

Maury Project 2016

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Canadian Participant of the Maury Project

I was fortunate to be given the opportunity to participate in the Maury Project this past summer. The Maury Project is designed to give science teachers and science supervisors an in-depth study of various oceanographic and meteorological subjects including waves, tides, density and wind-driven oceanographic circulations and ocean-atmosphere interactions. The workshop equips teachers with training and teaching materials that can be used in their classrooms. Teachers participate in lectures, tutorials, research cruises, hands-on laboratory exercises and field trips. This year, the program hosted teachers from 14 different states around the country, one from Guam and one from Canada, who was sponsored by the Canadian Meteorological and Oceanographic Society. The Project is the work of Dr. David Smith, retired professor and former chairman of the Naval Academy oceanography department, and Dr. Jim Brey, Education Director of the American Meteorological Society, who serve as co-directors of the Maury Project Workshop. Speakers featured in the workshop included oceanographers and senior scientists from the National Oceanic and Atmospheric Administration (NOAA), the University of Maryland at College Park, and the United States Navy.¹

The Maury Project Workshop is named in honor of Navy Lt. Matthew Fontaine Maury who lived from 1806 until 1873 and is considered to be the founder of physical oceanography. The Maury Project Workshop is funded by the Naval Meteorology and Oceanography Command, the Office of Naval Research and the NOAA. The workshop is made possible by considerable support from the United States Naval Academy, the State University of New York at Brockport and the American Meteorological Society.² One of the most exciting aspects of the program is that it is hosted by the U.S. Naval Academy in historic Annapolis, MD. Founded in 1845, the U.S. Naval Academy today is a prestigious four-year service academy that prepares midshipmen morally, mentally and physically to be professional officers in the naval service. More than 4,400 men and women representing every state in the U.S. and several foreign countries make up the student body, known as the Brigade of Midshipmen. Midshipmen learn from military and civilian instructors and participate in intercollegiate varsity sports and extracurricular activities. They also study subjects like small arms, drill, seamanship and navigation, tactics, naval engineering and weapons, leadership, ethics and military law. Upon graduation, midshipmen earn a tax-payer funded Bachelor of Science degree in a choice of 23 different subject majors and go on to serve at least five years of exciting and rewarding service

¹ United States Naval Academy. Oceanography Department. *CLAREMONT PS TEACHER ATTENDS U.S. NAVAL ACADEMY OCEANOGRAPHY TRAINING*. Annapolis, MD: USNA Public Affairs Office, 2016. Print.

² United States Naval Academy. Oceanography Department. *CLAREMONT PS TEACHER ATTENDS U.S. NAVAL ACADEMY OCEANOGRAPHY TRAINING*. Annapolis, MD: USNA Public Affairs Office, 2016. Print.

as commissioned officers in the U.S. Navy or U.S. Marine Corps.³ The city of Annapolis is located a short distance from both Washington, D.C. and Baltimore, MD. The city is very picturesque with a beautiful waterfront, and several major tributaries crossing the city and flowing into the Chesapeake Bay. Its historic downtown is a focus for the many tourists that visit each year, with lovely shops and fantastic restaurants located throughout.

The Maury Project included a variety of oceanographic topics of study including:

- El Niño, la Niña;
- Ocean tides;
- Ocean sound and the Deep Sound Channel;
- Deep and shallow ocean waves;
- Pacific Ocean currents;
- Estuaries and deltas;
- Deep-ocean Assessment and Reporting of Tsunamis (D.A.R.T.);
- Arctic and Antarctic conditions.

The topics were presented in a variety of lectures, hands on activities, demonstrations, and field trips. Instructors were mostly made up of the Oceanography faculty from the Naval Academy, and did an excellent job of presenting the material to a relatively diverse group of learners who taught from the kindergarten right through to college level. The enthusiasm and obvious passion each had for their areas of expertise was apparent, and made the learning experience second to none. Also part of the program were several field trips which really helped participants to understand the program from both an academic as well as a practical perspective. A trip to the National Aquarium in Baltimore, MD provided participants with a connection to the biotic environment present in our oceans. A huge range of aquatic life, both plant and animal, allowed participants to make connections to several course lectures. A visit to the National Oceanic and Atmospheric Administration (NOAA) allowed participants the opportunity to interact with the Science on a Sphere (SOS) program. Science On a Sphere[®] (SOS) is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere[®] as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes complex environmental processes, in a way that is simultaneously intuitive and captivating.⁴ A trip to the NASA Goddard Space Center allowed participants to learn more about the instruments used by the science community to better understand our oceans and atmosphere. A real highlight was being able to discuss with a mission engineer the James Webb Space Telescope project. The James Webb Space Telescope is a large, infrared-optimized space telescope that is designed to study the earliest galaxies and

³ United States Naval Academy. Oceanography Department. *CLAREMONT PS TEACHER ATTENDS U.S. NAVAL ACADEMY OCEANOGRAPHY TRAINING*. Annapolis, MD: USNA Public Affairs Office, 2016. Print.

⁴"What Is Science On a Sphere®?" *What Is Science On a Sphere*. National Oceanographic and Atmospheric Administration, n.d. Web. 31 Aug. 2016. <http://sos.noaa.gov/What_is_SOS/>.

some of the first stars formed after the Big Bang.⁵ It was really fantastic to watch the various scientists and engineers working on testing for the upcoming launch of this potentially game changing technology. Finally, participants each spent a half-day on a Naval research vessel conducting a variety of tests and experiments on the Chesapeake Bay, as well as a half-day doing a beach study, in which the biotic elements of the Chesapeake bay were explored. This provided participants with the ability to really connect the lecture topics to both real-life, as well as classroom applications of the scientific concepts explored.

As a Maury participant, it is now my responsibility to pass on the expertise gained from the program to other educators. I am currently scheduled to make a presentation to the Science Teachers Association of Ontario (STAO) at the annual conference in the fall. I will also make a presentation at the board level later in the academic year. Because of this commitment to the sharing of knowledge, the hundreds of Maury participants over the years have been able to connect with thousands of teachers who are then able to apply the programs materials and concepts to their own instructional programs. It is this aspect of Maury that makes it such an effective teacher professional development opportunity. In my own practice as an elementary science teacher, I have developed programming plans that make connections to my grade 7 “Interactions in the Environment” and “Pure Substances and Mixtures” curriculums, as well as my grade 8 “Water Systems” and “Fluids” curriculums. I am sure as I continue to develop my knowledge of the oceans, I will continue to make these connections to a variety of other subjects and curriculums. I really appreciate the opportunity I was given by the Canadian Meteorological and Oceanographic Society, as well as their American counterpart, the American Meteorological Society, and I am looking forward to now paying this generosity forward through my own inservicing of other teachers in the province.

Fig. 1 - Students of the Maury Project conduct water sample tests on the Navy Research Vessel YP686.



⁵ "James Webb Space Telescope." NASA. NASA, 27 Apr. 2016. Web. 31 Aug. 2016. <<http://www.nasa.gov/content/goddard-missions-present>>.



Fig. 2 - Maury participants learn about the James Webb Space Telescope from the Mission Engineer at the NASA Goddard facility.

Fig. 3 - Maury participants use the Rosette CTD device to measure different water properties in the Chesapeake Bay

