WMAC-2 report

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Introductory remarks

• Second meeting -> Started action after last year’s existential discussions
• Still struggling to get everyone to come -> partly caused by meeting format (see later)
• Great discussions with those who did come
Grand Challenges

• Found it difficult to discuss them before hearing reports. Written input only.

• Many of the GC goals require major improvements to models -> There appears to be no strategy how to achieve this.

• Concern that an already stretched modeling community will be even more fragmented.

• More thought on coordination of activities is required. -> Topic for WMAC-3?
CMIP6

• CMIP6 planning is beginning in less than 3 months!

• The community has barely recovered from CMIP5, with results indicating little progress from CMIP3!

• Just as for the GCs, to remain credible we need more time and a strategy to significantly improve models.

• What is our strategy to achieve this?
“An endangered species is a population of organisms which is at risk of becoming extinct because it is either few in numbers, or threatened by changing environmental or predation parameters.” - Wikipedia
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Golden Lion Tamarin
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Promote model development

• Promote the establishment of several prizes for significant contributions to model development

• Focus on early career scientists

• Options: National Services, WMO, AMS, RMS, AGU, EGU, EMS, etc.

• Small WMAC task team has been formed
Promote model development

• Summer Schools on model development
  • Most summer schools on modeling are either focused on running models or on numerical methods.
  • Little to no training in details of model physics - true for all spheres
  • Proposal: Organize summer school(s) on model development that focus on parametrization (e.g., like ECMWF training course).
  • Small task team has been formed (GC4+WGOMD+GASS+GLASS)
Regional climate

• Concerns about model evaluation in CORDEX
CORDEX Phase I experiment design

Model Evaluation Framework

Climate Projection Framework

Multiple regions (Initial focus on Africa)
50 km grid spacing

ERA-Interim LBC 1989-2007

AMIP like

Regional Analysis
Regional Databanks

CMIP like

RCP4.5, RCP8.5
1951-2100 or 1980-2050

Decadal predictions

Multiple AOGCMs
Regional climate

• Concerns about model evaluation in CORDEX

• Proposal:

  • Include experiments forced at the boundaries with historical GCM simulations in the Model Evaluation Framework

  • Have a dedicated evaluation effort under WGRC (don’t leave it to the users)
ESGF

• WMAC sees ESGF as the main mechanism for exchanging data (mod+obs+ana) in the WCRP in the next decade.

• This will have important implications not all of which are fully understood.

• Buy-in from some WCRP activities exists (e.g., CMIP, CHFP, CORDEX, OBS4MIPS, ANA4MIPS).

• Core project involvement requires some more thought
ESGF

- Recommendations:
  - JSC to endorse ESGF as data exchange mechanism and discuss core project involvement
  - Consultation with ESGF to determine details
  - Leave determination of internal structure to ESGF
  - Replace Review Board by an Advisory Board with membership drawn from relevant partners, including WCRP
Workshops

• Proposal: Workshop on model “tuning”
• WMAC supportive of general idea
• WGCM to lead
• Cover all aspects of tuning - from process level to coupled system
• discuss making documentation of tuning process a requirement for participation in CMIP6
• Dynamics-Physics coupling
Workshops

• Workshop on Dynamics-Physics coupling
  • How do dynamical and physical process couple in the general circulation and how well is this coupling represented in models? -> Key to regional climate prediction
  • Currently dealt with in separate communities -> Danger of fragmentation
  • Potential partners: GC4, GASS and SPARC
  • Recommendation: Form a small group to define workshop goals and outline led by GASS
Organization

• WMAC Membership

• WGRC representative: Keep current arrangement for one more year, then have a WGRC rep

• WWRP representative: Still considered desirable by the committee
Organization

- Meeting structure

- Issues:
  - struggle to attract members to attend 1-day meeting
  - unnecessary duplication of reporting with main JSC meeting

- Proposal
  - Make WMAC a “3-day” meeting with the JSC
  - Structure: Mon am WMAC P1; Mon pm - Wed am - Joint with JSC, all key reports happen there; Wed pm WMAC P2; Thu am Report to JSC
Other things

• WMAC endorses proposal that CMIP6 Decadal Prediction activities are coordinated through WGSIP+WGCM +CLIVAR

• Recommendation: WDAC to lead new effort on coordinating activities on surface fluxes -> GEWEX products, SURFA, Reanalyses