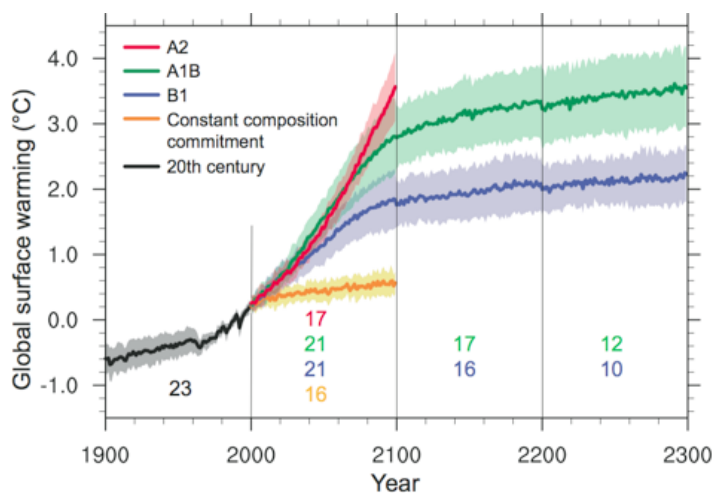




The development and evaluation of global climate models is an important unifying component of WCRP, building on scientific and technical advances in the more discipline-oriented activities. These models are the fundamental tool for understanding and predicting natural climate variations and providing reliable predictions of natural and anthropogenic climate change. Models also provide an essential means of exploiting and synthesising in a synergistic manner all relevant atmospheric, oceanographic, cryospheric and land-surface data collected in WCRP and other programmes. The **Working Group on Numerical Experimentation (WGNE)**, jointly sponsored by the WCRP and the WMO Commission for Atmospheric Sciences (CAS), leads the development of atmospheric models for both climate studies and numerical weather prediction. Numerical experimentation groups of WCRP projects meet in the **WCRP Modelling Panel**.



IPCC AR4 used model data derived from the CMIP3 multi-model dataset archive at PCMDI.

In addition, the **Working Group on Coupled Modelling (WGCM)** leads the development of coupled ocean/atmosphere/land models used for climate studies on longer time-scales. WGCM is also WCRP's link to the Earth system modelling in IGBP's Analysis, Integration and Modeling of the Earth System (AIMES) and to IPCC. Activities in this area concentrate on the identification of errors in model climate simulations and exploring the means for their reduction by organizing coordinated model experiments under standard conditions. Under the auspices of the WCRP, the Atmo-

### Example of Modelling accomplishments:

The latest Coupled Model Intercomparison Project (CMIP) was initiated in 2004. In 2005, WCRP facilitated the collection, archive and access to all the global climate model simulations undertaken for the IPCC Fourth Assessment Report (AR4). This third phase of CMIP (CMIP3) involved an unprecedented set of 20th and 21st century coordinated climate change experiments from 16 groups in 11 countries with 23 global coupled climate models. About 31 terabytes of model data were collected at the Program for Climate Model Diagnosis and Intercomparison (PCMDI). The model data are openly available, and have been accessed by over 1200 scientists who have produced over 200 peer-reviewed papers.

spheric Model Intercomparison Project (AMIP) has facilitated controlled simulations of the ten-year period 1979-1988 by thirty different atmospheric models under specified conditions. The comparison of the results with observations has shown the capability of many models to represent adequately mean seasonal states and large-scale inter-annual variability.