

# Comments on GEWEX Core Project Presentation

.... an integrated program of **research, observations, and science activities** that focuses on the **atmospheric, terrestrial, radiative, hydrological, coupled processes**, and interactions that determine the **global and regional hydrological cycle, radiation and energy transitions, and their involvement in climate change.**

## Overview

1. Highlights from 3 of their 4 panels (GDAP, GHP, GLASS)
2. Describing proposed changes to GASS, including its links to WWRP
3. Description of process studies via the GEWEX PROES initiative
4. Plans for the future

Discussion of Issues

# Headlines

## 1. Strong progress being made across the 3 Panels.

- Strong **links to the Grand Challenges** “Weather and Climate Extremes ....” and “Water for Food Baskets...”
- **Cross-cutting activities:** especially to CLiC via some of the process studies; still developing across to SPARC

### **GDAP: GEWEX Data Assessment Panel:**

- Stewardship of data, incl. some “iconic” datasets e.g.: ISCCP [clouds] and GPCP [rainfall];
- Oversight/guidance to in-situ networks such as BSRN [radiation], soil moisture, rainfall radars
- Data quality control and assurance;
- Data Integration.

➔ This has enabled some important outcomes for WCRP science such as constraining and updating Earth energy balance in recent years

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### **GHP: Global Hydroclimatology Panel**

- Regional hydroclimate projects; cross-cutting activities; links to global data centres
- Human influences on the hydrological cycle – Workshop in 2016

### **GLASS: Global Land/Atmosphere System Study**

- Coordinating the evaluation and intercomparison of the new generation of Land Surface Schemes and applications to scientific questions
- Model development and evaluation - local and global scales
  - Coupling; Model-data fusion; Benchmarking
  - New project/activity on soil water
  - For the first time, a contribution to CMIP6 via LS3MIP and Land Use Model MIP (LUMIP)

# Headlines

## 2. GASS: Global Atmospheric System Studies

- Drivers for change:
  - Evolved from original focus on improving cloud parameterizations in models to a collection of projects
  - GEWEX acknowledges the importance of a panel focused on atmospheric processes and links to WWRP
  - Under new leadership
- A proposed new focus on clouds, convection and precipitation processes, and their representation in models
  - Role of land surface processes in sub-seasonal to seasonal prediction
  - Improving representation of processes to improve precip. (aerosols, cloud-environment coupling)
  - Mechanisms that affect diurnal cycle of precip.
  - Convectively permitting models – Workshop
  - Participation in the Year of the Maritime Continent.

# Headlines

## 3. PROES: studies that address key processes

- UTCC (upper troposphere cloud-convection)
  - Ice sheet mass balance
  - Radiation kernel
  - Mid-latitude storms etc.
  - Warm rain
- ➔ Some of these are progressing well; some are still getting underway.

## 4. Looking forward

- Appropriate to review what GEWEX has achieved; in its 30th year
- New foci:
  - Soils
  - Human influence on hydrological cycle
  - WCRP precipitation assessment activity (observations and processes);
  - Open Science Conference in 2018.

# Discussion - themes

- Important data stewardship role that GEWEX plays
  - Branding and ownership of data sets
  - Ensuring attribution when key data sets are being used that owe their QC/QA to GEWEX
- GEWEX has a focus on atmospheric processes & phenomenon that affect the energy and water cycles (Clouds, Precip); links to other initiatives such as:
  - GAW – aerosols
  - Cloud GC (clouds, circulation and climate sensitivity)
  - FluxNet (ET) and Carbon GC

Exploit these links to advance the goals of each, and improve the outcomes of the WCRP science.
- GASS – needs a strategy to ensure it links to the modelling centres; this can come about via WWRP (weather) and WGNE (for climate?)
- Budget implications – refer to Written Report.