

Conference Report

The European Geosciences Union General Assembly, Austria

12–17 April 2015

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Planning your way around a large, yet well-organised, conference such as the EGU General Assembly is a piece of cake! A piece of the famous Sacher-Torte from the Hotel Sacher cafe in Vienna. Image: Jennifer Catto.

The 2015 European Geosciences Union (EGU) General Assembly (<http://www.egu2015.eu/home.html>) was held at the Austria Center Vienna, which is adjacent to the United Nations office (Vienna International Centre). Vienna sits astride the Danube and is a beautiful city, full of historic buildings and parks. Art and culture abound, enhanced this year by the buzz surrounding the upcoming Eurovision Song Contest. On the Sunday before the meeting, the Vienna City Marathon wound its way through the ancient streets. This sight inspired some of us to embark on our own runs through the city. However, any benefits of this exercise were rapidly undone by the hearty Austrian food. Many evenings were spent in breweries, drinking excellent beer and discussing science while tucking into large plates of meat. Of course, no trip to Vienna is complete without the consumption of cake—in particular the famous Sacher torte from the Hotel Sacher (pictured above).

Despite the obvious Viennese attractions, we were there first and foremost for the conference. This could be quite daunting for the uninitiated! The EGU General Assembly (and the organisation as a whole) represents a vast array of subjects, which range from atmospheric, oceanic, hydrological, soil and land surface processes

science to tectonics, planetary and solar system sciences, geochemistry and geomorphology. The conference therefore provided a wide range of sessions (577 in total) that were both directly and indirectly related to the AMOS sciences (or not at all but still fascinating!). The question with such a large conference is, “how do you know what to go to?” In order to cope with this, the EGU provides a section on the web site dedicated to planning your conference and how to do it. You can browse the sessions as you please and then select the presentations you want to visit and produce a “personalised program” PDF. This document included all the relevant times and dates of your choices. This would give you a baseline from which to target such a large conference.

The size of the conference is mind-boggling. There were 11,837 scientists who attended of which 157 were from Australia (ranked 20th in country representation). There were more than 4,500 oral presentations and almost 9,000 poster presentations, which were distributed over numerous parallel sessions. An interesting addition for the presentation program—introduced at EGU in 2013—was the Presenting Interactive Content (PICO) format. For PICO, an author is given two minutes to present a

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A view across Maria-Theresien-Platz towards the Natural History Museum in the Museumsquartier district of Vienna. Image: Nicholas Tyrrell.

snippet of their material (akin to the lightning lectures at an AMOS conference) to advertise it to the audience. Then, extra content is uploaded to an interactive, touch-screen system where authors can discuss work with other interested delegates. It therefore has the benefit of increased engagement and discussion between scientists (like at a poster) but can include more content than just one poster (like a talk). Essentially, PICO takes the best parts of oral and poster presentations and puts them together. It appears to be a successful new method as there were 705 PICO presentations in 2015. Further details on PICO can be found here: <http://www.egu2014.eu/pico.html>.

Conference registration began on Sunday 12th April and gave the first opportunity to mingle with other delegates in an informal atmosphere with some food and drink. At registration, each of the delegates was presented with a stunning photograph book entitled, “A voyage through scales”, which can be downloaded at: <http://www.egu2015.eu/A-voyage-through-scales-book.pdf>. The only downside to these books (and the stunning images they contain) was that they were rather unwieldy and several delegates were unable to take them due to space constraints. Nonetheless, the images are really amazing and the book shows the time and space scales over which each of the photographed images occurs and is well worth a read!

The conference began in earnest the next day (Monday 13th April) with a variety of sessions. A talk by Gill Martin (United Kingdom Met Office) on “Systematic errors in the simulation of the Asian summer monsoon: the role of rainfall variability on a range of time and space scales”, was particularly interesting and related to climate modelling work being done here in Australia. The talk discussed the assumption that all general circulation models (GCMs) precipitate too frequently and at too low intensity. Dr. Martin’s work with the Met Office Unified Model

(MetUM) showed that this is not the case in the MetUM where precipitation is actually very heavy at individual time steps but appears to be light when averaged over several hours. This is of particular importance to users of the Australian Community Climate and Earth System Simulator (ACCESS) here in Australia, which is largely based on the MetUM. Dr. Martin’s talk was also complemented by Nicholas Klingaman’s poster (University of Reading, UK: “Spatial and temporal intermittency of sub-daily precipitation in GCMs”). Dr. Klingaman showed that this temporal (and spatial) intermittency happens in high and low-resolution simulations with parameterized convection.

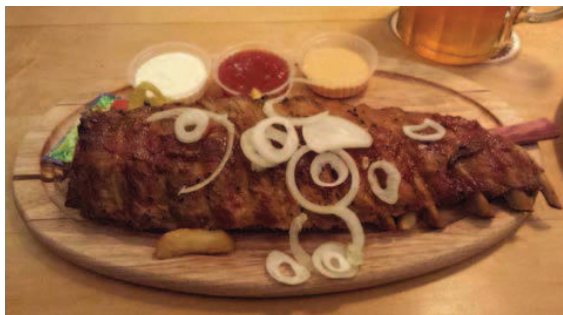
Such climate model evaluation also provides a source for robust discussion at these large conferences, especially on their usefulness as well as their deficiencies; however when a senior scientist said the phrase (light-heartedly), “trusting climate models isn’t science, it’s fortune telling!” during a question time, one did feel sorry for the Ph. D. student on stage. Models were again under scrutiny when Bjorn Stevens described aerosols as the “magic pixie dust” of climate models. Prof. Stevens then used observations and simple but comprehensive models to argue that the maximum (negative) aerosol radiative forcing is approximately -1.0 Wm^{-2} , less negative than currently thought. Disproving paradigms was also in order for Peter Greve and Mike Byrne from ETH-Zurich, who showed that the rich-get-richer theory on rainfall changes with global warming is valid over oceans but breaks down over land surfaces.

The Wednesday program saw the return of the annual “Mid-latitude Cyclones and Storms” session, which has always been very well attended—despite being in a hard-to-get-to room. This year there were six talks covering a wide variety of related topics. Tim Hewson spoke about

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the different wind footprints associated with mid-latitude cyclones—the warm jet, the cold jet, and the sting jet—and how not all cyclones are created equally in these respects. The winds associated with extratropical cyclones were also a feature of Berndt Becker's talk. He is concerned with the impacts of winds and using information about past European windstorms to inform planning for future storms. Ruairi Rhodes' talk was concerned with the other major aspect of mid-latitude cyclones—precipitation. In particular he spoke about associating extreme precipitation to cyclones using gridded data and taking into account the irregular shape of the precipitation extent. He showed that different types of extreme precipitation events exist—short and long timescale—that are associated with different cyclone passages. The posters for this session were also very well attended, with topics such as polar lows, seasonal forecasting of mid-latitude cyclones, classifying cyclones, the impacts of cyclones, different identification methods, and model evaluation.

On the Thursday evening, a reception was held to celebrate the 10th anniversary of the EGU journal *Climate of the Past*. One of the early leaders in open access and transparent, public peer review, *Climate of the Past* has established a justified reputation as one of the leading international journals for publishing work on the history of the Earth's climate. Prizes were awarded for the most highly cited article in the journal's history, as well as for somewhat more obscure achievements such as the articles with the longest and shortest titles. We are confident that *Climate of the Past* will continue to go from strength to strength in future.



Beer and ribs consumed at the wonderful Salm Bräu Restaurant and Brewery on Rennweg (near Belvederegarten) in Vienna. Beer could be ordered by the stein (1 litre) here! Image: Steven Phipps.

On the Friday morning Geraint Vaughan (University of Manchester, UK) gave a presentation entitled, “*Organized convection ahead of a potential vorticity anomaly*”. This talk described the observations of a convective rainfall event that occurred over the UK and Ireland that was probed from a research flight through the system. A three-dimensional map of the event was produced and threw up a surprising result. Potential vorticity anomalies are associated with areas of vertical motion in the atmosphere (up and down) that are likely to organise or suppress convection. The interesting thing in this case was that the convection appeared to form in the region typically associated with descending motion in the atmosphere. The convection seemed to be entirely the result of a low-level convergence zone that did not depend on the upper-to-mid-level atmospheric conditions. Given that this was the initial analysis of the results, Prof. Vaughan did suggest that the results should be taken with caution but were still fascinating given the counter-intuitive result.

Those who remained to the very end of the conference on the Friday afternoon were rewarded with a particularly enlightening session on *ENSO: Dynamics, Predictability and Modelling*. Topics included the drivers of hiatus periods, the role of mesoscale ocean dynamics, and predictions of a future increase in the frequency of extreme ENSO events. Several presentations also addressed the “failed” El Niño event of 2014, which challenges our assumptions regarding ENSO dynamics and our ability to forecast future events.

An EGU “*Great Debates*” session was also held on the Friday afternoon on “*Open Access Publishing*”. A panel of representatives from most of the major academic publishers spoke about how they see the future of publishing. The EGU journals themselves are open access, with many even encouraging public peer review processes—for example *Climate of the Past*. The general consensus from the panel and from the audience was that there are many positives to open access publishing (greater visibility of research, access for all that is independent of institute or budget, better public engagement with research) and very few negatives. So while there may be a bit of transition time to get to open access, the panel's view was that this change is inevitable.

After a week of discussion and presentations the conference came to a close with drinks at the final poster session on Friday evening (a good way to keep delegates from leaving in the early evening). Despite its large size, the EGU General Assembly is incredibly well organised and, once you have your conference plan sorted, is extremely easy to negotiate. The 2016 EGU General Assembly will again be held at the Austria Center Vienna from 17th–22nd April 2016. There is currently a call for proposing sessions at the conference, which closes on 18th September with a call for abstracts to follow later this year. All details can be found at <http://egu2016.eu/home.html>.