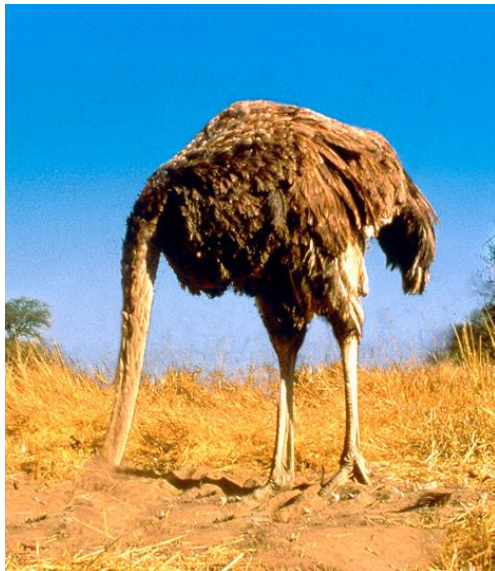


“Development of a GEOSS Gap Analysis Strategy”

**Dr. Stuart Minchin,
STC Co-Chair,
CSIRO, Australia.**

Why undertake a gap analysis?

- Because we said we would!
- We are in a unique position to identify and address gaps across domains and societal benefit areas.
- Important to understand our weaknesses
- Will allow us to articulate opportunities to GEO community
- We can't afford to have our head in the sand



Issues identified and explored by group

- Significant activity across the GEO community either completed or proposed, but relatively uncoordinated
- There are a range of gaps important to GEO (geographic, temporal, observational, structural, qualitative/quantitative and capacity)
- Timing of analyses an issue, not all are needed at same time
- There is value in identifying duplication or overlaps as well as gaps
- The need to view gaps as opportunities, not threats.
- The need to agree on some common prioritization principles (as a GEO community) which can be used for prioritization.

Proposed approach- 5 Actions

- SBA- or Domain-focused gap analysis (existing, with some gaps);
- Structural gap analysis (proposed);
- Observational gap analysis (partly existing/proposed);
- Periodic meta-analysis of gaps (proposed);
- Development of GEOSS Prioritization Principles (proposed).

SBA or Domain Focused Analyses

- Lots of existing activity in some domains/SBAs
- Many areas where this has not been done
- Timing dependent on domains or Communities of Practice
- Majority of activity across GEO is this style of assessment to date.
- GEO should encourage this activity to continue and perhaps catalyze activity to undertake SBA analyses where these don't already exist.



EO Handbook Home Database Home Agency Table Missions Table Index Instruments Table Index Measurements Overview Timelines

Updated October 2010

CEOS EO HANDBOOK – MEASUREMENTS

Earth observation satellites provide important data about the Earth and its environment, helping develop our understanding of the basic Earth System and human influences on it. These data cover measurements of a very wide range of geophysical parameters, spanning the whole spectrum of the environment – atmosphere, land, oceans, ice and space. You can read more about these measurements in the Earth Observation Handbook.

The CEOS Missions, Instruments, and Measurements database contains information on many key measurements of interest to the main user groups of Earth observation satellite data. The table below includes links to further information on broader measurement categories (left), more detailed measurements (centre), and measurement timelines (right).

Atmosphere		Timelines
	◆ Aerosols ◆ Atmospheric Humidity Fields ◆ Atmospheric Temperature Fields ◆ Atmospheric Winds ◆ Cloud particle properties and profile ◆ Cloud type, amount and cloud top temperature ◆ Lightning Detection ◆ Liquid water and precipitation rate ◆ Ozone ◆ Radiation budget ◆ Trace gases (excluding ozone)	

GCOS Global Climate Observing System

News About GCOS Climate Observation Needs UNFCCC and GCOS GCOS Reports to UNFCCC Essential Climate Variables Climate Monitoring Principles Observing Systems and Data Activities Partners Outreach Contact

GCOS Essential Climate Variables

The 60 GCOS Essential Climate Variables (ECVs) (2010) are required to support the work of the UNFCCC and the IPCC. All ECVs are technically and economically feasible for systematic observation. It is these variables for which international exchange is required for both current and historical observations. Additional variables required for research purposes are not included in this table. It is emphasized that the ordering within the table is simply for convenience and is not an indicator of relative priority.

Domain	GCOS Essential Climate Variables
Atmospheric (over land, sea and ice)	Surface[1] Air temperature, Wind speed and direction, Water vapour, Pressure, Surface radiation budget.
	Upper-air[2] Temperature, Wind speed and direction, Water vapour, Cloud properties, Earth radiation budget (including solar irradiance).
	Composition: Carbon dioxide, Methane, and other long-lived greenhouse gases[3], Ozone and Aerosol, supported by their precursor[5].
Oceanic	Surface[4] Sea-surface temperature, Sea-surface salinity, Sea level, Sea state, Sea ice, Surface current, Ocean colour, Carbon dioxide partial pressure, Ocean acidity, Phytoplankton.
	Sub-surface: Temperature, Salinity, Current, Nutrients, Carbon dioxide partial pressure, Ocean acidity, Oxygen, Tracers.
River discharge, Water use, Groundwater, Lakes, Snow cover, Glaciers and ice caps.	

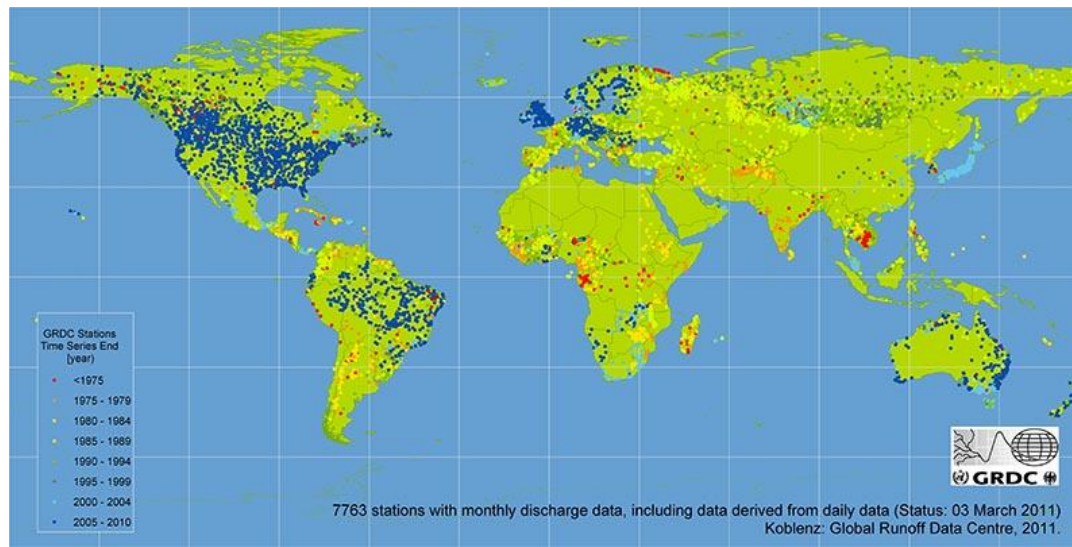
Structural Gap Analysis

- Examines whether GEO Work Plan, structures, committees, tasks and activities are internally consistent and will lead to the achievement of the GEOSS strategic targets.
- Do the pieces of GEOSS fit together logically and coherently?
- Are the outputs of some tasks consistent with expectations of other tasks (ie. do the building blocks connect?)
- What adjustments are necessary to achieve internal consistency?
- Should happen in synchronization with GEOSS Workplan renewal.



Observational Gap Analysis

- Cross domain/SBA structured process for observational gap analysis covering observation specifications and parameters, geographical and temporal coverage, and observation and information accessibility and quality.
- STC's EOCA proposal and UIC's US-09-01a: Critical Earth Observation Priorities report are both attempting to directly address this need, but differing in methodology.
- Best approach perhaps to combine efforts.
- Timing perhaps every 5 years



Periodic Meta Analysis of Gaps

- Summary of findings across other three analyses, brought together into single document for the information of Plenary
- Prioritization according to agreed principles
- Articulated far enough in advance of GEO Ministerial to allow actions to address gaps (provides announcables for ministers)
- Meant primarily as desktop analysis of other analyses



Development of GEO Prioritisation Principles

- Need to define common GEOSS Prioritization Principles or GEOSS Common Values to inform relative prioritization of gaps within a GEOSS Gap Analysis Strategy.
- Would not over-ride Member or Participating organizations' own prioritization processes, but would articulate the shared principles whereby an agreed GEO prioritization may occur.
- Principles could be: number of people/communities expressing need, degree of contribution to meeting MDGs, degree of consistency with GEOSS Data Sharing Principles, continuity of measurements rating higher than new measurement types, value for money.....etc
- One-off process needed to agree on these across GEO.

Outcomes

- The cross cutting Gap analysis has now been included in the new workplan as a new task
- Detailed methodology and resource requirements for each style of analysis are still to be developed, likely over the next month or two.
- More detailed plan to be considered by ExCom in July
- Potential funding agencies may wish to influence this process now to ensure funding priorities are reflected in gap assessment process.
- EGIDA can perhaps play a role in ensuring this happens?

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