2nd APN Workshop on Climate Variability and Trends in Oceania (APN 2001-10)

Project Leader:

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APN Funding
US $30,000

Participants from the following countries were funded
Australia, Cook Islands, Fiji, French Polynesia, Kiribati, New Caledonia, New Zealand, Niue, Papua-New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu

Introduction/Background
Oceania occupies a large portion of the Pacific Basin, and climate and ocean/atmosphere interactions of global significance occur here on annual to decadal time-scales. These include the El Niño-Southern Oscillation (ENSO), and the Interdecadal Pacific Oscillation (IPO), an ENSO-like variation that modulates climate on time scales of two to three decades, which cause significant climate change in parts of Oceania and beyond.

These APN workshops are contributing by searching and extending historical climate data back over long periods, and refining these for changes in site, exposure and instrumentation. The aims of the workshops are to develop contacts and networks, and to assess climate change and variability in Oceania. Specific goals for this project include preparation of a draft paper on country and regional climate trends and variability, and provide material to enable Pacific Island Countries to prepare reports on climate trends and variability for Oceania country state of the environment reports. The workshop took a significant step towards enhancing both regional and national capacity for Oceania countries to determine and understand their climate variability and trends. The five-day workshop from 5-9 November 2002 in Auckland, New Zealand had wide involvement of Pacific Island Countries and national meteorological services in the region, in collaboration with the WMO Sub-Regional Office in Apia.

Outline of activities conducted
The first session of the Auckland workshop provided background on the draft paper to be prepared which was followed by two presentations on homogenizing climate data and metadata assessment, as well as a tutorial on the Monthly Data Analyser software for the removal of data biases through homogeneity analyses. Workshop participants then presented reports on historical and observed data resources, as well as the data brought for analysis. They then checked their data for quality and homogeneity for assessment of trends and variability.

On the second day the latest information on global and regional climate trends from the Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report was presented, along with 21st century temperature and rainfall projections from climate models based on various scenarios. The impacts of such trends were also discussed. Workshop participants then considered methods of time series analysis for trends before then analysing their country data. This was followed on the next day by consideration of regional climate variability in the region, driven by ENSO and IPO. Palaeoclimate

evidence demonstrates that these features have been a dominant cause of variability in the region for several centuries. After methods for quantifying variability were shown, attendees then analysed country data to ascertain climate teleconnections with ENSO and the IPO.

On the fourth day the World Meteorological Organisation (WMO) Sub-Regional office presented the programme thrusts of its climate work, including moves to improve regional observations to meet Global Climate Observing System (GCOS) initiatives. Participants discussed the restoration of the sub regional climate data archive, including access and operation.

On the final day a review of the 3rd APN Workshop on Indices and Indicators for Monitoring Trends in Climate Extremes (APN 2001-01), held in Melbourne, in April 2001 was presented. Workshop participants then reviewed the results of analysis of trends and variability and the draft paper was prepared. In the final session, a CD-ROM was distributed of all presentations, data and other resource material. Workshop participants addressed issues, and reported their conclusions to the final plenary session where recommendations were formed.

Outcomes/Products

- Continued regional participation in global studies to monitor and detect trends and variability in climate and improve capacity building;
- Identified the status and availability of relevant historical climate data in the region;
- Trained participants in appropriate methods for analysis of climate trends and variability;
- Continued a collaborative project to analyse the national climate records for trends and variability across Oceania;
- Prepared a draft paper for submission to a scientific journal in 2002;
- Provided information for preparation of national reports on climate change and variability;
- Enhanced regional and national capacity for Oceania countries to determine and understand their climate variability and trends;
- Provided participants with a CD-ROM containing all workshop presentations, data resources, analysis software and draft paper; and
- Prepared a report on the workshop for the Asia Pacific Network, the World Meteorological Organization (WMO) and the Global Climate Observing System (GCOS).

Future directions/Follow-up work

1. Submission of a paper on regional trends and variability to a scientific journal.
2. An application is to be submitted to the Asia-Pacific Network for Global Change Research to hold a third workshop on climate variability and trends in Oceania in 2003. This would continue the capacity building, and focus on data rescue and metadata analysis.
3. Identify for protection for key long-term climate observing sites in the region for monitoring.
4. Specific training programmes in statistical data analysis are to be continued so that countries can analyse their climate trends and variability data further.

5. Participating countries should complete their national and GCOS reports on climate variability and change.
6. This project provided direct input to the APN Workshop on Ethnographic Perspectives on Resilience to Climate Variability in Pacific Island Countries (APN 2001-11), Apia, 4-6 December 2001.
7. Sub regional databases are to be supplied with data to provide offsite backup and security.

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