Session D3: How can statistics help making sense of data from multiple sources

Thursday May 19

Chair and rapporteur Rasmus Benestad

Professor Richard Chandler from UCL was the invited speaker in D3 statistics session, and he gave a talk on Data, models and reality: a modern statistical perspective. He touched upon user requirements, and the point about statistics: to identify what data is required to answer a question. He discussed the interpretation of information under uncertainty, working with incomplete data, and combining information from multiple sources. One interesting topic was the notion 'model structure' (here models are not the same as GCMs/RCMs, which he referred to as "climate simulators") or structure of the problem. Graphical methods can help to clarify structure. His examples included multi-model ensembles, weather generators, autocorrelation and "thick tails", and one message was that generalised linear models (GLM) should be the default choice in regression analyses. An more provocative statement was to never on any account work with gridded/interpolated precipitation data. Another message was that assigning scalar weights to climate simulators is wrong.

Nura Jibo presented a regional climate analysis based on multiple sources in Africa. CORDEX RCM results suggest a decline in the annual precipitation over west Sahel, but were more ambiguous for eastern Ethiopia. OVer other regions, such as Lake Chad, there is insufficient data/observations. One problem is that the observations suffer from lack of maintenance (mal-function and out-of-date instruments) and there is a dearth of accuracy in terms of calidity and reliability of multiple data in e.g. Nigeria. A summary of analysis methods was also provided.

Ernst Linder presented a tatistical method for engineering infrastructure in connection to roads, freezing and thawing which included uncertainty quantification. It was an extension of a quantile matching methodover parts of New England. The qunatification of uncertainty was based on the propagation of variance. One important point was that the tempoeral structure - the autocorrelation - may be important.

There was one poster on the tool 'esd' that is available from http://github.com/metno/esd

 I blogged about the meeting, which was tweeted by Nature Climate Change (see attached pic)

http://www.realclimate.org/index.php/archives/2016/05/do-regional-climate-models-add-value-compared-to-global-models/