IP3 Workshop #1

GEWEX and IP3

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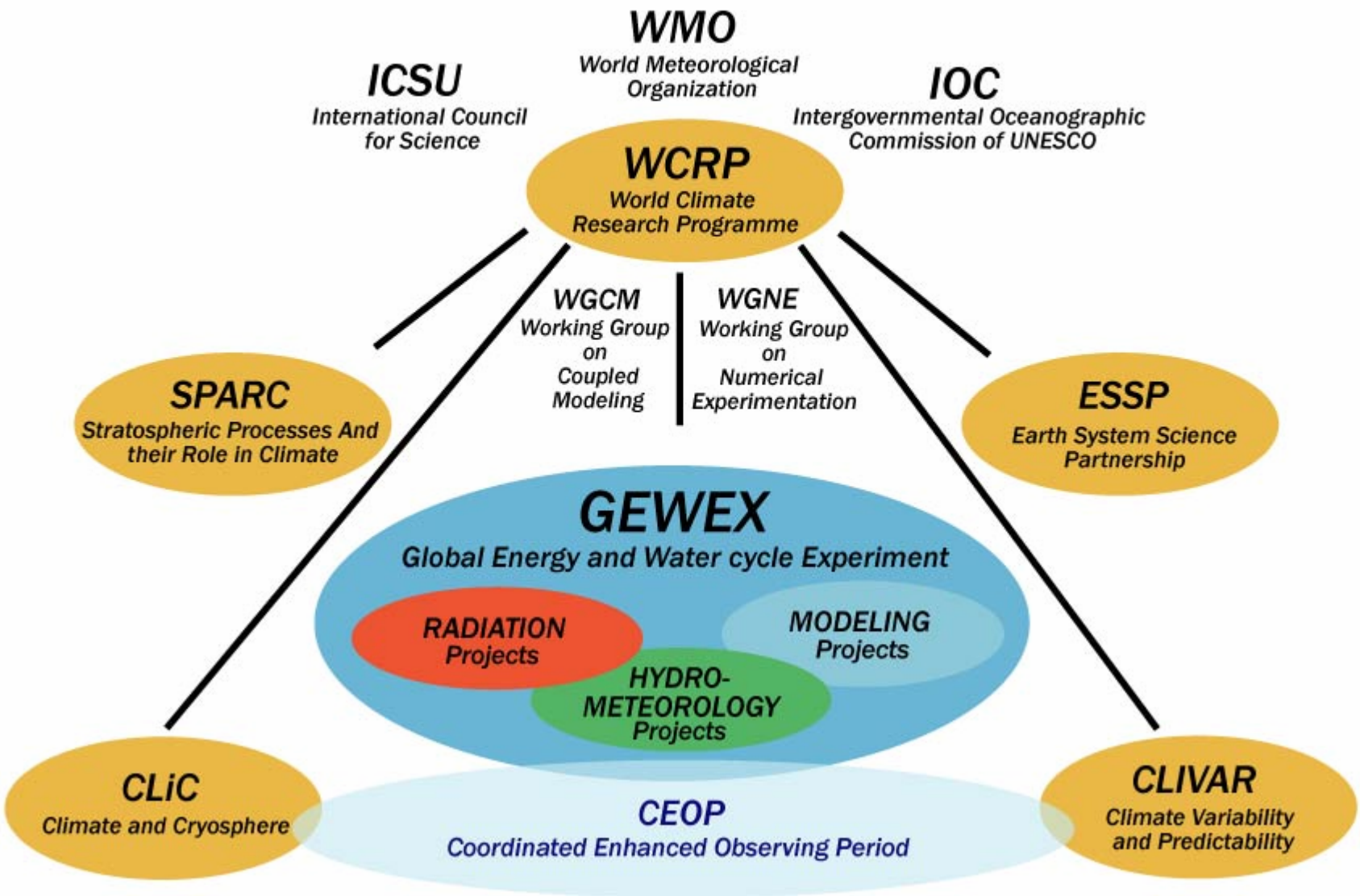
Global Energy and Water Cycle Experiment (GEWEX) Objectives

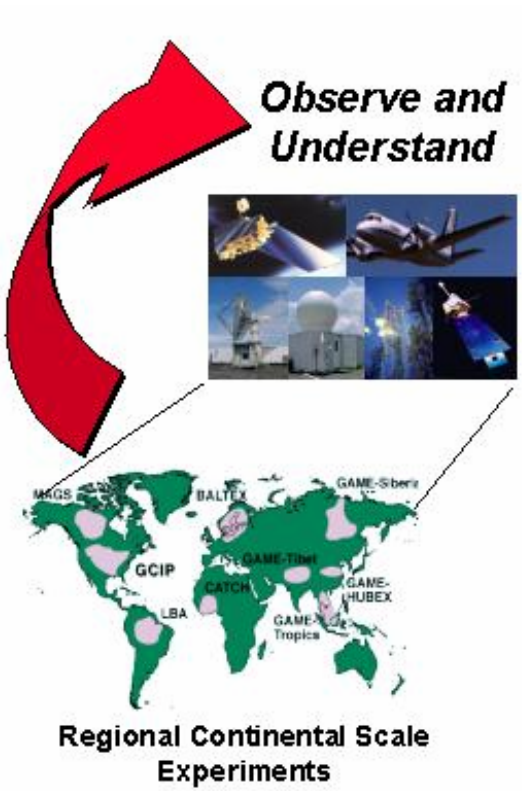
Energy and Water Cycle

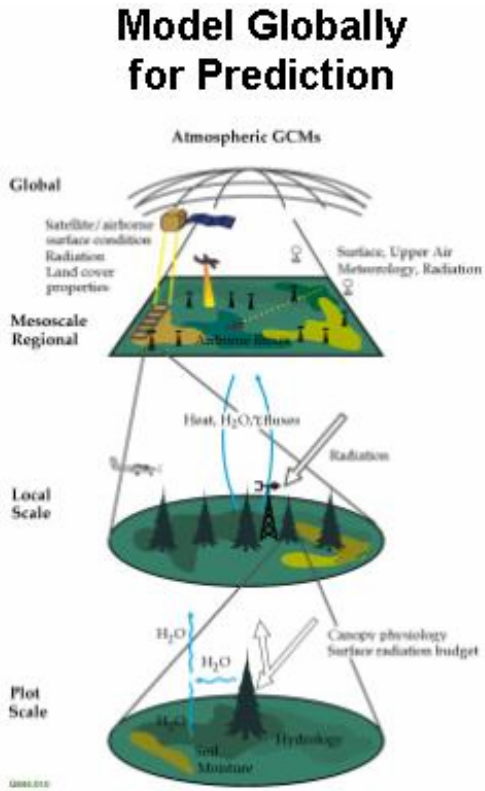
- Determine the Hydrological Cycle by Global Measurements
- Model the Hydrological Cycle and its Effects
- Predict Response to Environmental Change
- Improve Observing Techniques and Data Assimilation Systems

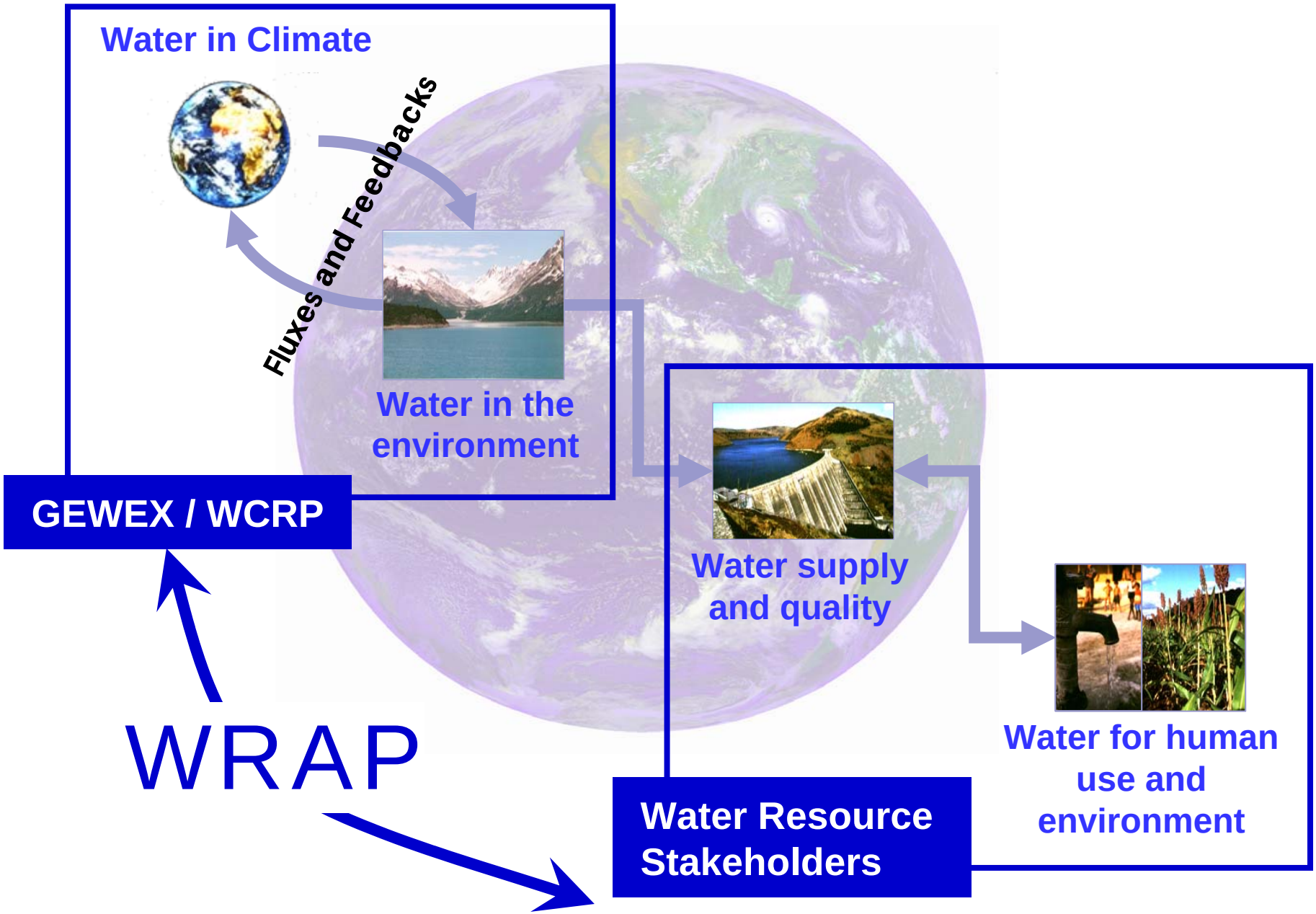
GEWEX Organization Within WCRP



A global perspective with local applications





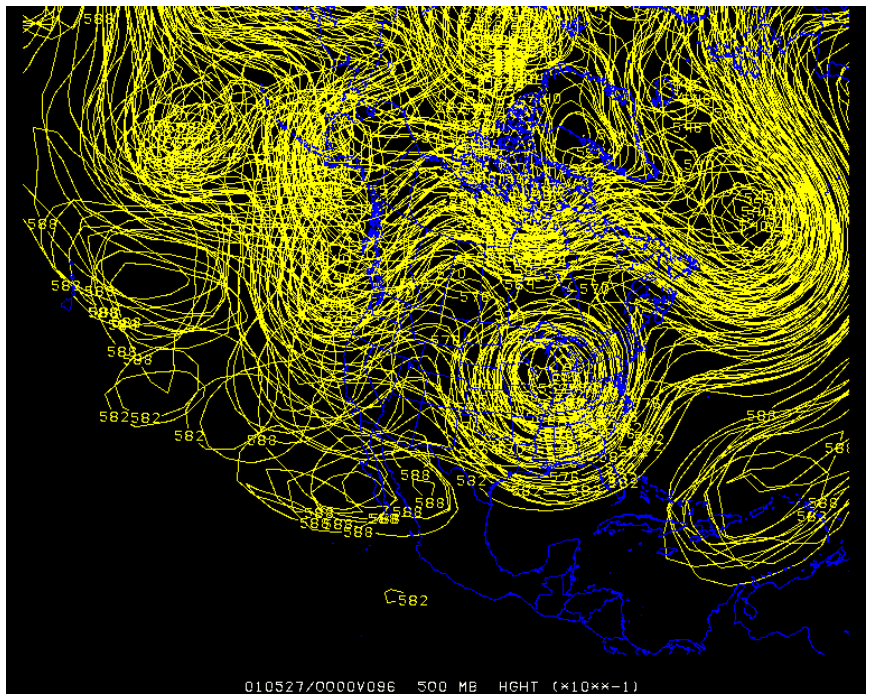

Water in Climate
Fluxes and Feedbacks
Water in the environment
GEWEX / WCRP
Water supply and quality
Water for human use and environment
WRAP
Water Resource Stakeholders

Some workshop issues

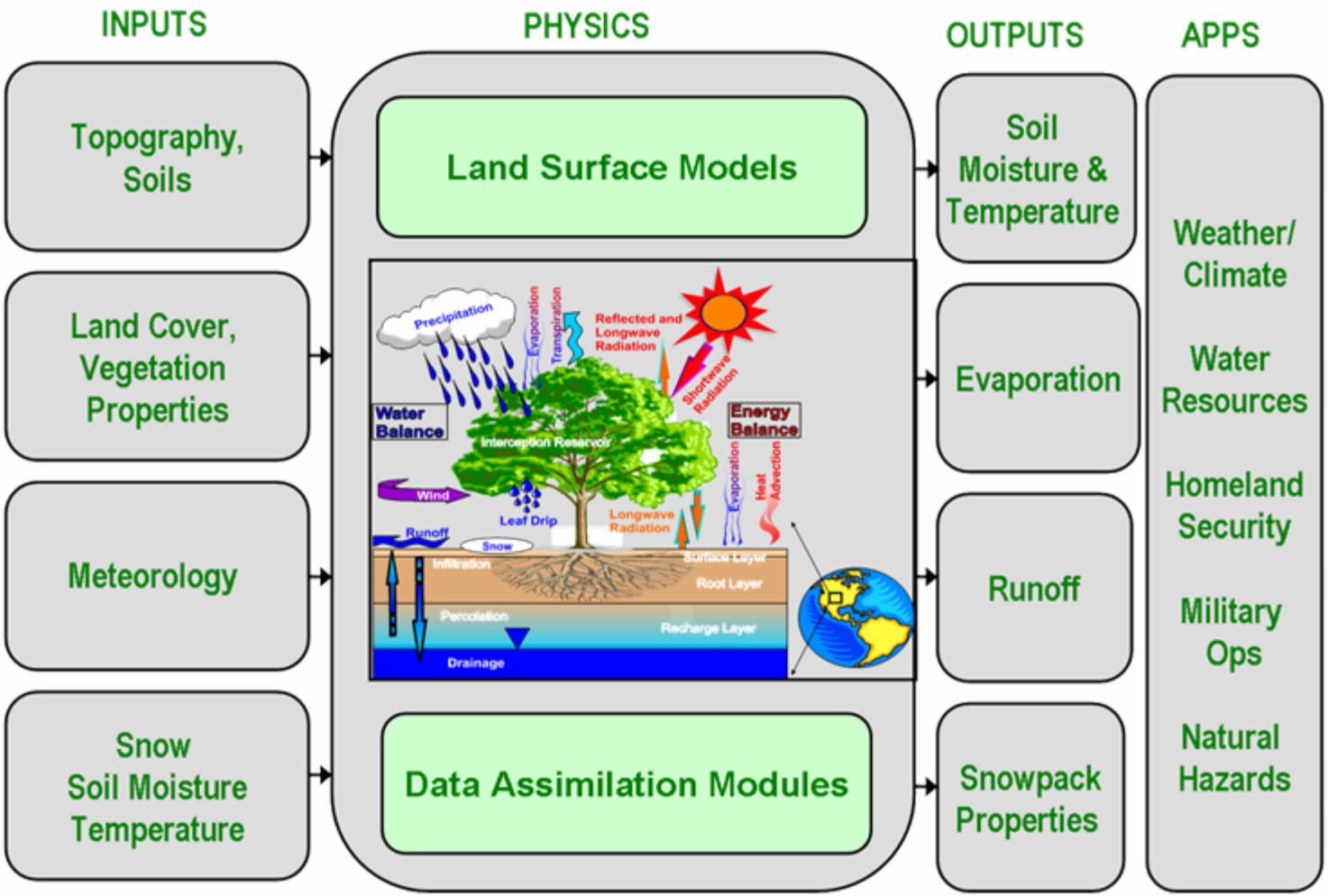
- GEWEX not well known or understood in WR community
- Need to quantify forecast uncertainty
- Need to address data “downscaling” issues
- Water managers won’t to respond to high levels of uncertainty
- More robust water management systems vs. more accurate forecasts
- Value of integrated hydrological and climate models
- Hydropower as a tradable commodity and focus
- Global Soil Wetness (GSWP) and Prediction of Ungauged Basins (PUB) projects with high potential for water resource applications
- Demonstration projects using water resource forecasts from climate models in larger basins
- Need for workshops with water managers and water scientists at the regional/basin scale

An international Hydrological Ensemble Prediction Experiment (HEPEX)

- Objective: demonstrate use of hydrological ensemble forecasts to support water resource decision-making that has important consequences for economy and public health & safety
- Lead: John Schaake
- Support: GEWEX-WRAP, WMO-Hydrology, IAHS-PUB
- WRAP role in coordination & promoting CSE participation.
- HEPEX discussion included in IAHS workshop



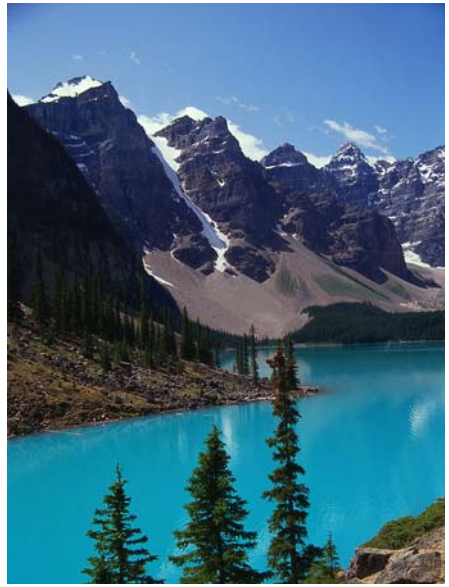
Land Data Assimilation System (LDAS) and Land Information System (LIS)



Collaborative interests

- Application of LIS data products in hydrological modeling at selected sites
- LIS/LDAS interest:
  - Validation of LIS/LDAS products capability to reproduce key elements of the hydrologic cycle
- Hydrological interest:
  - Evaluation of the capacity of LIS/LDAS products to provide initial conditions / state variables and forcing variables in ungauged areas
- Uncertainty as a common interest

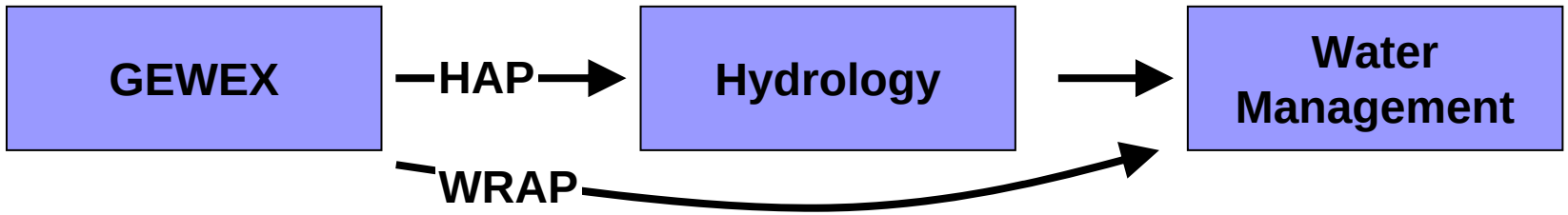
Mountain regions



- Global “water towers”
- Climate modeling challenges (physics, sub-grid topographic variability and related parameterizations)
- Hydrologic modeling challenges (spatial variability, data availability)

WRAP ⇨ HAP

- WRAP completion in 2006
- Hydrology vs. water resources



- Formation of HAP working group
  - Focus on seasonal hydrologic prediction
  - Eric Wood (Princeton U) to lead
  - HAP white paper for Pan-GEWEX meeting (Sept 06)

IP3 and GEWEX:
fostering international links

- CEOP
  - Hydrological reference sites
- HEPEX
  - Land surface schemes in ensemble predictions
- GLASS
  - Parameterization of LSS and testing data products for model initiation and forcing
- HAP
  - Improving seasonal predictions
- Mountain working group
  - A continental scale transect and experiments

Thank You