

## **NM EPSCoR Response to External Advisory Committee Report of October 2010 Visit**

The NM EPSCoR leadership team very much appreciates the time and thought each of our external advisors provided in their review of New Mexico's RII 3 (Track 1) project at their October 2010 review (report dated January 2011). The EAC's recommendations were presented to the NM EPSCoR Management Team at its quarterly meeting on February 8, 2011. The team discussed the recommendations and developed strategies to address each, which are presented below.

The NM EPSCoR RII 3 Management Team will continue to work towards implementing the EAC's recommendations throughout the coming year. We look forward to reporting at the next EAC meeting on the additional steps taken in light of these recommendations.

### Report Recommendation:

- 1. As evidenced in the reviews, very significant progress has occurred in the research programs, but the driving research questions in a number of the programs were not clearly articulated and their relationship to the key climate change/water issues in the Southwest region were not well defined. The EAB recommends further work by the leadership team in this area. This will enhance both the scientific merit of the program and the value by the external stakeholders.*

### NM EPSCoR Response

The Management Team will continue to work to make explicit the connections between specific project activities and the larger driving questions that underlie the research that is taking place. During the EAB presentations, researchers focused on their specific activities in an effort to demonstrate progress to date; in some cases there was insufficient time to connect these efforts to the larger overall aims of the project and to the larger, regional efforts to which these activities will ultimately contribute. The Management Team recognizes the importance of paying attention to the context to which these research efforts will contribute.

In terms of climate research, we are developing linkages between global climate model outputs at coarse scales to the Rio Grande sub basin scale in a simple downscaling framework. Water quality efforts to develop stream sensing and monitoring networks investigate a variety of potential impacts of climate change. All of these efforts have a large educational component, providing graduate and undergraduate students opportunities to further their understanding of specific questions but they must be placed in the broader context. The Cyberinfrastructure, Education, and Outreach activities all support the development of the state's capacity to carry out this research.

## Report Recommendation:

- 2. As the program progresses into year three, the EAB recommends that the leadership articulate and formalize a sustainability plan. Many of the programs appear to have a natural sustainability pathway after RII-3 is complete, but there may be some significant gap areas. The formalization of a plan will allow the leadership to more clearly see gaps and enhance the long term impact of RII-3.*

## NM EPSCoR Response

The Implementation Plan that was developed at the start of this project includes efforts to promote sustainability for each of the project's components. The EAB's recommendation serves as a timely reminder that we need to review and chart our progress in achieving those activities that will ensure sustainability of project achievements. As the research and education activities mature, new opportunities for sustainability can emerge and we need to be sure to take advantage of those options.

As was intended and noted in the initial Project Implementation Plan, the meteorological station upgrades and additions have consistently been connected to national networks that will maintain their usefulness beyond the length of this grant. The addition of new NRCS SCAN and SNOTEL sites, USFS/BLM RAWs stations, and New Mexico Climate Network sites will be in place for up to 25 years with real-time data available via the World Wide Web.

In addition, transfer of the modeling techniques for evaluating climate change effects on NM's mountain hydrology will be conducted through workshops for state water resources agencies arranged by the NM Water Resources Research Institute.

One aspect of sustainability that is intrinsic in the CI development that is being accomplished through the RII-3 is the integration of developed technologies into existing long-standing data infrastructure within New Mexico. Specifically, the data portal development efforts are based upon a common platform with New Mexico's Resource Geographic Information System (<http://rigs.unm.edu>), a clearinghouse for geospatial data within New Mexico that has been in existence for 20 years, and has a very broad base of users across domains.

A second aspect of sustainability is the strategic support of open interoperability standards at the core of the CI system's capabilities. The use of a technical foundation that is based upon standards that are well defined, and broadly adopted across science, education, and policy communities, provides maximum flexibility in the continued evolution of the systems beyond the end of support from the EPSCoR program, particularly as new use cases for the underlying data and data services are defined through time.

### Report Recommendation:

- 3. The Climate Change, water chemistry and hydrology themes of RII-3 have a lot of common elements to other programs across the nation and world. The EAB recommends that the program leaders and researchers pay more attention to connectivity to external research efforts, particularly in the sensor area and in the environmental data storage and analyses areas.*

### NM EPSCoR Response

NM EPSCoR appreciates the specific suggestions provided by the EAB for connecting our project's efforts with others happening across the nation. Following the EAB's recommendation, the Water Quality group has initiated contacts with both NEON and CUAHSI. In addition, the Western Tri-State Consortium Meeting in April provides an opportunity to connect with other regional and national research efforts and organizations.

Areas of interaction with other CI activities within and outside New Mexico include both integration in the areas of data and metadata exchange and technical interactions. Following are some examples of these areas of interaction that will be detailed in our annual report:

- Contributed metadata to the NBII network;
- Developed clearinghouse nodes within the Federal Geospatial Data Committee's (FGDC) network;
- Provided web accessible metadata records into the Geospatial OneStop;
- Established an HIS instance for the initial capture and documentation of point time-series data into the HIS service model;
- Retrieving SNOTEL data from the NRCS servers to be harvested into the EPSCoR data portal;
- Use funding from the FGDC CAP program for the development and delivery of metadata training;
- Participated in the Open Geospatial Consortium, the DataOne Data User's Group (DUG), and the Federation of Earth Science Information Partners;
- Collaborated with LTER Network on evolving geo-portal technologies,
- Discussing integration of NEON data products and services into broader networks of users;
- Through a Tri-state IWG, working to integrate OpenTopography services into NM's data portal to enable access and discovery of LiDAR data to NM researchers and other users.

## Report Recommendation:

- 4. It is still not clear “What is EPSCoR” and where it sits as an initiative unto itself versus where it sits as a means for leveraging other projects. There is no question that EPSCoR provides a means to integrate multiple projects and serves as a systems organizer; but, it would be useful for both EPSCoR and NSF to see how EPSCoR both fits into and serves the “big picture.” For example, what would be happening without EPSCoR? Why is EPSCoR necessary to NM’s progress? Answers to these questions would be useful toward building a case for the next proposal.*

## NM EPSCoR Response

Communicating the value and contributions of the NM EPSCoR project is necessary to generate broad support for a future proposal as well as to build credibility in the state so that policy makers and resource managers will trust and use EPSCoR research findings, which is a long-term goal of the current project. We have begun to address this through development of communication tools that target a broader general audience including a newsletter, restructured web site, and other informational pieces that are distributed at public meetings and events. We have created a session at the upcoming Tri-State Consortium Annual Meeting (Track 2) that focuses specifically on communicating climate science to non-scientists, which is one avenue for clarifying what EPSCoR contributes to the state.

We will continue to refine our message and work to communicate the results of the research and education efforts both to those within the EPSCoR community as well as to policy makers and the general public. We will focus on specific achievements, such as examples of infrastructure that has been installed with EPSCoR funds, improving the observational networks in NM to be comparable with adjacent non-EPSCoR states in the region.