Australian Regional High Precision GHG Observation Network.

M. V. van der Schoot, L. P. Steele, D. A. Spencer, P. B. Krummel, R. J. Francey, P. Fraser
CSIRO Marine & Atmospheric Research, Private Bag No. 1, Aspendale, 3195, Victoria, Australia
marcel.vanderschoot@csiro.au

A high precision atmospheric observation network for greenhouse and related trace gas species is being developed for the Australian region. The primary objectives of the network are to:

1. Improve our global understanding of the forcing of climate change by:
   - providing observations of climatically active atmospheric constituents in the critically under-sampled tropical latitudes, and
   - investigating the potential for a high-precision atmospheric CO2 observation network to detect changes in CO2 fluxes in the globally important Southern Ocean region, and

2. Dramatically reduce the uncertainties in estimates of GHG emissions from Australia.

The Australian regional network has the Cape Grim Baseline Air Pollution Station (GAW) as the central observation site. A new atmospheric observation site is being developed in the Australian tropics region, incorporating high precision in-situ measurements of greenhouse and related trace gas species. It is anticipated high precision atmospheric observations from this region should significantly improve the understanding of the tropical sources and sinks of the major anthropogenic greenhouse gases (CO2, CH4, N2O). High precision "LoFLo" (NDIR) and "Picarro" (Cavity Ring Down Spectroscopy) instruments are being used for the measurement of CO2, CH4 and 13CO2/12CO2. Collaborative links with other sites in the Asian tropical region at Cape Rama, India (NIO) and Danum Valley GAW station, Malaysia (MMD) will also be discussed.

Preliminary data from the new Australian tropical site and the Southern Ocean observation network (CSIRO, Australia and LSCE, France) will be presented and the inter-calibration strategy for maintaining a long term, high precision network will be discussed.