

Early Career Scientist Travel Award Report



11th International Conference on Air Quality – Science and Application. Barcelona, Spain. 12th -16th March 2018

Damián Oyarzún
Department of Geography, University College London (UCL)
Co-author: Chris Brierley

The conference on air quality, science and application is an international event which annually gathers researchers and relevant actors worldwide related to the air quality science and its application. During the four days long, the conference comprised 70 posters and 158 oral presentations in three simultaneous sessions. There were talk sessions covering air pollution sources and emissions, air quality management for policy support, measurements and process studies, health impacts from air pollution exposure, air quality forecasting, meteorological processes-interactions, and modelling. In addition, there were special sessions on atmospheric-climate interactions and impacts, air quality in global cities, mineral dust, and characterisation of air pollutants. Due to the varied programme and topic covered, attending the conference was an excellent opportunity to get involved in the state of the art of the discipline, which is fundamental for the academic exercise. I attended most of the talks related to emissions sources, modelling, climate-meteorological interactions, and health impacts. Particularly interesting for me were some modelling-based studies on air quality and airborne particles dynamics at large spatial scales, global and regional, and their response to climate change.

I presented on Thursday 15th March in the session titled meteorological processes and interactions. That session comprised other ten speakers covering weather-related events of air pollution from urban to regional scales, analysis of the influence of the mixing layer height and the influence of synoptic conditions on air pollution, among others. My talk, titled “Atmospheric ventilation and particulate matter connections in the Atacama Desert, Chile”, was focused on the role of atmospheric ventilation and stagnation events on the air quality levels observed the last decade over the Atacama Desert in Chile. I presented preliminary results based on reanalysis datasets, regional climate model’s outcomes, and observational datasets comprising weather and PM10-PM2.5 records from a ground monitoring network. Additionally, I focused the discussion on the mixed layer height behaviour from radio-sounding observations. These results are part of my current PhD research, which aims to understand climate change and particulate matter connections in the Atacama Desert, which is an area highly vulnerable concerning population exposition to harmful air pollution, including anthropogenic particulate matter, marine aerosols and mineral dust. Also, the connection between air quality and climate ventilation in the region remains unexplored, being this potentially essential for future climate change policies.

I received valuable feedback related to the unique climate conditions of the area of interest as well as some comments regarding the dataset analysed. In addition, during the several social instances in the conference, significant and fruitful conversations arose related to my current results interpretation and the methodology I’m proposing to follow for the next stage of my study. During this year I will carry out a dynamical modelling approach based on a coupled climate-chemistry transport model which aims to enrich my analysis in terms of both spatial and time scales, with special focus on the future 21st Century runs.

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I'm very grateful to the Aerosol Society, whose support through the early career scientist travel award was fundamental for attending this event and the future benefits of this on my research.



ATMOSPHERIC VENTILATION AND PARTICULATE MATTER CONNECTIONS IN THE ATACAMA DESERT, CHILE

Damián Oyarzún, Chris Brierley

Environmental Change Research Centre (ECRC), Department of Geography
University College London (UCL)
d.oyarzun@ucl.ac.uk

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