

## Theme 2 Workshop - "Antarctic Climate Model Verification" - 2014

The workshop will focus on the evaluation of climate models over the Antarctic region (here "Antarctic" refers to the Antarctic continent and surrounding regions extending over the Southern Ocean).

### Proposed schedule

Day 1 AM: Introduction and presentations. The introduction will summarise other evaluation activities and the rationale behind different approaches.

Day 1 PM: Remaining presentations then open discussion about approach to defining metrics.

Day 2 AM: Breakout groups in specific disciplines to define metrics followed by presentations to everyone on the outcomes of the breakout groups.

Day 2 PM: Return to breakout groups to write descriptions of metrics. After tea/coffee return to whole group for final discussion of plan for manuscript preparation.

### Background and suggested focus of talks

Evaluating climate models is not a trivial exercise. Climate model projections represent our most comprehensive theory about how climate will change under external forcing scenarios. However, we won't be able to fully test this theory until the future has happened. Comparisons between climate models and observed climate can help to increase confidence in model projections. Key challenges in doing this are:

1. Identifying relevant benchmarking tests (or metrics) that are most relevant to determining the reliability of climate model projections.
2. A given metric will not in general be uniformly relevant for all aspect of Antarctic climate. For instance, evaluation of an ice sheet model would not clearly relate to atmospheric circulation over the Southern Ocean.
3. There may be missing processes in the models that reduce our confidence in their ability to produce reliable projections.
4. Observational data are often (always!) incomplete both spatially and temporally.

In light of the above, each presentation will focus on a specific topic within the expertise of the speaker (e.g. stratosphere-troposphere interactions). The scope is Antarctic-related processes. Each will last 10 minutes maximum and the suggest format is as follows:

1. Introduce the chosen process/topic.
2. Illustrate the physical mechanism by which this impacts on Antarctic climate projections. Some metrics may be specific to a given region and others may be more relevant to the larger scale.
3. What is the recommended approach to evaluating model skill at representing this process?
4. Are suitable observational data available for this evaluation?
  - a. Is there potential to utilise paleo-climate records?
5. If insufficient data are available is there a compromise that could be made? Would it be possible/feasible to obtain the required observations in the future?

Of course, a given contributor might have a completely different idea about all this. I'm happy to give them freedom to deviate from the above framework. Also, talks from observational/ice-core scientists would necessarily focus more of the latest findings in their proxy/instrumental expertise.