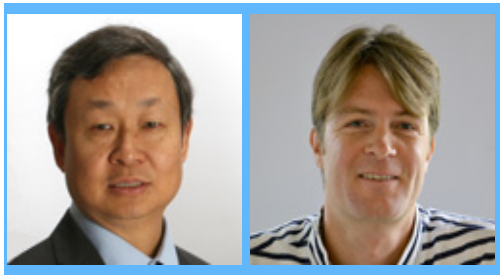
GASS: Global Atmospheric System Studies



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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 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.

- We are aggressively 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 Modeling Activity over the Caribbean,
  - ……

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

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