



Merry Christmas and Happy Holidays!

2016 was a great year for Ocean Research Project.

They say the hardest part of winning a race is getting to the start line. That's certainly true when it comes to research expeditions. It's not just difficult to get the funding to do a research expedition; it's also a huge challenge to get the scientific equipment. This year we brought \$70,000 worth of scientific equipment with us to the Arctic. The equipment was worth more than our 42 foot steel research schooner. Most of the equipment was loaned to us; we couldn't have done the expedition without the help from RBR, Hypack and Odom.

Ocean Research Project's 2016 Greenland Climate Project was our most ambitious expedition to date. It started June 1st in Sisimiut, Greenland and didn't end until November. During our five month expedition we covered 6,000 miles, most of which was far north of the Arctic Circle.

Our primary research project with NASA's Ocean Melting Greenland program was a huge success. We were able to map out over 1,200 miles of the previously uncharted Qaanaaq region in Northwest Greenland, and did 123 CTD casts between 500-3000 feet deep. This is an incredibly difficult area to conduct research. It's so far north that it is only 800 miles from the North Pole. It's completely full of ice and since it's uncharted there are rocks hiding everywhere. We also had five storms between 50-80 knots. It took us six weeks, often working around the clock day after day to successfully complete this project. Over the last two years we have mapped out 5,000 miles of Northwest Greenland and have done 193 CTD casts for NASA's Ocean Melting Greenland program. Here is a link for a scientific paper Nicole and I coauthored with NASA's OMG program: http://tos.org/oceanography/assets/docs/29-4_fenty.pdf

We also successfully deployed and retrieved RBR's pressure sensors for DR. Richards. These sensors, once deployed, can count the calving activity of a glacier. This research helps scientists have a better idea how fast a glacier is melting, which is directly related to the health of a glacier.

While in the Qaanaaq region we also collected ocean acidification data for the Smithsonian's Environmental Research Center. For the last two years, we have been helping Dr. Miller collect PCO₂ data in the Arctic and troubleshoot his new sensor, the CO₂ Scout. The CO₂ Scout will be a cost effective solution for collecting PCO₂ data, which is traditionally incredibly expensive. Next year, we hope to launch an ocean acidification citizen science program installing these new sensors in cruising sailboats.

We also continued our micro plastics sampling above the Arctic Circle for the second year. We have been collecting micro plastics samples for the last four years. Plastic trash in our oceans is a big and complicated problem we need to address globally.



While in Greenland, we taught hundreds of high school students about our research both in Sisimiut and Aasiaat. We had 300 local middle school kids following our expedition in the Annapolis area and had 2 high school interns.

In 2016, ten sailboats participated in our Fish Finder citizen science program. Collectively they covered several thousand miles.

Although we still struggle with funding, we successfully completed all of our research projects in 2016.

While in the Arctic we made four short videos about our research. I have added the links below.

The ultimate goal of Ocean Research Project is not just to do one off research expeditions. The technologies needed to do research have become smaller and less power hungry, just like computers. We can do research today from a sailboat we could have never done 15 years ago, imagine what we will be able to do 15 years from now. A traditional ocean research vessel operates at \$25,000 a day; a sailboat research vessel can operate at 10% of the traditional cost. Sailboats will be the research vessels of the future. Ocean Research Project is going to create a global network of research ready sailboats. Adding this element to marine research will change the way research is being conducted in our oceans. Why not change the world?

In 2017, we need to expand our organization by bringing in more people that can help develop Ocean Research Project. We can't do this without funding. You can help us reach our goals by donated on our website <http://oceanresearchproject.org/aboutus-2/donations/> or by sending a check to:

Ocean Research Project
PO BOX 3612
Annapolis, MD, 21403

All donations are tax deductible.

Thank you for your continued support,

Matt Rutherford

2016 Greenland Climate Project: Phase 1 <https://www.youtube.com/watch?v=Tu7sidB3kWA>

2016 Greenland Climate Project: Phase 2 <https://www.youtube.com/watch?v=EDDqjWF0IFM>

2016 Greenland Climate Project: Phase 3 <https://www.youtube.com/watch?v=i0Mf10U9jdU>

2016 Greenland Climate Project: Phase 4 <https://www.youtube.com/watch?v=pWfDdVi2xhs>