Teacher-Researcher Networking Plan

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### Due Date(s): **Before Departing for the Expedition**

Pre-Expedition Networking

* How will you communicate with the team before the field experience?
	+ Primary communication through email and a Google Drive shared folder
	+ Participation in monthly trip-planning conference calls
* Are there team or project conference calls or other preparatory activities that the teacher can participate in?
	+ July 2016 Ocean Carbon Geochemistry Meeting (Woods Hole, MA)
	+ Lab visit(s) in May 2016 and during summer 2016. Visits will consist of pre-expedition meetings and lab technique trainings
	+ Follow up meeting regarding media communications during URI team visit to North Quincy High School in June 2016
	+ Monthly trip-planning conference calls
	+ Possible travel to or virtual visit with Old Dominion University (VA) and/or University of South Florida (FL) to meet with co-PI Chappell and co-PI Buck.
	+ Research team working dinner following presentations and workshops at the Ocean Carbon Geochemistry Meeting.
* Is there a media liaison at URI, ODU or USF that can be used to help promote the collaborative work?
	+ Yes, information will be provided regarding URI liaison and possible media connections in Rhode Island.
	+ Information regarding ODU and USF pending
* Are there ways you can collaborate before the expedition to inform the public, media, and other schools about the upcoming expedition?
	+ Researcher(s) visit to North Quincy High School in June 2016
	+ Create an information video to add to the journal and cruise blog site and to send to local schools as a promotional tool.
	+ Invite journalism students to interview the researcher(s) and profile the scientist(s) on the school’s website
	+ Joint press release to local and regional news media outlets
	+ College newsletters
* What background scientific information is essential for the field research? What journals, books, or other materials will the teacher use to learn this content?
	+ Bethany Jenkin’s 2014 Southern Ocean cruise blog: <https://phantasticvoyage.wordpress.com/about/>
	+ Journal articles from PIs accessible in Google Drive folder
	+ Pre-expedition lab technique training @ URI (May 2016 and summer 2016)
	+ Specific session attendance at the Ocean Carbon Geochemistry Meeting related to the Southern Ocean and Interactive Science Communication
* What useful educational tools can you provide to the researcher?
	+ PolarTREC lesson plans developed by colleagues within the program
	+ Access to the Massachusetts curriculum standards and the NGSS and Common Core national standards.
	+ Curriculum materials from the Antarctic and Southern Ocean Coalition: <http://www.asoc.org/explore/for-teachers>

Networking in the Field

* How can you be an effective assistant to the scientific efforts in real-time?
	+ Learning lab techniques before the cruise in order to prepare for real-time sampling and processing.
	+ Learning and mastering chlorophyll extraction techniques and flow-cam operation in order to be an additional “expert” during water sample processing.
	+ Being able to Identify and willing to communicate times in which working with other areas of the research would be helpful and/or desired
	+ Being flexible and efficient
	+ Participate in CTD training onboard the R/V Palmer to be able to assist in data collection.
* What science topics or issues would you like to discuss as a team while in the field?
	+ The ecology and chemistry behind the research question
	+ Sampling techniques used and desired data sets
	+ Information related to iron depletion in the Southern Ocean
	+ Evidence of climate change in the Southern Ocean and the projected effects on global systems.
	+ Questions related to work from previous cruises and published journals
	+ Specific work related to PhD research (other than main cruise goals)
	+ Curriculum subjects that would enhance student understanding of climate change
	+ Is there enough science literacy in students that are entering their undergraduate and graduate science programs?
	+ How can authentic science be incorporated in a high school classroom?
* The timeframe for data collection and intense fieldwork may shorten time for additional conversations about Education and Outreach. How will you revisit your thoughts and ideas effectively?
	+ Extensive journaling during the expedition to keep track of questions and ideas
	+ Follow-up meetings with the research team to work on curriculum development
	+ Collaborate on development of Education and Outreach presentations.
* Can you identify unique aspects of the fieldwork that will engage students and the public?
	+ Data Visualization using Ocean Data View (ODV)
	+ Cell growth
	+ Flow cam (real-time identification of Antarctic plankton species)
	+ DNA bar-coding
	+ Living onboard an Antarctic ice-breaker for 5-6 weeks
	+ Sea conditions in the Southern Ocean

Post-Expedition Networking

* What skills, as an educator, can you offer the researcher?
	+ Multi-tasking
	+ Leadership
	+ Ability to communicate to various groups of people
	+ Scientific writing and general writing skills
	+ Effective strategies communicating complex scientific content to media and other non-scientific outlets
	+ Taking the lead in development and written submission of the Education/Outreach section of the required post cruise report.
* What specific aspects of post-fieldwork are you interested in for follow-up?
	+ Post-lab processing of samples
	+ DNA analysis of samples
	+ Post-field calls to learn updates on data findings and possible applications
* How will you collaborate to write and review lesson plans after the expedition?
	+ Primary: Email and phone calls
	+ Lab visits to URI and WHOI
* How can you complement your lesson plans with an educational tool that is useful to your researcher?
	+ Lessons will be cross-posted on the PolarTREC website and the websites of the PIs.
	+ Lesson components will also be shared on the Google Drive for review by researchers.
	+ Creation of a Data Nugget (datanuggets.org) that provides researchers the opportunity to share published data with students on a national level.
* How will you regularly communicate outreach, teaching, and research updates with one another into the future?
	+ The proximity of the URI campus and WHOI to Quincy, MA allows for continued collaboration. Our goal is to continue to collaborate regarding future research trips (classes following the cruise, live question and answer sessions on future cruises, possible inclusion of student-created research questions on cruises) and continue curriculum development.
	+ It would be great to develop a teacher’s workshop for the Massachusetts Marine Educators Association conference (usually held in Woods Hole) to provide outreach on topics related to microbiology, metabolism and teacher-researcher collaboration
	+ Possible field trips for students to the URI campus to participate in laboratory activities at the URI teaching labs.
* ARCUS provides some funding to support travel before and/or after the expedition to support collaboration between teacher and research team. What ideas do you have for utilizing this support?
	+ Reimbursement for travel to/from research lab in Rhode Island
	+ Travel/lodging for the National Marine Educators Annual Conference in Charleston, SC (pending abstract acceptance) – June 2017
	+ Travel/lodging for outreach opportunities at the Ocean Sciences Meeting in 2018 or regional meetings in 2017.