

REMS AT HOME – The Earth's Climate Past, Present and Future; IOP HQ London; 9 January 2014

Twice a year the retired members of the London and South East Branch of the IOP (REMS) hold a one day meeting in London. These meetings provide an opportunity for REMS to listen to talks of general interest or on specific themes as well as providing a convivial social event. The topic for January was the Earth's Climate Past, Present and Future. Help in choosing speakers was obtained from our sponsors the RMetSoc History Group and the IOP Environmental Physics Group.

The meeting welcomed by Paul Hardaker CE IOP, attracted an audience of about 80 members. There were six 40 minutes talks including question time.

Chris Folland gave the first presentation. The talk drew on recent results of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). The main radiative component driving climate variability is the atmospheric absorption by carbon dioxide distributed uniformly throughout the atmosphere. He explained from a variety of sources that a graph of CO₂ and temperature could be derived covering the Eocene period (circa 50 million years ago) to the present and that the global surface temperature was 10° C warmer than today and CO₂ was around 1000ppm (cf ~400 ppm today).

The second speaker John Mitchell explained how the IPCC was set up and how it achieved its object of "assessing on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation". The scientific reports were reduced to an "executive summary" in discussion with politicians.

Tim Palmer explained that forecasting weather and climate was a chaotic process, which leads to loss of predictability and a better approach is to use ensemble techniques because small changes in the initial conditions can lead to radically different forecasts and the best forecast was to express the outcome in terms of probability.

After lunch Ian Strangeways explained the various observational techniques used to monitor the basic climate parameters of temperature, precipitation and wind. The audience proved that it was alert by the number of questions and comments his talk generated.

Simon Buckle tackled the questions of response to the findings of the IPCC and the drawn out process of using the executive summaries as a basis for ongoing Intergovernmental Protocols. The 1997 Kyoto Protocol established legally binding obligations for developed countries to reduce their greenhouse gas emissions. In 2010 the Cancún agreements stated that future global warming should be limited to below 2.0 °C relative to the pre-industrial level. How this will be met is work in progress!

The last speaker Shanti Majithia discussed the impact of climate parameters on resilience of the infrastructure used by the power distribution industry and on upgrades planned over a rolling 70y timeframe. This includes overhead transmission lines, buried cables, design of sub stations and siting of generating facilities.