

Report EMS/ECAC – ETH, Zurich, Switzerland

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First, I would warmly like to thank the European Meteorological Society, the Swiss Academy of Sciences, the Schweizerische Gesellschaft für Meteorologie and the reviewers of the YSTA proposals for providing me with the Young Scientist Travel Award and giving me the opportunity to join the EMS/ECAC conference in Zurich.

My main research interests within the framework of this conference are all the (synoptic) climatology sessions, a very broad programme with a large number of sessions throughout the week. Furthermore, from my point of view, also the keynote talks during the opening session and the ones on communication on climate change were extremely interesting.

Therefore, I would like to formulate my impressions of this conference using the opening lectures as a thread. WMO's Secretary-General M. Jarraud made it clear from the beginning; from an observing and modelling point-of-view, the earth system is addressed in great detail. The question from here on is how to use this information and translate it into climate sensitive information valuable from e.g. a user/policy point of view. In other words, "how to communicate on climate change" a central theme throughout this conference. With respect to the first issue of data availability, I was overwhelmed by the efforts that are done in both the modelling and measurement communities to take climatology a step further towards high resolution climate services. As a beginning PhD student some 6 years ago, I discovered for the first time the ERA40 reanalysis data of ECMWF. Some years later during the ESA 3rd Envisat summer school in 2006, Dr. Thépaut from ECMWF explained us their future plans for the development of ERA Interim, a reanalysis dataset at present already widely used. And now, Dr. Dee explained that ECMWF is aiming for a centennial reanalysis dataset. Amazing. This all due to an increased modelling capacity, a better understanding of the physical processes and the huge availability of in situ and remote sensing observational products, as was clearly shown by the overview of EUMETSAT/EUMETNET respectively.

But how well do we know the physical processes? How good are our models at present at convection resolving resolutions? That higher resolution plays a role in e.g. precipitation processes was made clear by many participants. Nevertheless, deriving climate scenarios at 1 kilometer resolution is at present a step too far. First we have to deal with an envelope of available Global and Regional Climate Models, all with their respective strengths and weaknesses. We have to ask ourselves which processes should be further developed and improved in the future generation of GCMs and RCMs and how to take into account the various models' uncertainty by e.g. model weighting, as was shown in an interesting way by A.P. Weigel. In this respect, one should not forget about statistical downscaling tools, fully complementary to dynamical tools, both of them with known strength and limitations. This topic was fortunately as well given some time in the spotlights, for different kind of applications.

The dream of G. Brasseur of developing 1 km scale climate simulation in the era of exabytes is a valid one, but should from my point of view only be tackled when the time is due. I wouldn't be in science if I would know when that is. But until then I hope I can contribute in a modest but scientifically sound way to the broad climate change debate, from a research perspectives, and who knows, also communicative...