develop ideas without waiting and to come up with aspirational research ideas that they could be engaged in.

Trenton Franz asked whether research would be related to precision agriculture or cropping/pastures. Archie Clutter mentioned that the Gudmundsen Sandhills Laboratory may be ideal for conducting livestock studies. Tala Awada also informed members of efforts to work at the ARDC pasture site (Galen Erickson’s Livestock sites) and establish an Eddy Covariance tower. Some ideas for aspirational research may include subsurface drip irrigation with soil sensors to monitor soil moisture. Additionally monitoring H₂O quality would be very important activity in the LTAR aspirational research. Suat Irmak mentioned that he has a large research site that may serve the purposes of LTAR for subsurface drip irrigation.

Betty Walter-Shea asked Tala and Brian whether there were any questions and objectives that had been brought up during LTAR meetings.

Tala responded that there was a survey sent out but the survey response was poor. However she would share the core measurements from the sub-group with the LTAR members. The core measurements that had been discussed have not yet been sent out following the meeting. Brian Wienhold added that LTAR groups have specific agroecosystems and practices and so there was no specific agreement on the experiment core measurements. Nevertheless measurements would need to be specific to each LTAR.

However, discussions from previous teleconference meetings will be shared with other members.

The meeting adjourned at about 11.30 am. Suat Irmak will lead the discussion on aspirational research during the November meeting.