GCOS and the co-sponsored panels
AOPC, OOPC and TOPC

Adrian Simmons
European Centre for Medium-Range Weather Forecasts
Chair, Steering Committee for GCOS
GCOS encompasses the climate-relevant components of:

- the WMO observing systems and programmes (WIGOS: GOS, GAW, WHYCOS, ...)
- the IOC-led co-sponsored Global Ocean Observing System (GOOS)
- the FAO-led co-sponsored Global Terrestrial Observing System (GTOS)
- observational elements of research programmes (WCRP, IGBP, ...)
- other systems contributing climate observations, data management or products

which together form our overall global observing system for climate, and the climate-observing component of the GEO System of Systems

The GCOS programme:

- assesses and communicates overall requirements
- advises on implementation and reporting
- reviews and promotes progress

covering the observations, data transmission and management, formation of fundamental climate data records and derivation of products from them

WIGOS: WMO Integrated Global Observing System
WHYCOS: World Hydrological Cycle Observing System
GOS: Global Observing System   GAW: Global Atmosphere Watch
functions through contributions from:

National met services, other national institutions and regional agencies
- to the observing systems, including to baseline and reference atmospheric networks (GSN, GUAN, GRUAN, ...), following GCOS principles and guidelines where possible
- operating monitoring centres, lead centres, data centres, …
- supporting a Cooperation Mechanism and regional activities for developing capacity
- coordinating their specific national GCOS activities

GCOS bodies:
- the Programme Director and staff at WMO
- the Steering Committee (SC)
- co-sponsored Panels for Atmosphere, Ocean and Land, and their working groups
- also working via representation of these Panels on WOAP and now the WDAC

Secretariats of contributing observing systems and programmes, related technical commissions, space-agency coordinating bodies, expert groups, …
The three panels

Atmospheric Observation Panel for Climate (AOPC)
- Sponsored by GCOS and WCRP, with WCRP participation through SPARC and JPS representation at panel sessions
- Chair is Adrian Simmons

Ocean Observations Panel for Climate (OOPC)
- Sponsored by GCOS and WCRP, with WCRP participation through ex-officio CLIVAR membership
- GOOS is a former sponsor, and should return following recent re-organisation
- Eric Lindstrom has become Co-chair of new GOOS SC and will vacate OOPC chair

Terrestrial Observation Panel for Climate (TOPC)
- Sponsored by GCOS, WCRP and GTOS, with WCRP participation through panel membership of K. Steffen, together with JPS representation at panel sessions
- Chair is Han Dolman
- GTOS is currently disengaged (with more than TOPC) and prospect is unclear
Designates (with SC approval) baseline and reference *in situ* networks
- covers meteorological variables and atmospheric composition
- monitors performance (including transmission, archiving and rescue of historical data)
- provides recommendations in liaison with WMO programmes and commissions
- advises on regional improvement via Cooperation Mechanism

Oversees in particular the development of the GCOS Reference Upper Air Network

Discusses issues relating to satellite missions and their data processing and reprocessing

Reviews status of some *in situ* data products (CRUTEM, GPCC, …) and reanalysis

Liaises with OOPC and TOPC on topics of mutual interest

Contributes to the atmospheric component of overall GCOS assessments of adequacy and statements of requirements for global climate observation
New GOOS Steering Committee foresees
- three panels, each covering both open ocean and coastal waters
- OOPC as the panel for physical oceanography (supported from within GCOS Secretariat)
- with the other panels covering biogeochemistry and ecosystems

Working within the recently developed Framework for Ocean Observing

OOPC will continue its focus on
- improving and expanding ocean climate indices published on its web site
- documenting societal relevance of ocean observations and climate indices
- providing briefings on current climatic events
- presenting current status of *in situ* and satellite components of ocean observing system
- liaising to review needs and advocate for sustained and enhanced ocean observation
- continuing to develop a Deep Ocean Observing Strategy

and thereby contribute to the oceanic component of overall GCOS assessments of adequacy and statements of requirements for global climate observation
Terrestrial Observation Panel for Climate

Meets annually, considering general issues and variable-by-variable status

Matters raised at its March 2012 session include:

- lack of GTOS support (including for maintenance of web site)
- usefulness and appropriateness of the ISO framework proposed by GTOS
- need for liaison with ICSU on Future Earth; WGMS provides GCOS link to ICSU WDS
- burden of multiple reporting that falls on data centres
- poor provision of lake and river measurements to data centres
- support needed for river measurements; some from GCOS Cooperation Mechanism
- need for more uniformity and improvement of in situ soil-moisture measurement
- proposal for ex-officio membership from Land Product Validation subgroup of the CEOS Working Group on Calibration and Validation
- establishment of a reference network of ecosystem sites

Contributes to the terrestrial component of overall GCOS assessments of adequacy and statements of requirements for global climate observation

WDS: World Data System
WGMS: World Glacier Monitoring Service
Steering Committee and Secretariat

Steering Committee meets annually in Sept/Oct, about six months after panels

Activities of Secretariat and SC over past year include:

- publishing Satellite Supplement to 2010 Update of Implementation Plan
  - placing emphasis on requirements for products
  - with CEOS coordinating space-agency response to UNFCCC later this year

- contributing to the observation and monitoring component of the plan for the GFCS

- convening with partners an Implementation Strategy Meeting for South America

- mapping out proposal for next assessment cycle, in liaison with UNFCCC
  - reviewing data needs for adaptation and service provision (2012-2013)
  - assessing general progress and adequacy, taking account of IPCC AR5 (2013-2015)
  - formulating new Implementation Plan (2015-2016)

Future activities will be subject to the outcome of a Sponsors’ review of the programme to be held over the coming 12 months

GFCS: Global Framework for Climate Services being developed under the leadership of WMO