

This newsletter presents findings from evaluation activities conducted in Quarter 3. These include an evaluation of the winter NANOGrav-PIRE meeting in Arecibo, Puerto Rico, update on international engagement and review of the overall project Logic Model.

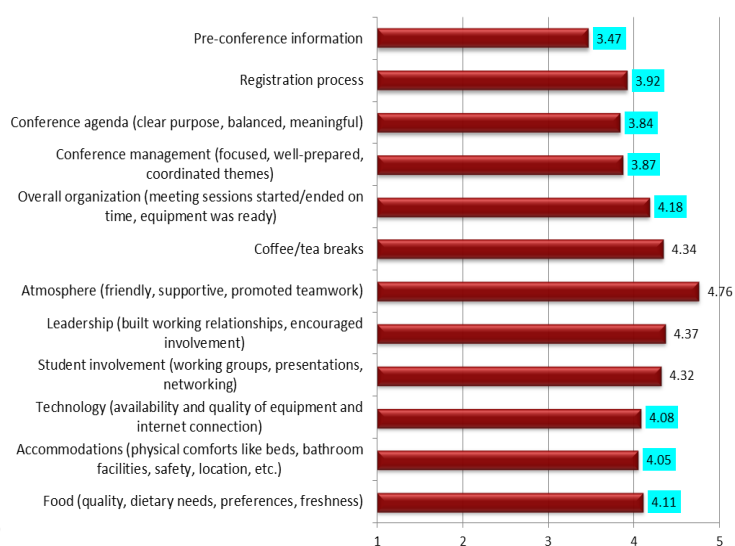
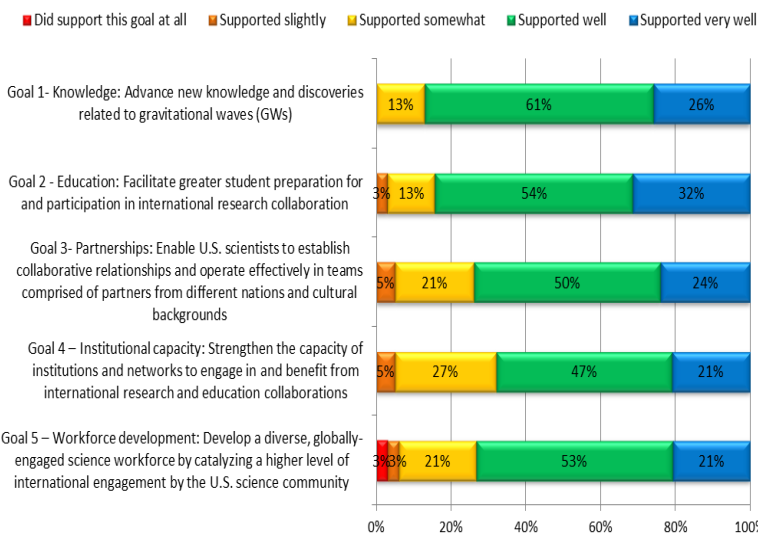


PROJECT GOALS

- Goal 1: Knowledge
- Goal 2: Education
- Goal 3: Partnerships
- Goal 4: Institutional Capacity
- Goal 5: Workforce Development

Winter NANOGrav-PIRE Meeting

Thirty-nine senior researchers, faculty, postdocs, graduate and undergraduate students attended the February 8-10, 2012 meeting held at the Arecibo Observatory in Puerto Rico. Attendees represented 14 institutions and five countries. All participants completed evaluation forms. Large percentages of participants rated that the meeting *supported well* or *very well* each of the five project goals, but especially Goal 1 (87%) and Goal 2 (86%). The graphs below present participants' ratings of how the meeting supported project goals and of satisfaction with meeting components.



Additional key findings:

- The meeting has greatest impact on participants' personal level of participation or involvement (rated 3.92 of 5).
- Graduate student and postdoc talks were extremely well-received (4.67 – 5.00 of 5).

Arecibo Meeting Commendations and Recommendations

Demographics: The PIRE project is diversifying the demographic landscape of the field. The project has increased female and minority participation in the student group of graduate and undergraduate students (female: 39%, minority: 31%) as compared with the senior group (female: 19%, minority: 19%). *Continue to identify ways to include females and individuals from underrepresented minority groups in the PIRE project. Advertise to these groups and/or personally invite individuals to attend.*

Components: While participants are extremely satisfied with the supportive atmosphere that promotes teamwork (4.76), they reported lower satisfaction with the pre-conference information provided (3.47). Working groups meetings were also rated fairly high however, comments were made that additional organization and a revised structure or schedule of meetings might increase productivity. *Continue to improve meeting pre-organization and structure of the agenda. As suggested by attendees, provide supporting materials for decisions and discussions and designate someone to lead sessions in the working group lead's absence. Structure working group meetings more. Consider staggering working group meeting times so senior members can attend the entire meeting and so students can attend a variety of working groups. Continue to focus on the support of goal achievement at yearly meetings. Remind attendees of project goals at the beginning of each meeting. State how meeting goals are associated with and support the project goals.*



International Engagement

Academic Year	# of research abroad students	From Institution	To Institution
2010-11	1	Oberlin College	University of Sydney, Australia
2011-12	2	Oberlin College	Leiden University, Netherlands
	2	Franklin & Marshall College	University of Manchester, United Kingdom
	1	Oberlin College	Bonn University, Germany
2012-13 (planned)	2	West Virginia University,; University of Wisconsin, Milwaukee	University of Manchester, United Kingdom
	1	West Virginia University	Swinburne University, Australia
	1	West Virginia University	McGill University, Canada
	1	National Radio Astronomy Observatory	Osservatorio Astronomico di Cagliari , Italy
	1	University of Texas at Brownsville	Bonn University, Germany
	1	Franklin & Marshall College	Bonn University, Germany
	1	University of Wisconsin, Milwaukee	TBA
	1	West Virginia University	Bonn University, Germany
2013-14 (planned)	1	West Virginia University	Bonn University, Germany

This table presents the past and future planned numbers of students participating in research abroad experiences each year through the PIRE program, the institutions they represent, and the hosting institution.



In 2010-11, one undergraduate student conducted research in Australia. By 2011-12, 5 undergraduate students traveled to 3 countries. This year, 2012-13, the project is planning for 8 students (3 graduate, 5 undergrads) to conduct research in 5 countries. Among the 8 candidates, 5 plan to spend 2 months, 2 the entire academic year, and 1 for the summer. One graduate student so far is planning a 5-month visit in 2013-14.

NANOGrav-PIRE Logic Model

Mission: U.S. Researchers and students will join with foreign colleagues to direct gravitational wave detection, build a diverse community of researchers with international expertise, and lay the groundwork for gravitational wave studies in the next decade and beyond.

Inputs	Outputs		Outcomes		
	Activities	Participants	Short-term	Medium-term	Long-term
NSF Funding US Institutions Universities Cornell University, Ithica, NY Franklin & Marshall College, Lancaster, PA Lafayette College, Easton, PA Oberlin College, Oberlin, OH University of Texas, Brownsville, TX University of Vermont, Burlington, VT University of Wisconsin, Milwaukee, WI West Virginia University, Morgantown, WV Research labs Goddard Space Flight Center, Greenbelt, MD NRAO, Charlottesville, VA Naval Research Laboratory, Washington DC International Institutions Universities McGill University, Montreal, Canada Monash University, Melbourne, Australia Swineburne University, Melbourne, Australia University of British Columbia, Vancouver, Canada University of Manchester, England, UK Research labs Astron, Dwingeloo, Netherlands ATNF, Sydney, Australia Jodrell Bank Centre, Manchester England, UK Max Planck Institute, Bonn, Germany Nancy Radiotelescope, Orleans, France National Centre for Radio Astrophysics, Pune, India Osservatorio Astronomico di Cagliari, Italy	Annual International science meeting Biannual domestic-NANOGrav-PIRE workshops Student international research abroad experience Faculty and post-doc international and national research visits Mentoring and advising for undergraduate and graduate students International and national videocons NANOGrav-PIRE website Recruit high school and undergraduate students Connect with and support institutions as they send students/faculty abroad	US Participants Senior researchers Faculty Post-docs Graduate students Undergraduate students High school students International Participants Senior researchers Faculty Post-docs Graduate students Undergraduate students High school students	Develop software repository Review sources of noise Complete pass of GBNCC Process GBT drift survey. Investigate bb timing code Develop TOAs system Ramp-up operation of GUPPI/ PUPPI Analyze WAPP, Mark IV data Complete TOA analysis Complete analysis of CS Participants will study: Searching Timing Observing and hardware Interstellar medium Gravitational wave detection Gravitational wave sources Cultural understanding Coordinate with institutions and participants Recruit undergraduate and graduate students Facilitate development of partnerships Plan and organize Benchmarks/milestones Hire support personnel Develop documents/logo Develop website Establish modes of communication Outreach/advertise/recruit in high schools and to undergrads Recruit grads to post-doc programs	Develop analysis pipelines Develop mock data challenges Study and stimulate work on nHz GW sources Identify new search projects Design, implement, and analyze pulsar observations for timing array Ensure timing data are accessible via a database. Strategic Planning Improve understanding of ISM Participants will conduct: Searching Timing Observing Interstellar medium analyses Gravitational wave detection Gravitational wave sources Research abroad Foster international collaborations Participate in research visits and exchanges Publish joint papers Conduct joint presentations Support institutions to develop capacity to collaborate internationally Collaborate and standardize procedures and policies Improve institutional attitudes towards research, educational, and cultural exchanges Increase enrollment in physics/astrophysics programs Increase student interest in pursuing higher education and a career in astrophysics Increase URM/female participation Increase global engagement	Goal 1: Knowledge Advance new knowledge and discoveries at the frontiers of science while achieving 3 sigma sensitivity to gravitational waves (GWs) with strain of 2×10^{-15} . Goal 2: Education Facilitate greater student and faculty preparation for and participation in international research collaboration. Goal 3: Partnerships Enable U.S. scientists to establish collaborative relationships and operate effectively in teams comprised of partners from different nations and cultural backgrounds. Goal 4: Institutional Capacity Strengthen the capacity of institutions and networks to engage in and benefit from international research and education collaborations. Goal 5: Workforce Development Develop a diverse, globally-engaged science workforce by catalyzing a higher level of international engagement by the U.S. science community.

General Recommendations

- Increase the awareness of the project mission by encouraging participants to read evaluation results and through continuous revisit of the overall project logic model.
- Encourage more focused and active engagement in the meetings by enforcing times when laptops may not be used.
- Provide time for the project evaluator to share results with project participants at the annual international science meeting.

Upcoming Evaluation Activities

- Conduct post-survey of undergraduates, graduates, post-docs, faculty & senior researchers
- Attend the summer International Science Meeting (ISM) in Sydney, Australia
- Develop evaluation forms for the ISM
- Conduct focus groups with students at the ISM

