## Invitation to DK Guest Lecture

# Storyline approach to the construction of regional climate-change information

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**Wednesday, 4 December 2019 | 13:30 to 15:00**
**SR 56.11 (Brandhofgasse 5/ 1st floor)**

### Abstract

Climate science seeks to make statements of confidence about what has happened, and what will happen (conditional on scenario), based on the 'three-legged stool' of evidence: predicted by accepted theory, detected in observations, and consistently represented in models. The approach is effective for global, thermodynamic aspects of climate change (warming, sea-level rise, increased humidity, melting of ice), but is ineffective when it comes to aspects of climate change related to atmospheric circulation, which are highly uncertain. These aspects were barely mentioned in the IPCC WG1 Summary for Policymakers of AR5, where the statements of confidence were exclusively based on thermodynamics. Yet atmospheric circulation strongly mediates climate impacts at the regional scale. In this way the confidence framework, which focuses on avoiding Type 1 errors (false alarms), raises the prospect of committing Type 2 errors (missed warnings). This has ethical implications.

At the regional scale, however, where information on climate change has to be combined with many other factors affecting vulnerability and exposure — most of which are highly uncertain — the societally relevant question is not "What will happen?" but rather "What is the impact of particular actions under an uncertain regional climate change?" This re-framing of the question can cut the Gordian Knot of regional climate-change information, provided one distinguishes between epistemic and aleatoric uncertainties — something that is generally not done in climate projections. It is argued that the storyline approach to climate change — the identification of physically self-consistent, plausible pathways — has the potential to accomplish precisely this.