Travel Report for INEF 2017

The International Network for Environmental Forensics brings together researchers in the field form around the world together to share their advances in the field and learn from each other. This year the conference was held in Beijing with the assistance of the Chinese Society of Environmental Science to help assist the rapidly growing environmental sector in china that faces significant challenges ahead of it.

There were many excellent and informative presentations. My favourite talks from the Chinese delegates were about the challenges their policy makers faced and the scale of clean up necessary. I learned that due to the infancy of the environmental agency in china there are only a few policies in place to enforce good behaviour from industries in China, but this means they have the opportunity to look at what policies have been successful elsewhere in the world and select the best ones. The scale of the remediation required to handle the pollution produced by industries is daunting. One case was highlighted because 10,000 litres of hydrochloric acid was dumped in to a local river.

There were many international speakers from over 15 countries around the world, talking about a variety of topics. I found Dr Gwen O’Sullivan’s talk about her recent work using tree cores to track historic air pollution particularly insightful. Dr O’Sullivan would take tree cores from several trees over an area surrounding a tar sands extraction site. These cores would then be processed using GC-MS to quantify the concentrations of poly aromatic hydrocarbons (PAH)’s and polychlorinated biphenyls (PCB)’s which are excellent indicators of pollution levels.

Another stand out speaker was Dr Stephen Mudge who talked about his work with the deep water horizon spill. Dr Mudge was part of a team that analysed the data that was collected for the entire of the Gulf of Mexico. He found a ratio of certant PAH’s and PCB’s that was only present in the deep water horizon oil allowing him to track what oil needed to be cleaned up by BP and what was form other rigs or from natural seepage.

Dr Mike Fowler had a excellent presentations on a type of silica mineral found In granite that has can cause lung cancer much like asbestos. Dr Fowler and others were trialling the use of a new portable IR spectrometer which allowed them to identify and quantify concentrations of the mineral in situ massively reducing the time needed to survey an area.

I would like to thank the INEF and RSC for awarding me the travel grant that allowed me to attend the conference and present my dissertation. Which looked into if the remediation at Parys Mountain was successfully reducing the levels of acid mine drainage (AMD) leaving the site.

To asses this 10 sample sites were selected to cover the 2 streams leaving the site water samples were taken form these and ICP-OES was carried out to quantify Iron Copper Aluminium Zinc and a number of other elements. pH measurements were also taken. These results were able to give a picture of the AMD across the area. The results showed that the Sothern stream had higher concentrations of metal ions initially but this reversed down stream due to the settling ponds present on the southern stream. The pH’s were extremely low on both streams but only the southern stream saw a rise in pH most likely due to the wetland bogs that were able to neutralise the acidity.