

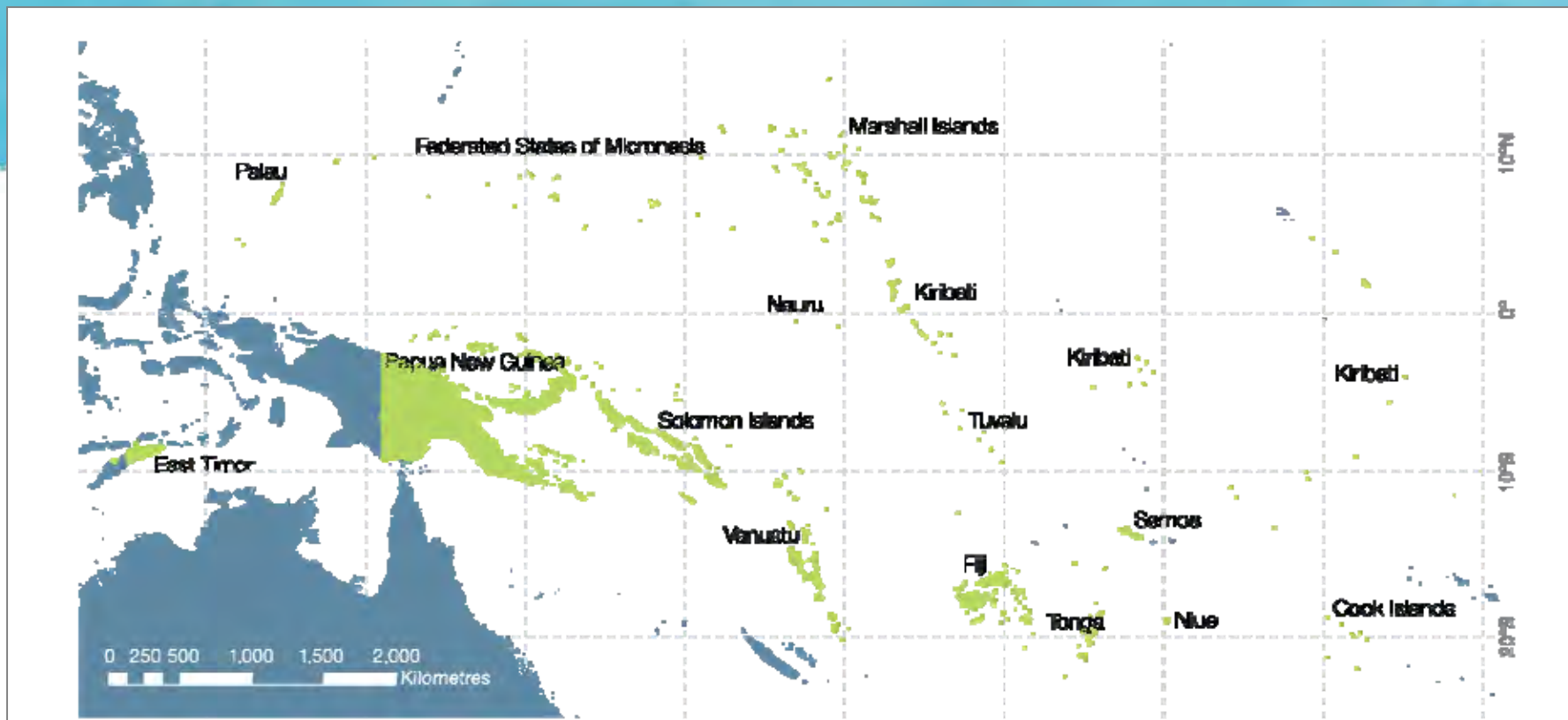
Pacific Climate Change Science Program

An updated analysis of homogeneous land-based temperature trends across the Pacific

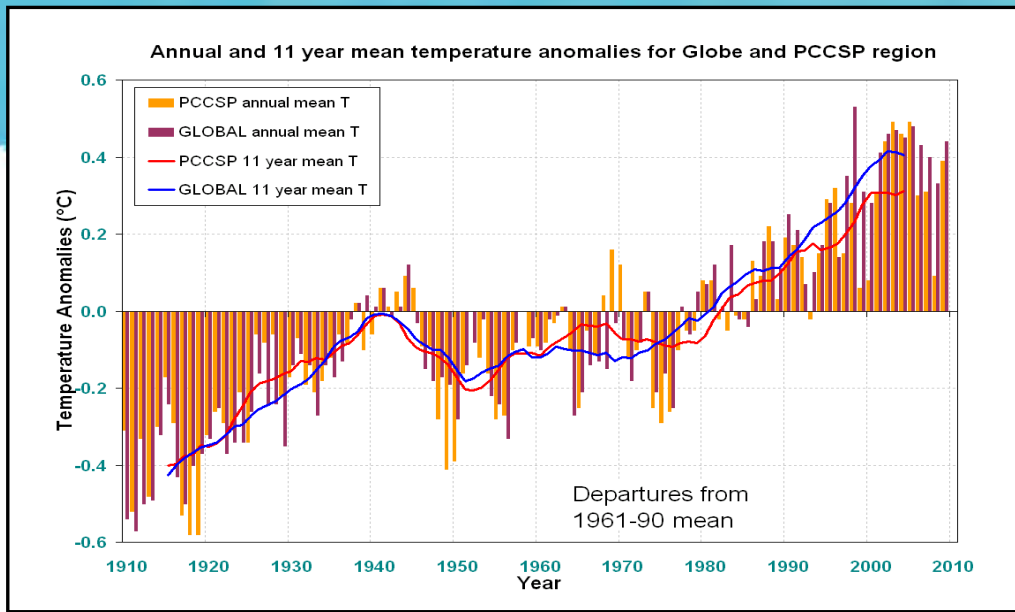
Dean Collins, Simon McGree
and David Jones



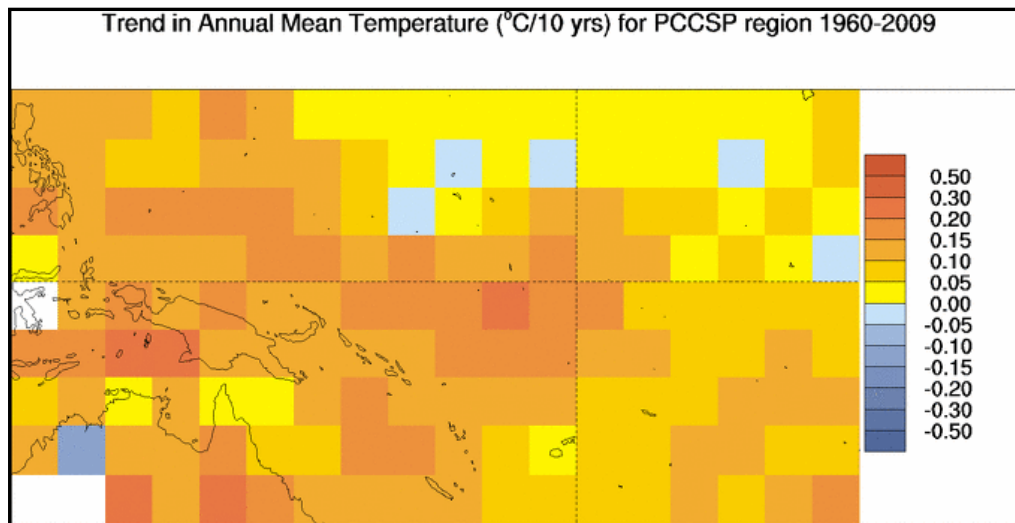
Australian Government



PCCSP aims to improve the security and accessibility of historical climate records in partner countries



Global gridded data show warming in PCCSP region (120-210 ° E; 25 ° S-20 ° N) over past century



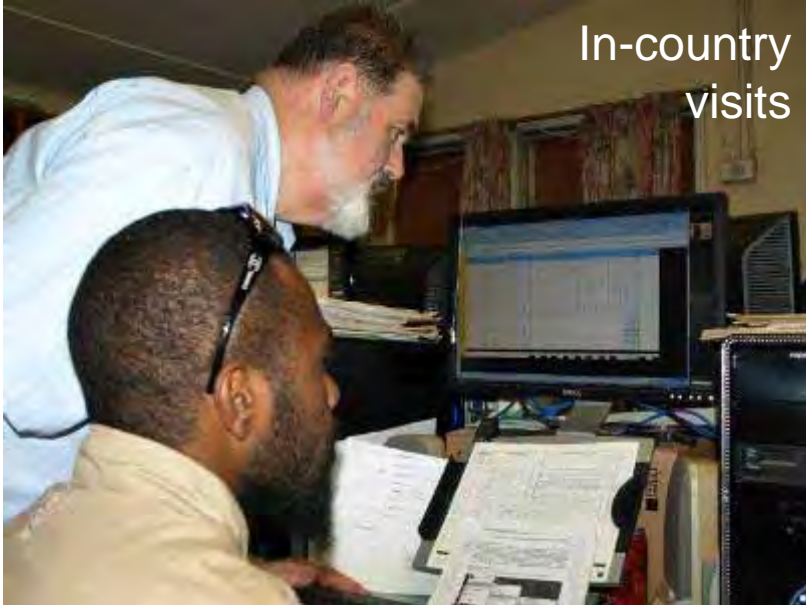
Based on HadCRUT3v dataset

Working together to rehabilitate the climate record

Technical workshop,
Port Vila, Oct 2009

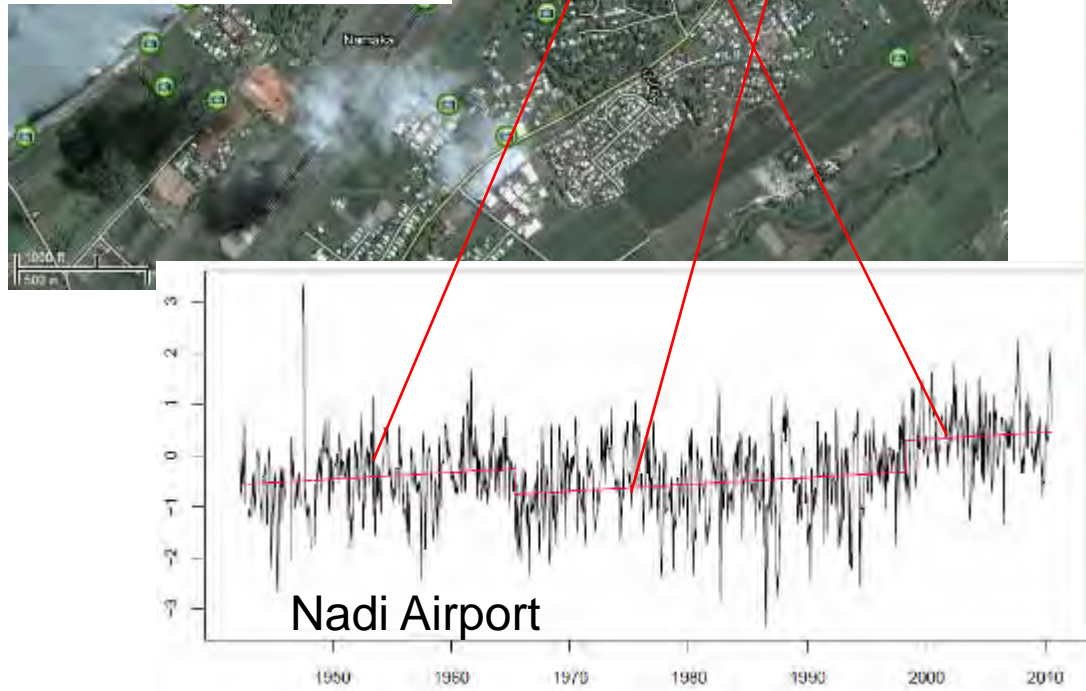
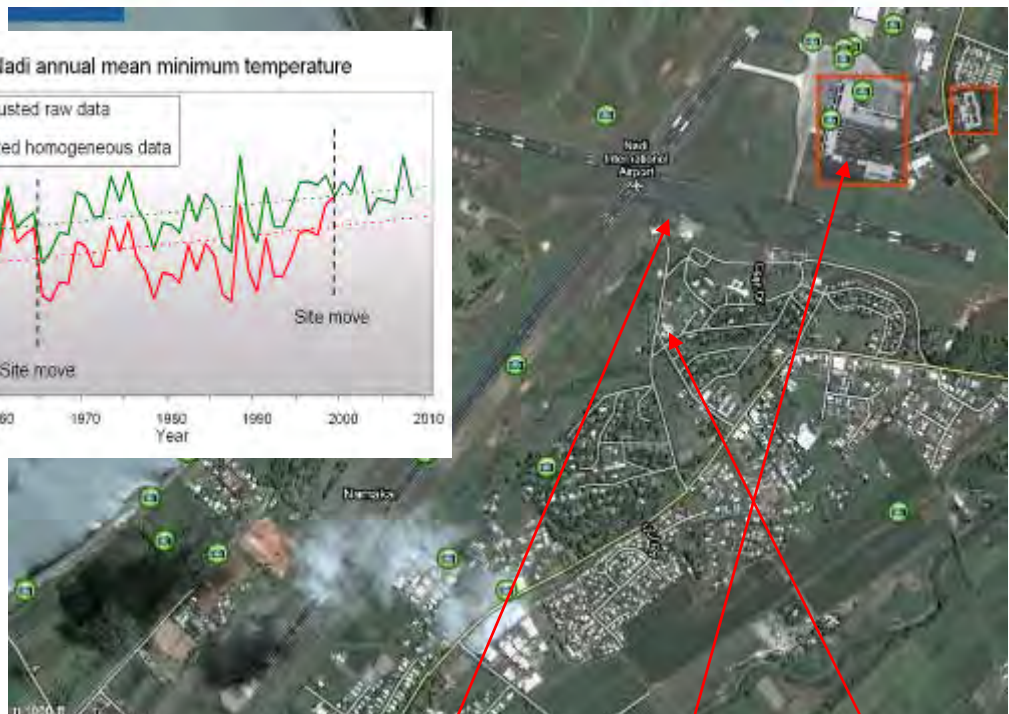
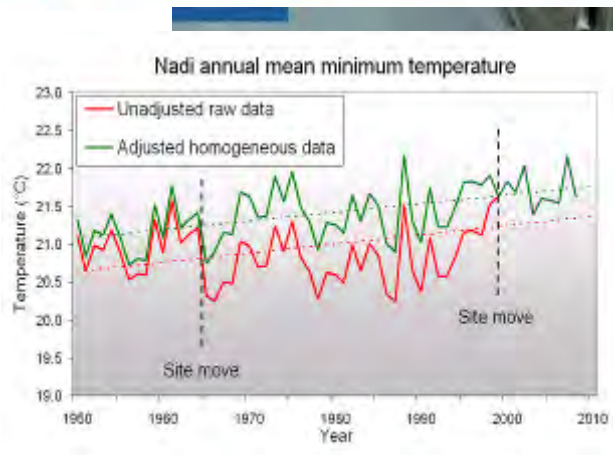


In-country
visits



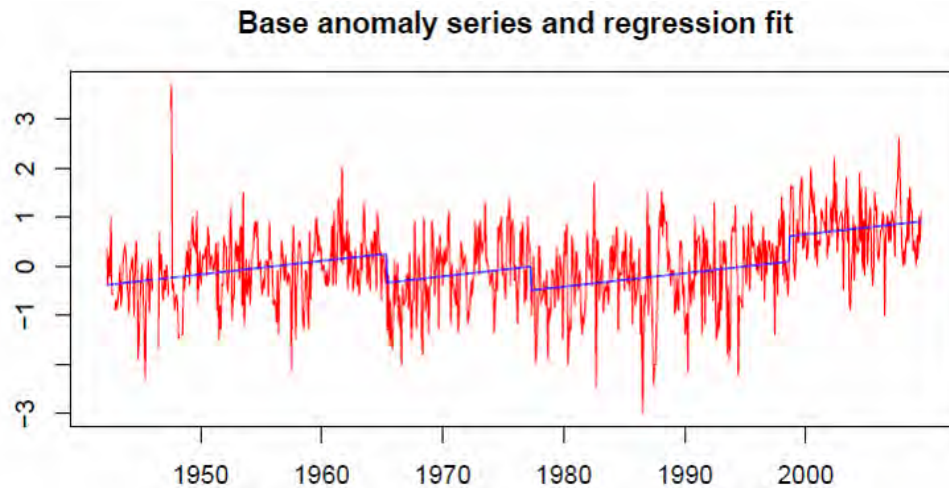
Research and training
workshop, Darwin, June 2010

Many Pacific records display inhomogeneities due to changes in site, instruments and surroundings

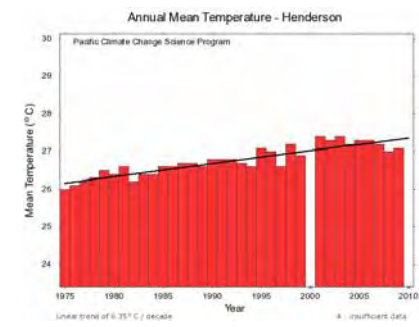
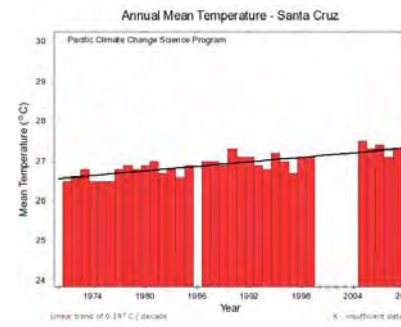
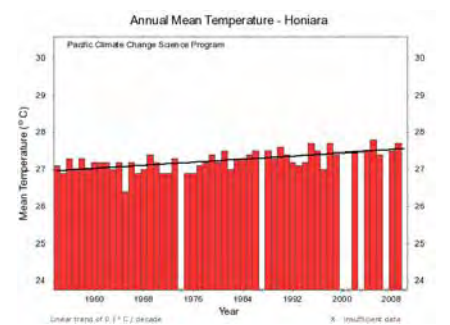
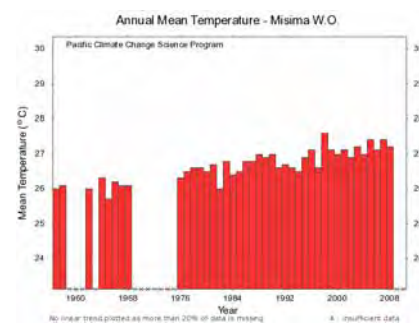
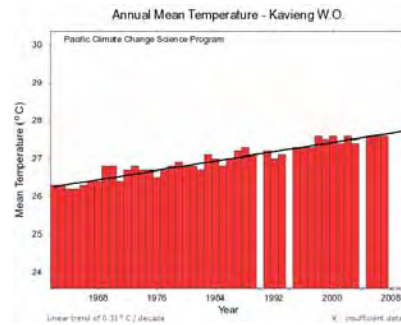
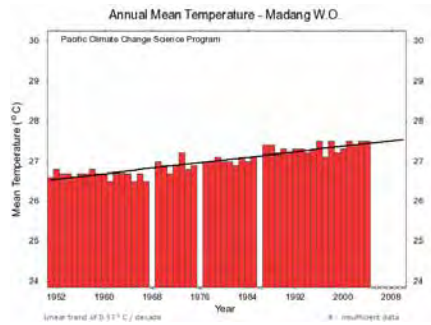
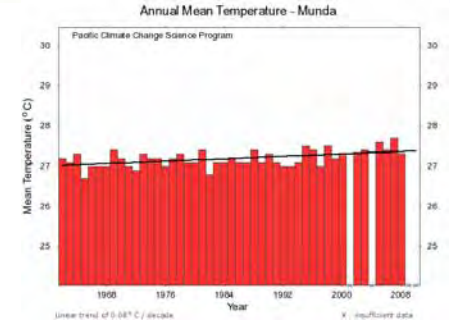
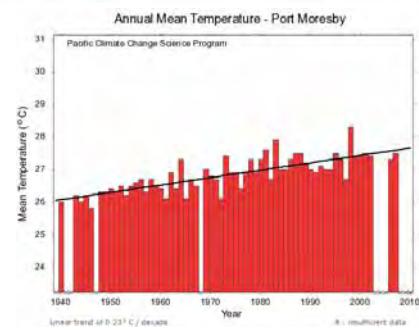
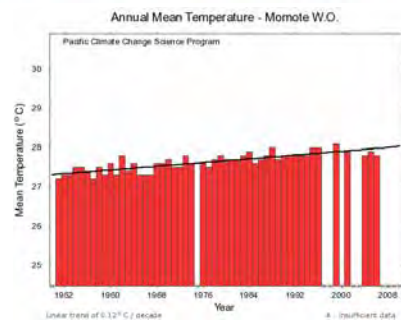
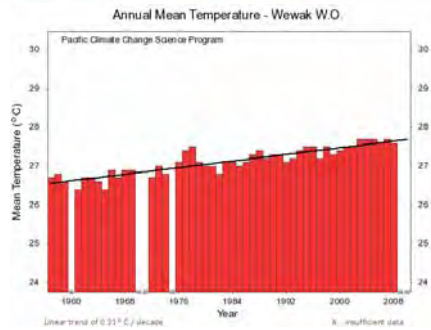


The homogenisation process

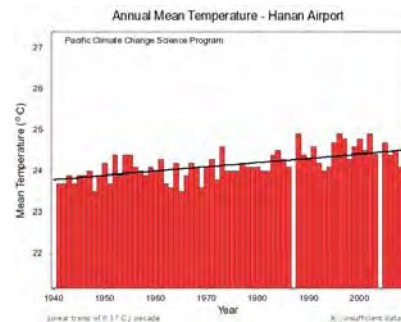
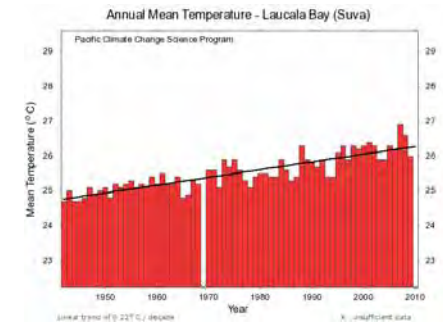
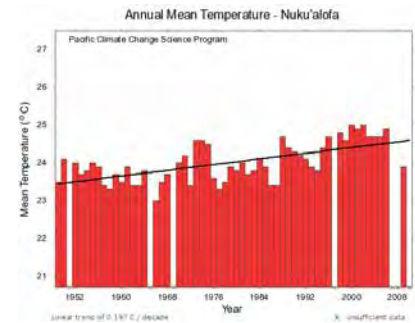
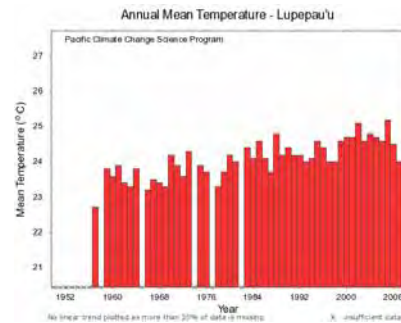
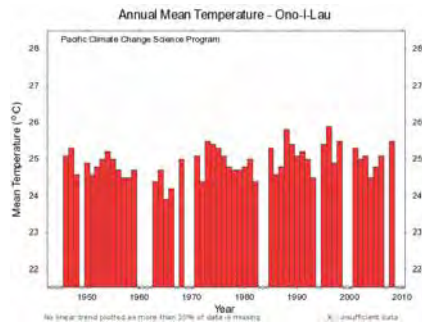
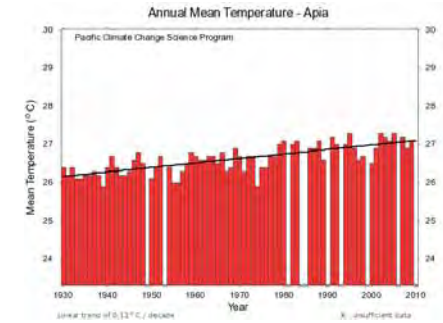
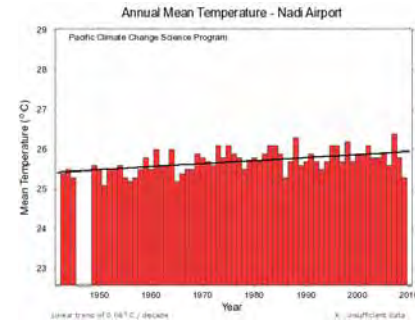
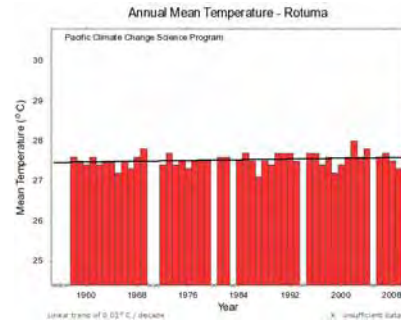
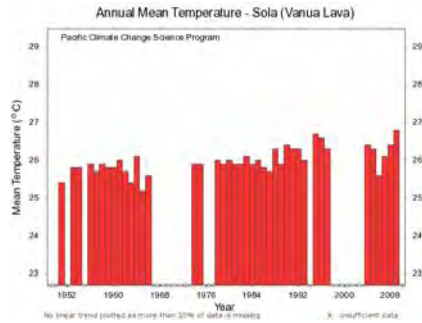
- Visual check: gaps, outliers, changepoints
- Neighbour comparisons (where possible)
- Metadata (station history) examination
- Statistical test: *RHtest* (Wang 2009)

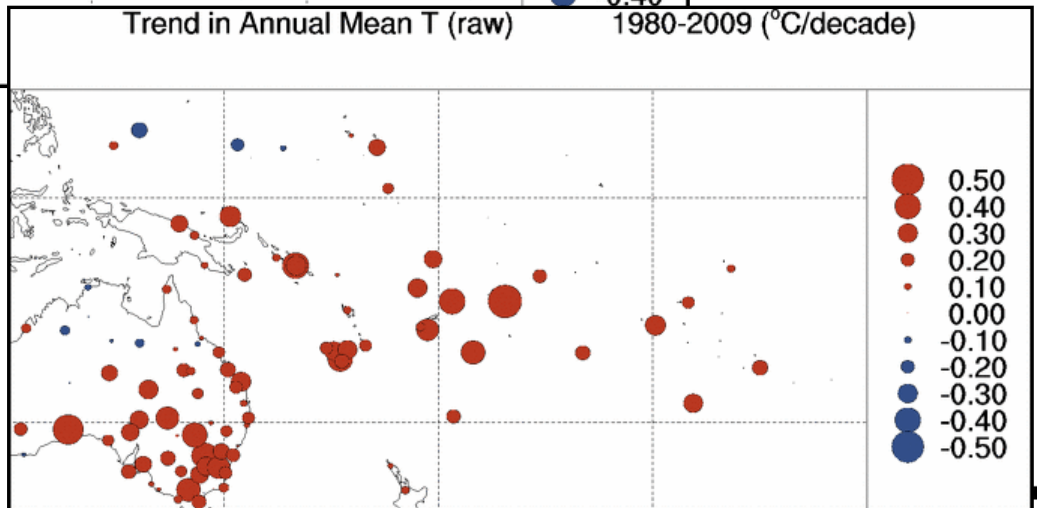
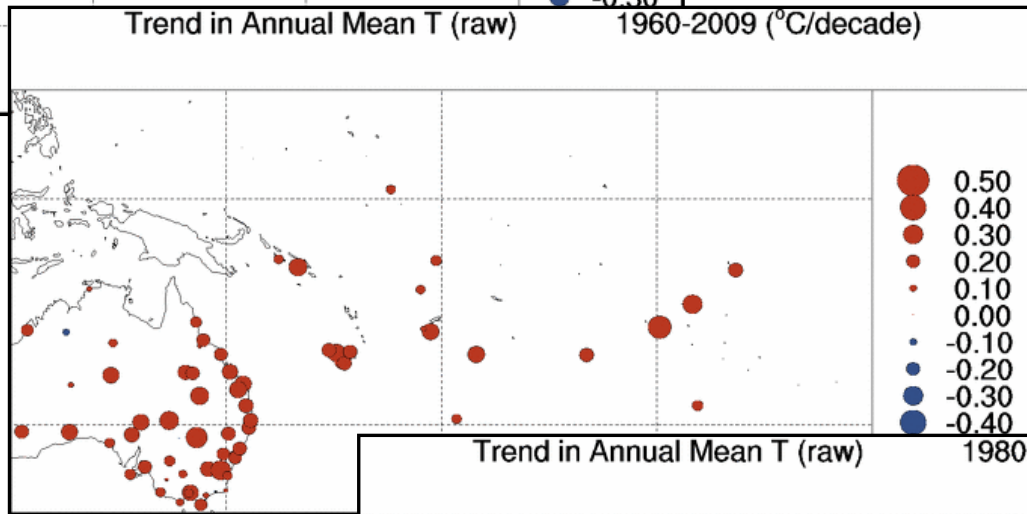
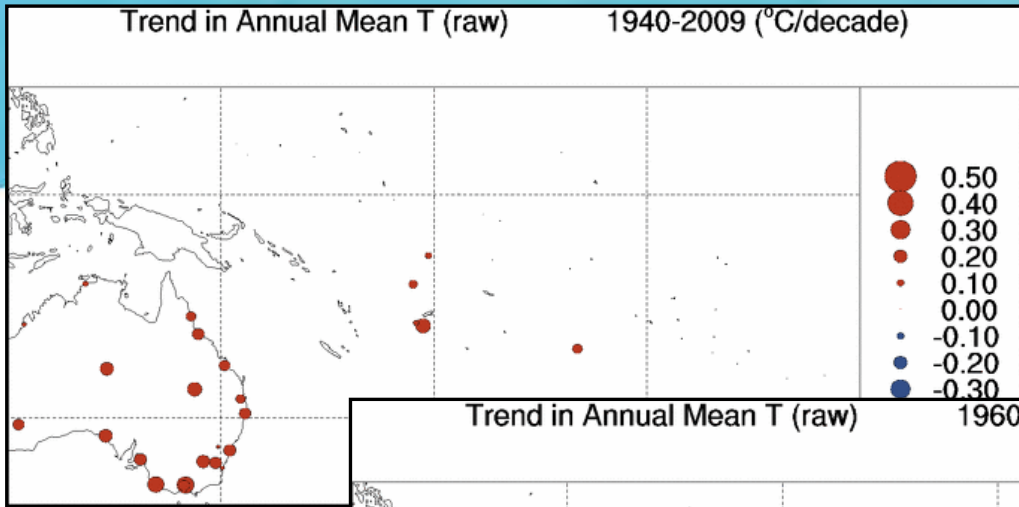


Homogenised T station series ... (PNG + Solomons)

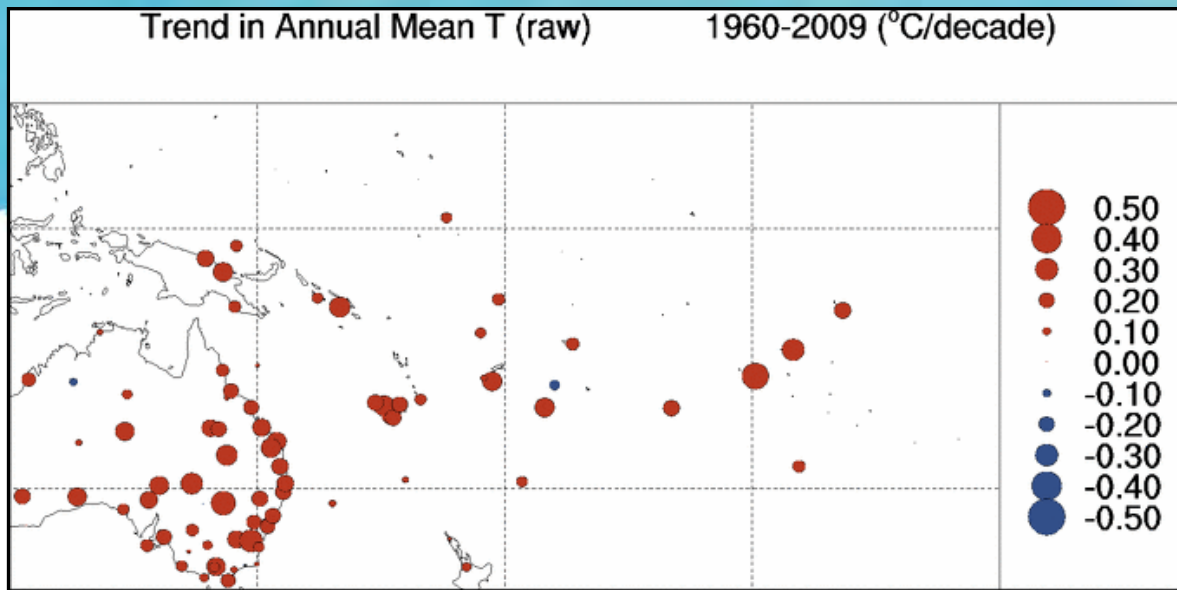


Homogenised T station series ... (Vanuatu, Fiji, Tonga, Samoa + Niue)



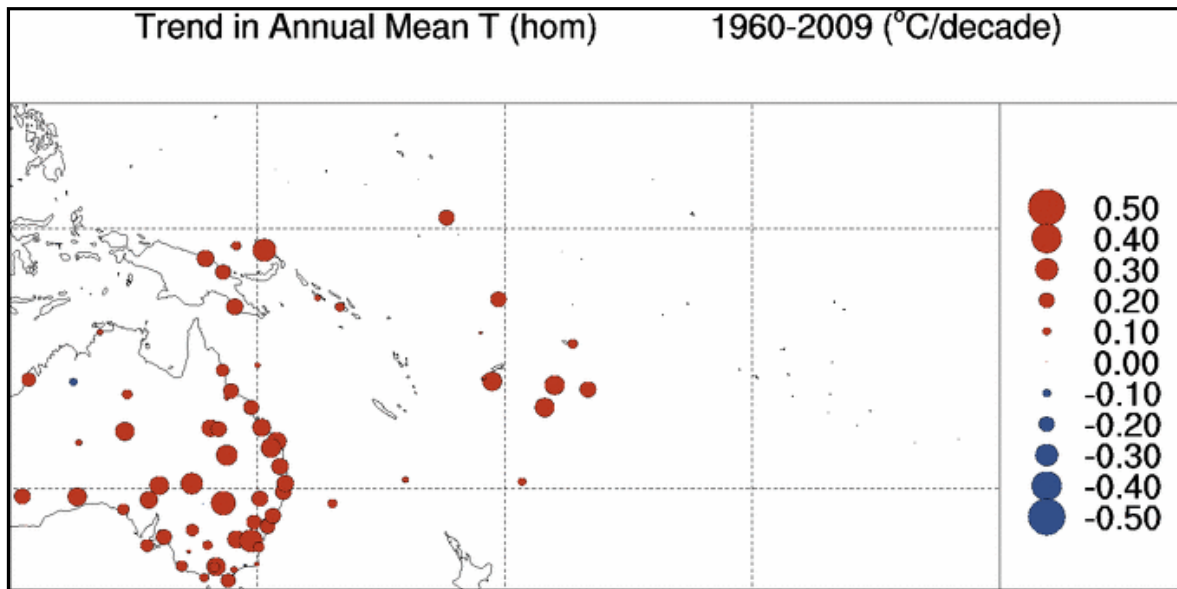


Trends over
past 70, 50 and
30 years

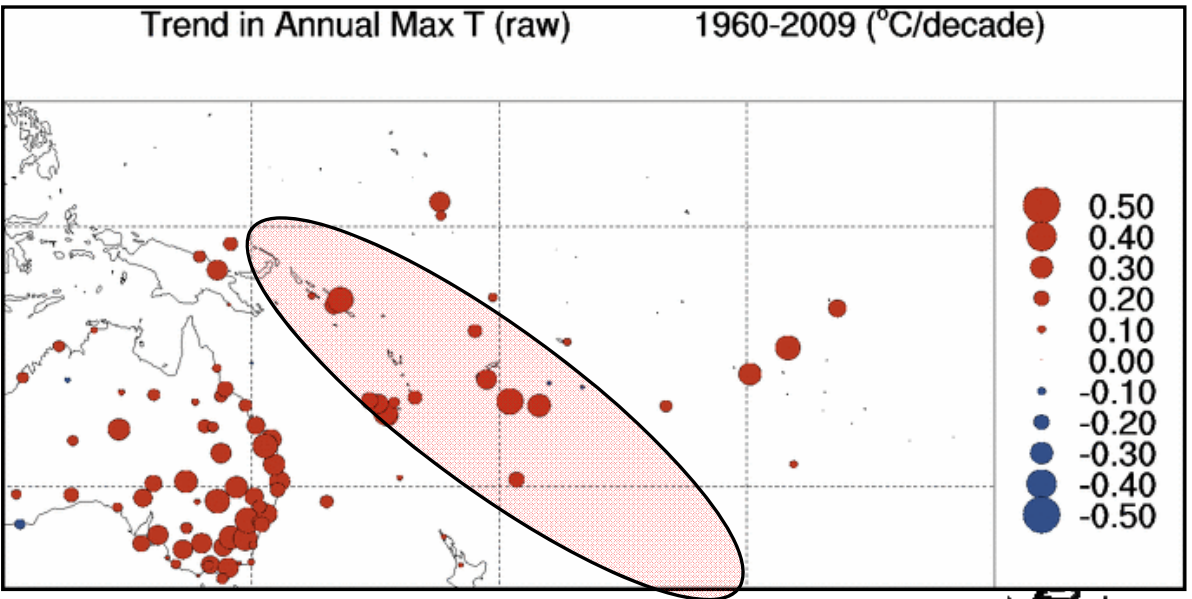
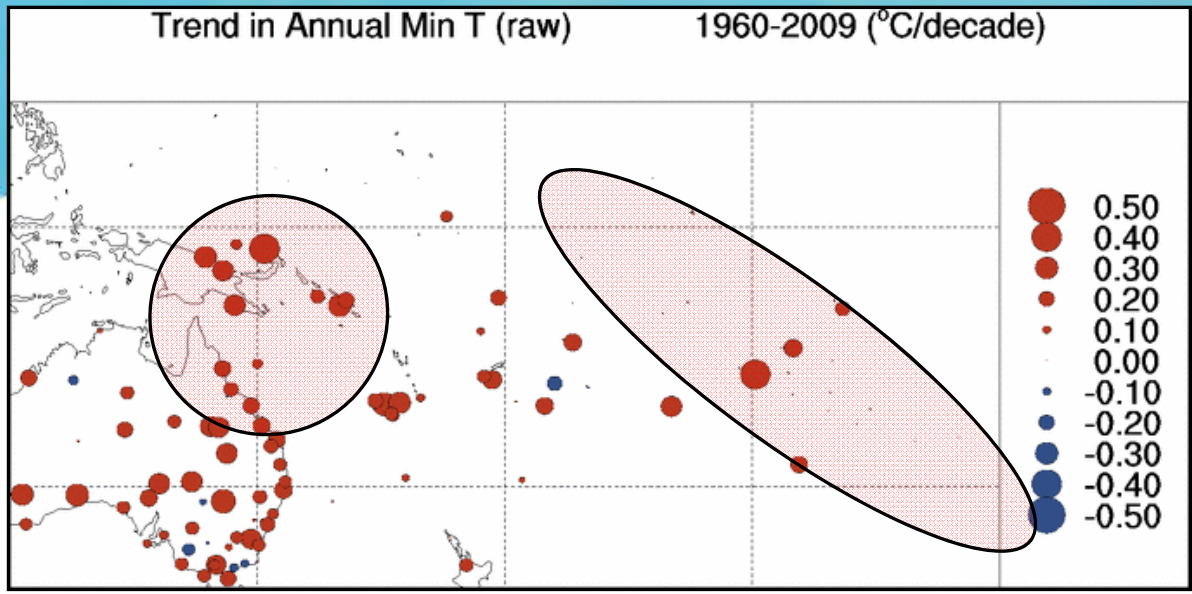


← Raw data

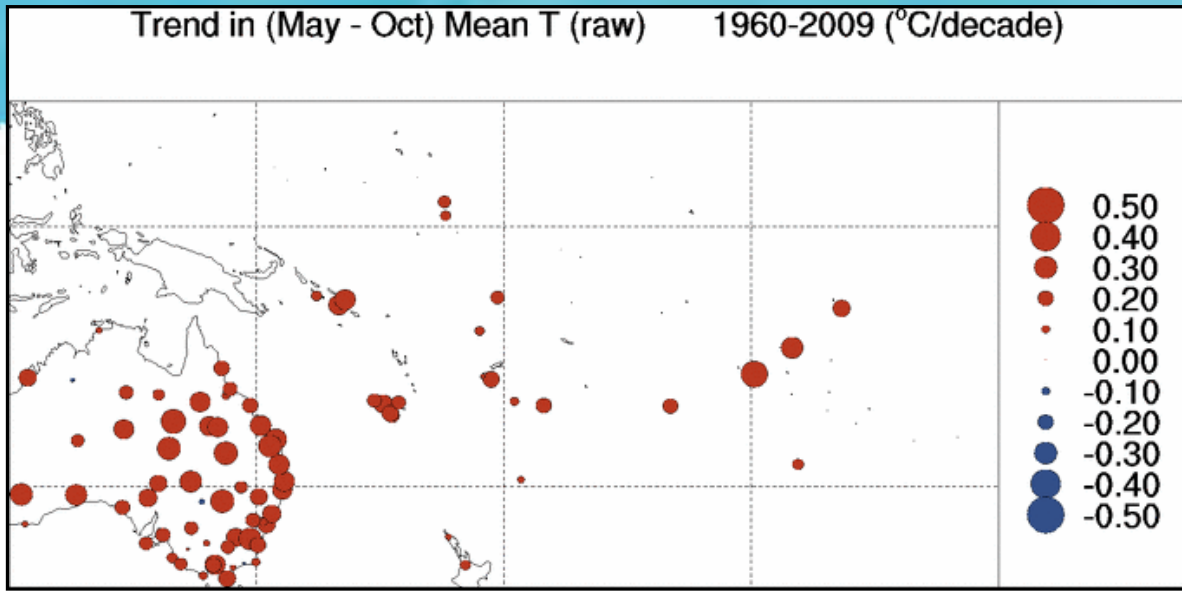
Homogeneity adjustments are yet to be finished but appear to create little bias overall



← Homogenised



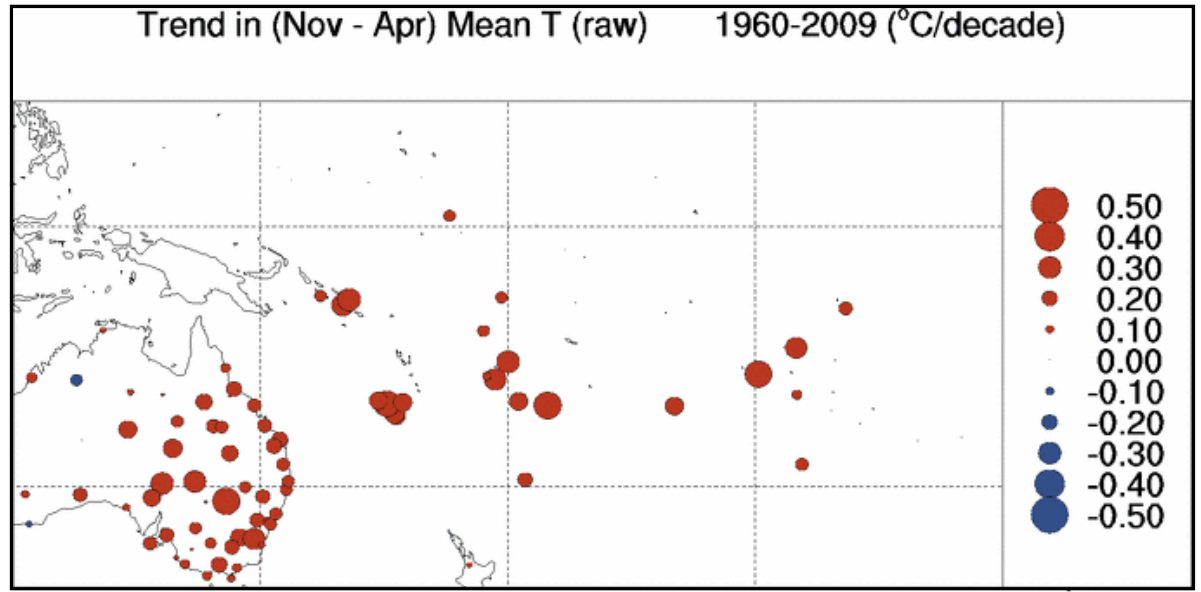
Similar trends in maximum and minimum temperature



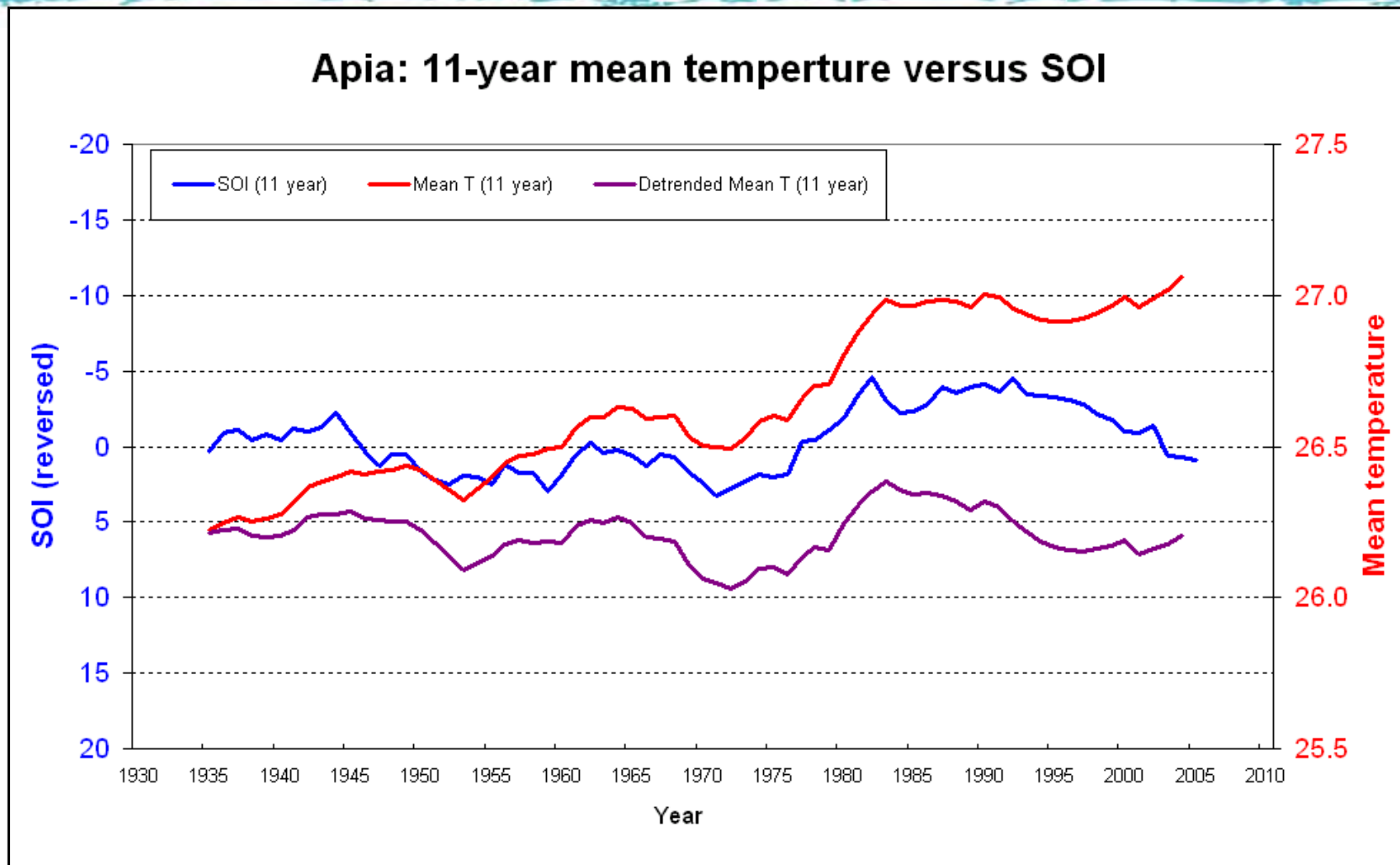
← Dry

Wet
↓

Slightly stronger warming during wet season



Decadal-scale variability associated with PDO/IPO



In summary ...

- PCCSP is working with partner countries to facilitate enhanced climate monitoring
- Many records require homogeneity adjustment for more reliable trends at the local scale
- Homogeneous temperature records show warming in Pacific consistent with global warming, though tending to be a little less
- More work required to separate natural and anthropogenic contributions



Thank you

David Jones

D.Jones@bom.gov.au

+61 3 9669 4085

Dean Collins

D.Collins@bom.gov.au

+61 3 9669 4780

Simon McGree

S.McGree@bom.gov.au

+61 3 9669 4256

