

16.11.2017, 15:15

KlimaCampus Kolloquium

Andy Pitman

Drought in climate models: what can we do about the uncertainty in climate projections

There is no agreement on how best to define droughts. They can occur over multiple temporal and spatial scales with significant Australian droughts lasting a decade. We name them in Australia: the Federation Drought, the World War II drought, the Millennium Drought and they are written into our music, literature and poetry.

No CMIP5 climate model simulated an event with the duration of the Millennium Drought; there is something missing in the models in terms of the large-scale forcing. In uncoupled simulations, land surface schemes tend to dry too quickly, and remain dry too long in comparison to observations. In short, CMIP5 simulations of long-term/large scale forcing and seasonal/regional scale forcing are inconsistent with observations. Projections of future interannual droughts are uncertain to a degree that the sign of the change in future drought is unknown reliably.

Can we identify the gaps in the CMIP5 models that limit their skill, can we improve the land models, can we determine how major droughts will change in the future?

I will highlight some of the existing weaknesses and work being undertaken to resolve them. The case will be made that simulating drought is perhaps the single hardest challenge for climate science and climate projections but progress is possible over the next five years.

Andy Pitman from the University of New South Wales, ARC Centre of Excellence for Climate System Science, Australia is invited by Martin Claußen and Victor Brovkin (MPI-M).

Bundesstraße 53, Room 22/23 (ground floor)