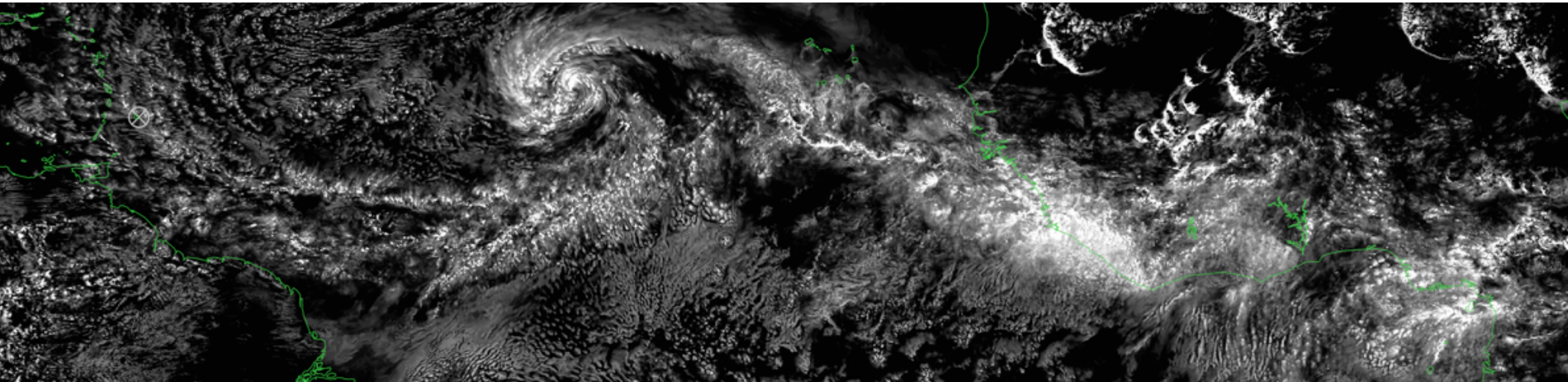
GASS
Global Atmospheric System Studies

Daniel Klocke & Xubin Zeng

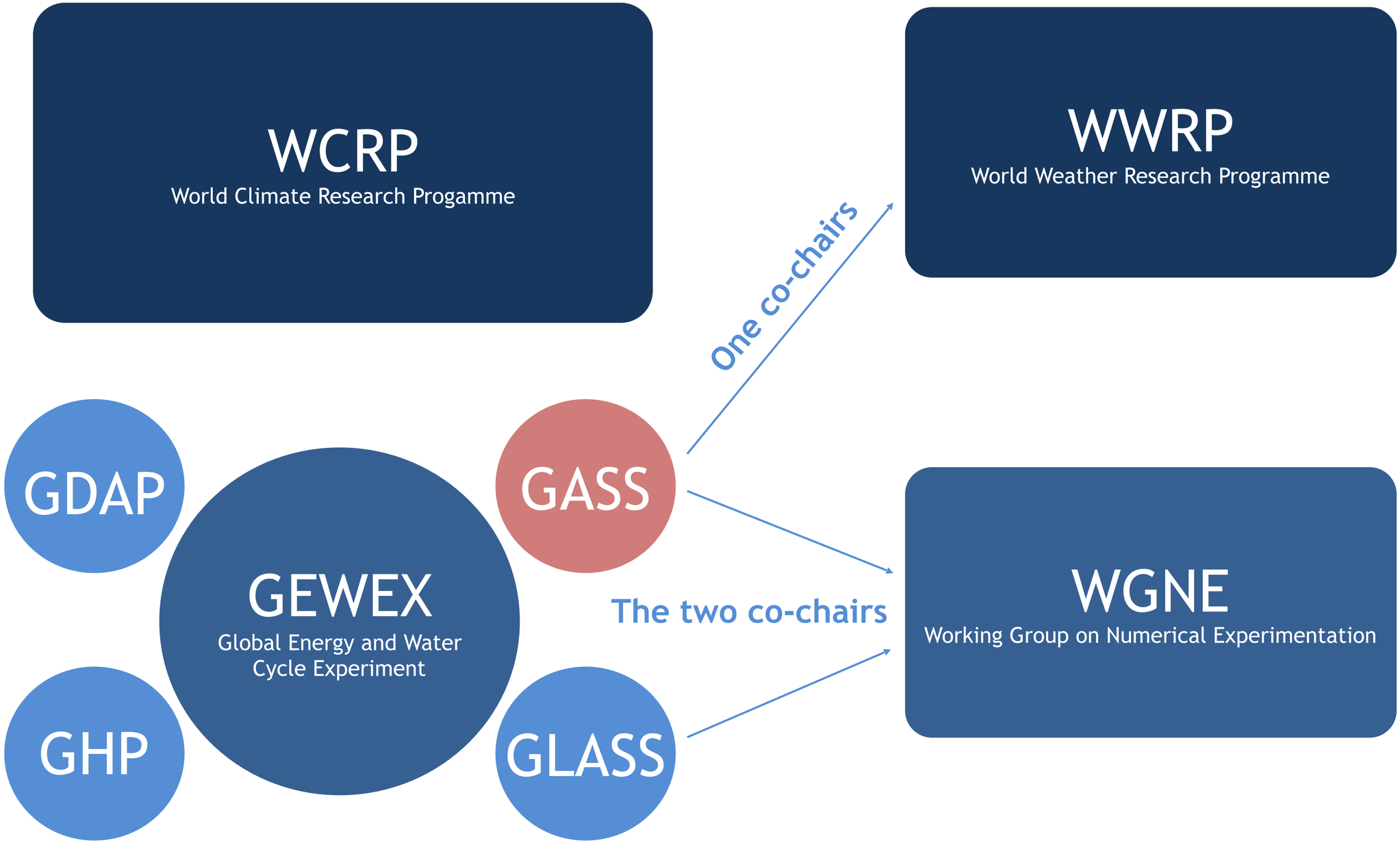


Goal of GASS: to understand the physical processes and the coupling of those processes to atmospheric dynamics, particularly those that define the atmospheric branch of the **hydrological cycle**.

Mission of GASS:

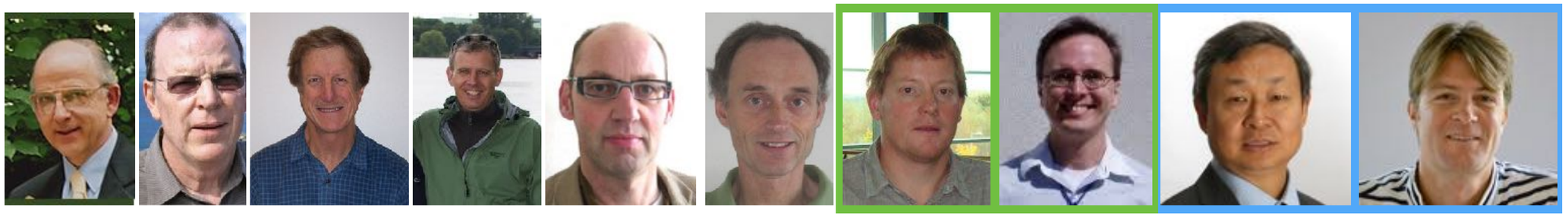
- to facilitate and support the international community that carries out and uses observations, process studies, and numerical model experiments with the goal of developing and improving the representation of the atmosphere in **weather** and **climate** models.

- to coordinates scientific projects that bring together experts to contribute to the development of **atmospheric models**.



GASS: Global Atmospheric System Studies GLASS: Global Land/Atmospheric System Studies
GHP: GEWEX Hydroclimatology Panel GDAP: GEWEX Data and Assessments Panel

1993 2011 2017



GCSS → GASS → Radiation, Micro-physics, Clouds, Boundary layer, Convection

GABLS → CIRC

ICRCCM → CIRC

GASS Highlights

- Two new co-chairs were appointed in July 2017

- GASS is organizing the Pan-GASS Conference from 26 Feb - 2 Mar 2018 in Lorne, Australia (sponsored by ARC).

- We are proactively seeking leaders to help organize GASS projects on a variety of issues, such as
  - dynamics-physics coupling,
  - precipitation diurnal cycle over different regimes,
  - impact of snowpack and soil temperature on subseasonal to seasonal (S2S) prediction,
  - Joint Modelling Activity over the Caribbean,
  - Momentum transport and drag

- We are seeking partnerships with WWRP, WGNE, ACPC, GLASS, CFMIP, CLIVAR and other programs for joint projects

09:00 09:30 10:00	Session I Setting the scene	Session V Surface Drag and Momentum Feedbacks I	Session IX Surface Drag and Momentum Feedbacks II	Session XI Microphysics and aerosol interactions	Session XV Land-atmosphere interactions
10:30	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
11:00 11:30 12:00	Session II Shallow and Deep convection I	Session VI Next generation modelling	Session X Parallel discussion sessions	Session XII Shallow and Deep convection II	Future GASS Projects
12:30 13:00	Lunch/Posters	Lunch/Posters	Lunch/Posters	Lunch/Posters	Meeting Close
13:30 14:00 14:30	Session III Clouds, radiation and circulation feedback I	Session VII Physics-dynamics coupling	Plenary discussion	Session XIII Clouds, radiation and circulation feedback	
15:00	Coffee Break	Coffee Break		Coffee Break	
15:30 16:00 16:30	Session IV New observational efforts	VIII: Polar prediction/GABLS4	Activity?	Session XIV Methods for gaining model insight	
17:00		UM Partners meeting			
17:30					

Potential GASS Project Ideas

- Surface drag and momentum transport: orographic drag, convective momentum transport, drag coefficients, boundary-layer mixing
- Processes relevant for polar prediction: stable boundary layers, mixed-phase clouds, coupling to the surface
- Shallow and deep convection: stochasticity, scale-awareness, organization, grey zone issues
- Clouds and circulation feedbacks: boundary-layer clouds, CFMIP, cirrus
- Microphysics and aerosol-cloud interactions: microphysical observations, parameterization, process studies on aerosol-cloud interactions
- Radiation: circulation coupling; interaction between radiation and clouds
- Land-atmosphere interactions: Role of snow, soil moisture, soil temperature, and vegetation in sub-seasonal to seasonal (S2S) prediction
- Physics-dynamics coupling: numerical methods, scale-separation and grey-zone, thermodynamic consistency
- Next generation model development: challenge of exascale, dynamical core developments, regional refinement, super-parameterization
- High Impact and Extreme Weather: role of convective scale models; ensembles; relevant challenges for model development
- Precipitation diurnal cycle over different climate regimes

Conclusion:
GASS is alive and getting back up to speed
Building panel and projects
Good time for input!