

Sosnowiec, 29th of March 2016

Report of the 6th meeting of 1st year PhD students of Interdisciplinary Polar Studies in the Institute of Oceanology, Sopot, 17-18 March 2016

From the 17th to the 18th of March was organized the 6th meeting for the 1st year PhD students at the Institute of Oceanology in Sopot. PhD students from the University of Silesia and the Institute of Oceanology Polish Academy of Sciences within the Centre for Polar Studies took part to this meeting.

The first meeting day started by a public lecture on the fate of persistent organic pollutants in the environment and their transfer to Polar Regions given by Dr Fabio Masi from the IRIDRA, Florence, Italy.



Then we had a short lecture given by Professor J. Pempkowiak (IO PAN) on the sedimentation in the Baltic Sea. This was followed by an oral examination about the courses of the 2nd meeting which also took place in Sopot from the 9th to the 11th of December 2015. After the coffee break, we had a laboratory session on the extraction of humic substances from bottom sediments with Doctor A. Winogradow (IO PAN). We disposed of a sample of sediment collected from the Vistula estuary (Gulf of Gdansk) and we mixed it with an alkaline solution. Thanks to the centrifugation, we extracted the humic acids in the solution. Then we were finally able to determine the absorbance of the humic acids by using a spectrophotometer DR2800 at a wavelength of 350 nm. Knowing the mass of the sample and the absorbance, we calculated the concentration of humic acids present in the solution.



We finish this morning session by a last lecture of Doctor K. Kuliński (IO PAN) on the assessment of the precision and accuracy of measurements of humic substances in bottom sediments. This course was really interesting because it reminded us the vocabulary and the different statistical tests which are applicable in all the scientific topics.

After the lunch break, we had a course on the importance of the oceanic circulation on the climate provided by Professor W. Walczowski (IO PAN). We learn about how the oceanic circulation is controlled by the thermohaline circulation and the Coriolis forces and how it plays a crucial role in the regulation of the climate, mostly by energy transfer. We finished the day by a seminar on the influence of Arctic sea ice cover changes on climate with numerical modelling by Doctor J. Jakacki (IO PAN). We learned and we did some exercises about how to represent, thanks to the basics thermodynamics equations, the physical changes of state (between solid/liquid/gas) of sea water.

The second (and last) meeting day started by a seminar of Professor W. Walczowski (IO PAN) on the basics of the measurements and processing of oceanographic data. This course gave us a big overview of all the different instruments used in the ocean in order to measure the salinity, the currents, the temperature, the pressure etc.... This was followed by a lecture on the processing and the interpretation of Conductivity, Temperature, and Depth (CTD) data by Doctor Małgorzata Cisek (IO PAN). We learned how to deal with raw data, generally in science given in netCDF format. We worked on a practical case with some marine data, we processed those data thanks to Seabird software and we plotted the results with Ocean Data View (ODV).

Back from the lunch break, we had a seminar about the use of Argo data in connection to other data products in global and local oceanographic analyses by Doctor I. Goszczko (IO PAN). We learned about the Argo project which is a great example of an international measurement network involving scientists of all around the world. This cooperation represents actually 3 856 buoys deployed in the oceans carrying measurements with a public data base. Since 1998, this project leads to the publication of 2 293 scientific articles. The meeting ended with a lecture of the Professor W. Walczowski (IO PAN) on the IOPAN Arctic studies in the field of physical oceanography. It provided us the basics knowledge on the different currents in the Arctic around Svalbard. We also focus more on the case of Hornsund fjord which is where the Polish station is based in Svalbard and where the most of us are carried out our studies.

Leo Decaux.