NAC Report from ISETCSC meeting, Nov. 1-2, 2010, at California State University

Attending the meeting for the NAC and Technical Monitor: Sharon LeDuc (NAC Chair), Scott Hausman (incoming NAC Chair), Steven Koch (Technical Monitor), Stephanie Adams, Brian Argrow, Chris Brown, Jian-Wen Bao (representing NAC member, Chris Fairall), Brian Gross, Jim Meagher, and Jack Snoeyink.

The meeting held this year in Fresno, CA was the best of the ISET CSC reviews to date. It was very informative and effective and clearly contained elements requested in the comments/recommendations from the previous meeting held November 2009. The balance in the presentations between the education and research components of the program was very effective. The science/research presentations were well done and time for questions and feedback was available. The level of the student presentations was commendable and speaks well for the professionalism of the ISETCSC students. The links to NOAA interests were addressed in the presentations and the posters. The interactive poster presentations were effective and students were well prepared and articulate in describing the details of their projects. Students provided informed feedback during the poster session to NAC members. The meeting and sessions were well organized. There were technical difficulties encountered in the session that included remote participants at other ISETCSC locations, although enough did get communicated to be effective.

The NAC noted the following accomplishments:

Educational progress

Educational progress and successes were significant. Faculty, both those initially with the program and those who have been hired, provide capability that position ISET to provide outstanding educational opportunities for NOAA science.

The addition of Jessica Bohn has energized the program and there is clear evidence that her professional expertise in education supports the ISET education mission.

The student development plan was well conceived. Implementation of that plan, with identified improvements, will be essential to continued and demonstrated success.

The educational assessment (survey and findings) as presented was informative and useful, but the NAC found there to be problems with the selection of participants, the sample size, the development of the instrument and the interview/focus group protocol. Regarding the selection of the participants, given that so many of the students are enrolled at NC A&T, the evaluator should have oversampled the students to include sufficient representation from students at partner institutions. Regarding the sample size, it is difficult to determine what fraction of those eligible actually participated – this is a critical error in the assessment. Regarding the development of the instrument, a number of the questions appeared confusing, their meaning ambiguous, and their intention not well developed. Regarding the interview/focus groups (qualitative data), no protocol was provided describing how these data were collected, properly coded and verified. While this is a good first step, ISET is encouraged to address these issues; otherwise, there is concern that the opportunity to capture very useful information will

have been missed. An additional suggestion is to develop a methodology to capture data in a retrospective manner from those who have already completed the program.

NAC appreciated the focus on education and students, including the student presentations at this meeting – a significant improvement over past NAC meeting agendas. ISET is clearly providing a superior undergraduate experience across the board. The program led by Dr. Alam Hasson at Fresno State is an excellent example of ISET-supported undergraduates being exposed to a first class research experience with the opportunity to meaningfully contribute to peer-reviewed publications.

ISETCSC met all performance goals but one (number of Ph.D. graduates) and in most cases far exceeded the target performance metrics [some of the reported numbers did need additional clarification and support].

Research accomplishments

Research far exceeded the performance targets with respect to: refereed publications published or in review by faculty (target 37, actual 88); colloquium series; leveraged industrial partners; refereed publications by students (target 17, actual 46); number of proposals submitted (target 15, actual 148!); student conference presentations (target 38, actual 196); faculty conference presentations (target 63, actual 183) and new faculty (target 4, actual 6).

ISET has been very successful in acquiring new funds to support its activities. Although there was no target, the funding received from successful proposals was > $22.5M. Ten proposals were submitted during the period March – August 2010, resulting in total funding > $11.7M. This success indicates the quality of research being conducted. Moreover, the hugely successful leveraging of ISETCSC capability to receive additional funding is a hallmark of its sustainability.

The number of graduations has surpassed targets for Bachelors and Masters programs, though not for the Doctoral program to date: Bachelors in ISET PI academic departments (target 348, actual 385); Masters with ISET support (21 target, actual 31); Ph.D. (target 12 by end of year five, 4 actual).

Research opportunities for undergraduates have been provided for 10 participants this past year. There have been a total of 31 summer research experiences at NOAA facilities (some students had multiple experiences). Two students have participated in NOAA field experiments; although there was no target since this was a new goal, NAC encourages more participation by students in field experiments. Outside speakers have provided new insight and opportunities to students: 25 NOAA, 3 NCAR, 41 other.

The ability of ISETCSC to engage a large number of undergraduate students in meaningful educational and research experiences is excellent, just as with the successful writing of research proposals. Some college relief from teaching load has helped faculty to achieve the ISET goals.

New programs were established; in particular, NAC notes the NC A&T concentration in atmospheric sciences.

Comments and guidance from the NAC:

1. The student plan should clearly articulate program ***requirements*** and distinguish them from ***guidelines***; e.g., what is the requirement vs. the guidelines (or expectations) for the number of publications for both the M.S. and Ph.D. degrees? Also, must these publications have already appeared in journals, or be accepted, or just submitted to count?
2. To establish the ISET program efficacy in meeting program objectives, students should be tracked after they graduate to document their career path choices and any additional education.
3. All metrics should be clearly presented and student support specifically documented in the main body of the Performance Report or in an appendix.
4. Intern participation at NOAA facilities should be increased. Students expressed a need for additional financial support to permit extended participation with NOAA scientists. Even without additional funding, ISET should pursue increased interaction with NOAA scientists, and the interaction should go beyond summer internships. ISET and NOAA should investigate means to enlarge such interaction.
5. ISET is encouraged to engage NOAA's Regional collaboration teams.
6. Opportunities for employment are not well known or used yet. ISET should request that NOAA Educational Partnership Program (EPP) assist with employment opportunities and job fairs.
7. ISET should check if EPP could define the priority of the objectives of the new FFO.
8. With the additional capabilities at the institutions, there is an opportunity now to place more emphasis on Ph.D. student participation in the program, even if this reduces some of the effort on community outreach.

The NAC does not have specific comments to make on the research accomplishments for the current period of performance. However, this may be done at the next NAC meeting, which we anticipate may occur at the completion of the final year of the award.