I was selected as one of only thirty early career scientists internationally to participate in the workshop “Soil organic matter-composition and turnover”. The school aimed at bringing together young and established scientists of different disciplines in soil science (biology, chemistry, physics, modelling) for an interaction in an interdisciplinary course related to assessing and studying soil organic matter (SOM).

This knowledge is important because SOM is involved in maintaining all soil functions and SOM represents one of the largest reservoirs of organic C on the global scale. The fundamental knowledge is necessary for the establishment of a sustainable management of the carbon budget and to overcome barriers between the contradictory contexts of food and energy demands, climate change and sustainable resource management.

The major topics, and the presentors, were as follows:
- Approaches to investigate the turnover of SOM: J. Baldock, C. Swanston, H. Flessa, C. Rumpel, M.H. Gerzabek;
- Modelling of SOM turnover: K. Paustian

This was a fantastic opportunity to continue to develop my expertise in soil science, in an interactive forum with the world leaders in this field. The knowledge I gained will be directly applicable to my work on ARC Linkage grant no. LP0774812 and ARC discovery grant no. DP0772981. Our research aims to quantify greenhouse gas fluxes from savannas across a variety of land uses and fire regimes, and upscale these data to predict fluxes from across the Top End. These data will be used to calibrate Australia’s national carbon accounting system, and will thus influence land use policy nationally. Working on two large, interdisciplinary projects has broadened my knowledge base and range of skills. However, in order to further my research career as a soil scientist, I need to access knowledge outside of our research group. This workshop, and the opportunity to visit the research laboratory of our German colleagues, developed my research career and improved my ability to contribute to land management policies across Australia.

This workshop is directly relevant to my current research, as soil organic matter composition and turnover underlies soil carbon fluxes and nutrient dynamics. Understanding the processes that cause greenhouse gas emissions from soils will be essential in order for me to correctly interpret the flux data we have collected, and also to develop models of soil gas fluxes over time and space. The opportunity to visit the laboratory of our research partners broadened my research perspectives and enhanced my research career, by improving both my understanding of soil gas measurement techniques and my personal relationships with our collaborators.

What were the key outcomes?
- Increased understanding of biogeochemical processes, particularly as they relate to carbon and nitrogen cycling
- Many useful contacts were established in the field of soil organic matter
- Group bonding, networking and future project planning with our German collaborators at Garmisch.
How did this project/workshop enhance the Network and support the ESS community?

The Network will benefit from my proposal as I bring back to Australia the latest knowledge and expertise on the turnover and composition of soil organic matter, and the measurement of soil greenhouse gas fluxes. This information will be shared with local and interstate members of the ESS community via my involvement in multidisciplinary research projects (described above) and forums such as Ozflux and ILEAPS.

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