

The Aerosol Society Early Career Scientist Travel Award Report

Shipping and the Environment - From Regional to Global Perspectives, 24th – 25th October 2017, Gothenburg, Sweden.

By Sov Atkinson

The main objectives of this international conference were to bring together: the Scientific community (researchers and students from atmospheric, marine and climate research, environmental economics, political and social science), environmental and transport agencies, environmental managers from governmental, regional and local organisations and the maritime transport sector. It was attended by 120 delegates from 15 countries.

The conference was divided into 4 themes:

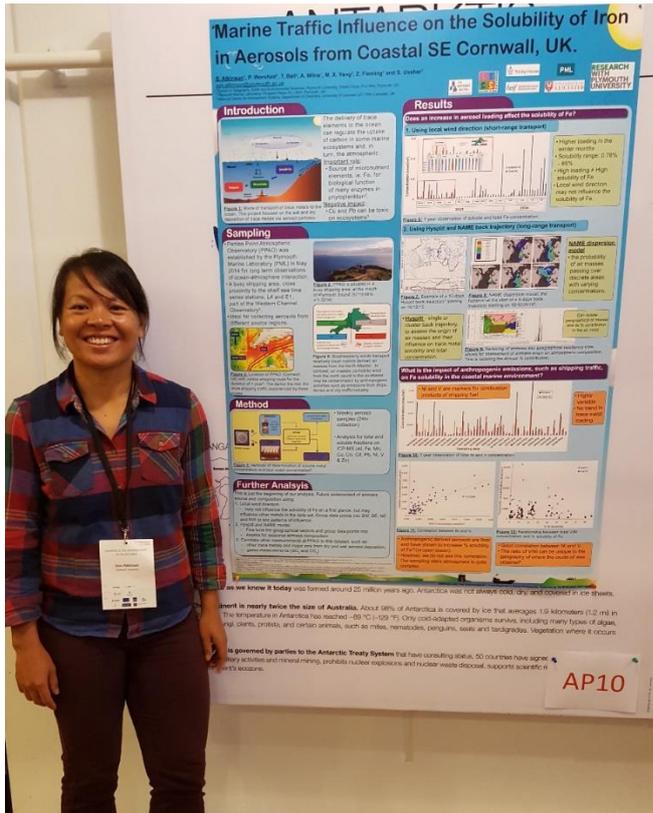
- Impact of shipping on air pollution and climate change including impacts on human health and land ecosystems
- Impacts of shipping on marine pollution and marine ecosystems
- Impact of shipping on noise pollution - underwater noise and its impacts on marine biota, above-water noise and its impact on human well-being
- Environment and society-socio-economic valuation of the impacts of shipping, impact of shipping on ecosystem services, shipping and marine spatial planning

At the conference, I presented a poster, titled "*Marine Traffic Influence on the Solubility of Iron in Aerosols from Coastal SE Cornwall, UK*" in the Atmospheric Processes and Assessments of Integrated Effects on Environment and Climate Poster session. The presentation included my preliminary results and my intended future analysis. It was well received even though most of the audience were not from an analytical background. It also induced some very useful discussion on how I can move further with my analysis, such as how to tease out sources of aerosol airmasses from my observations from another prominent trace metal aerosol biochemist.

I attended all the talks and poster presentations which I found as the research was so very different from mine; from the technology used in abatement of shipping emissions to how risk assessment of shipping emission can be viewed holistically. At the end of the conference, there was a unique event which I have never seen at(at) another conference before, in which a panel consisted of leading researchers to policy advisors, were asked several questions by the chair on how we can as a community move forward. This was a unique gathering of research, industry and policy makers, and I learnt a tremendous amount in terms of how small my research project can be fitted into this field.

The whole experience was topped off with a workshop, attended by the SOLAS community, where we got together to flesh out ideas for a future proposal. Being the only trace metal chemist there, I put our group name on most aspects of the proposal planning.

Overall, it was a great experience seeing all the different aspect of shipping research and I am very appreciative of the Aerosol Society's Early Career Scientist Travel Award which allowed me to attend this conference to present my work.



Marine Traffic Influence on the Solubility of Iron in Aerosols from Coastal SE Cornwall, UK.

A. Adams, P. Benford, T. Dai, A. Miles, M. X. Xie, Z. Fawcay, Z. Fawcay and S. Jester

Introduction
The release of trace elements to the ocean can impact the marine ecosystem and, in turn, the atmospheric budget of Fe. Source of misanthropic emissions of Fe for biological function of many organisms in the ocean. Fe is the 21st most abundant element in the earth's crust. Fe is the 21st most abundant element in the earth's crust. Fe is the 21st most abundant element in the earth's crust.

Sampling
Observatory (SPAC) was established by the Plymouth Marine Laboratory (PML) in the UK. For this study, observations were made at the SPAC. A boat (Manta) with 1000L capacity to hold two 500L water samples, LA and ET, and the SPAC. Collected for following analysis from different sources.

Method
Iron solubility was determined using a colorimetric method. Samples were filtered through 0.22 µm filters and analyzed using a colorimetric method. The method is based on the reaction of Fe with a colorimetric reagent.

Further Analysis
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Results
Does iron solubility affect the solubility of Fe?
Solubility of iron in aerosols is affected by the marine environment. Higher solubility in the marine environment leads to higher solubility in aerosols. Solubility range: 0.75% - 1.87%. High loading of Fe. Local wind direction may influence the solubility of Fe.

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As we know it today was formed around 25 million years ago. Antarctica was for almost 100% dry and covered in ice. Antarctica is mostly twice the size of Australia. About 98% of Antarctica is covered by ice that averages 1.6 kilometers (1.0 mi) in thickness. The temperature in Antarctica has reached -85 °C (-121 °F). Only cold-adapted organisms survive, including many types of algae, fungi, plants, corals, and certain animals, such as mice, nematodes, penguins, seals and birds. Vegetation where it occurs is governed by parties to the Antarctic Treaty System that have consulted global, 50 countries have agreed to limit activities and mineral mining, prohibit nuclear explosions and nuclear waste disposal, supports scientific research, and environmental protection.

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