



# SAGES

*Scottish Alliance for Geoscience, Environment and Society*

**Report of Jesús Alberto Mézquita González attendance at the;  
Geoverbund ABC/J Hydrogeophysics Summer School 2018**

**Date: August 27 - August 31 Jülich, Germany**

The Geoverbund ABC/J alliance, in charge of the Summer School, is a geoscientific network of the Universities of Bonn and Cologne, the RWTH Aachen and the research center of Jülich. The Hydrogeophysics Summer School took place in a Jülich, a small town in Germany. It is a city fortified by the romans and destroyed during the World War II. There are some remains about its past like the Citadel and the Tower of the town wall. The facilities were supplied by the JUFA hotel at Jülich and from which I can say that has the amenities to enjoy the Hydrogeophysics Summer School with a participation of 22 persons integrated by PhD students and researchers from around the world.

The first day began with the registration followed by a small talk of the Summer School work plan and the field work proposed for day 3 and 4. During the afternoon, we had the introduction for surface and borehole ground penetration radar (GPR) and the electromagnetic induction methods (EIM), beginning with the theory, followed by the acquisition and finalizing with the processing and the possible applications of these methods.

The second day we had lectures of the three remaining methods, electrical resistivity tomography (ERT) instructed by an invited speaker Sarah Garré from University of Liège, sonar induced polarization (SIP) and surface seismic by another invited speaker Yudi Pan from Karlsruhe Institute of Technology. Having technical talks from people working in current projects enriched the course because they provided case of studies where the techniques have been successfully applied to solve certain type of problems in agriculture, water pollution or other areas related to hydrology.

The following days we worked in the field applying the five near surface geophysics methods in the proposed sites, Krauthausen and Selhausen both located in the surrounding area of Jülich. These two sites are managed by the Research Center of Jülich and they are used to run field tests of the researchers of the Geoverbund ABC/J alliance. For the surveys, we were divided in small groups working at the two sites simultaneously, running one geophysical prospection per team. Each group had two or three instructors integrated by postdoctoral researchers or PhD students currently involved in a research associated with the geophysical method instructed. The work plan consisted in learn how to run and calibrate the equipment, do the acquisition, process the data and do a fast interpretation of the results from the surveys.

The last day at the Summer school was basically do a review of the field work, then analyse the results from all the teams involved in the Hydrogeophysics Summer School. It was a compare & contrast exercise from which we learned that the acquisition is an important step in a geophysical survey as it determines the quality of the data. As a final topic at the Summer School, we studied the different types of inversion applied to the ERT, SIP, EIM, GPR and Surface Seismic techniques and the information that can provide to help us solving problems in hydrology.