

# Technical Advisory Forum for the Australian Climate Observations Reference Network Surface Air Temperature data-set

## Terms of Reference

The Bureau of Meteorology gathers and maintains the national climate record for Australia. A sub-set of the national record is the Australian Climate Observations Reference Network Surface Air Temperature data-set (ACORN-SAT). This includes long-term, high-quality, homogenised data for 112 stations distributed across Australia. The Bureau uses this data-set (amongst others) to report on changes in Australia's climate.

In August 2011, a panel convened in Melbourne to examine the methods used to analyse the Bureau's temperature data. This entailed an examination of the Bureau's observations practices, station selection methodology, data homogenisation, data analysis methods and communication.

The ACORN-SAT the panel was satisfied, overall, with the methodologies used by the Bureau ranking the Bureau's procedures and data analysis as amongst the best in the world.

The panel recommended that a Technical Advisory Group be established, comprised of respected external scientists, statisticians and stakeholders, to periodically review progress on the development and operation of the ACORN-SAT data-set and comment on the further possible developments.

To that end the Forum is to examine and provide comment on:

1. The extent of the public availability of the ACORN-SAT information including:
  - Raw and adjusted data;
  - Documentation of data methods;
  - Computer code;
  - Adjustments;
  - Metadata;
  - Inputs and outputs of peer review; and
  - Ability to reproduce findings.
2. Developments since the 2011 Independent Peer Review (IPR) of ACORN-SAT data and methods including:
  - ACORN-SAT network, in the context of the Bureau's Observation strategy;
  - Addition of new temperature data, including from individual stations and data post-2010, and whether there is merit in inclusion of pre-1910 data;
  - Progress with metadata to allow independent replication of homogeneity analyses;
  - Progress against the IPR recommendations; and
  - Extent of scientific adoption of data and analyses.
3. The scientific integrity and robustness of the Australian climate record and the homogenisation process including:
  - Compared to raw (unadjusted) data, how does homogenisation affect the overall climate trend for Australia?

- Compared to other available data sets how do the trends indicated by ACORN-SAT compare?
- How does the Bureau's curation methods compare to other international curation methods?
- What steps should be taken to document or improve the consistency of decision making for the selection of data periods or stations and of the adjustment methods and decisions?
- How has the ABS assessed ACORN-SAT as part of the Essential Statistical Assets for Australia?

### **Forum membership**

The Forum membership is as follows:

Dr Ron Sandland– Chair  
Professor Bob Vincent – Vice Chair

Dr Phillip Gould  
Dr John Henstridge  
Ms Susan Linacre  
Professor Michael Martin  
Professor Patty Solomon  
Dr Terry Speed

### **Forum format**

Forums will run over one day, every year. The morning will be devoted to ACORN-SAT status updates, provided by Bureau scientists. The afternoon will be devoted to discussion, with forum members providing the opportunity to comment on the ACORN-SAT data-set and methods and related activity in Australia and abroad.

Forum pre-reading will be made available to members a fortnight prior to meeting. A member-approved record of each Forum will be made available on the Bureau web site.

The Bureau will meet the costs of supporting the Forum, including the costs of Members and a per diem.

Subject to availability of members, the first Forum will be held in Canberra in early 2015.

The Forum will be hosted at the Australian Academy of Science.