Modelling the Regional Climate – Regional and high-resolution global models

Overarching recommendation: A task force to sustain further dialogue

- Focus: AR6 atlas? Sharing of diagnostics, output?
- Other communities to engage? (e.g., VarRes GCMs, stat. downscaling?

- **Common baseline between HighResMIP and CORDEX simulations at 25 km**
  - A basis for comparing the two, for a variety of processes, locations, time periods
  - but recognize simulation constraints in both programs
  - Potential for comparisons in near future via existing Primavera and CORDEX simulations
- **High resolution has multiple goals:**
  - the need for climatic understanding of fine-scale processes
  - Ideally – improved global climate simulations with better variability as well as better seasonal means
  - the need of providing credible, defensible and actionable information to end users.
  - These goals can motivate different intentions for post-processing, diagnoses, outcomes conveyed.
- **For example - bias correction? Controversial:**
  - errors are not fixed
  - methods derived for the present may not apply for the future
  - but it may serve a purpose for user needs

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- **Opportunity at yet finer scales?**
  - GCM DYAMOND project and CORDEX Flagship Pilot Study at similar grid spacings (few km).
    - DYAMOND protocol asks for *global* km-scale simulations. Are regional studies at km scales as useful but at lower cost?

- **Observations issues:**
  - What is available at these resolutions in observations? (esp for process evaluation)
  - Obs errors, disagreement in obs-based datasets important?
  - Can fine scale forecast fields (at short lead times) be used for evaluation of other models, esp. precipitation