

# Community Survey of Model Evaluation Needs

## Virtual workshop on requirements: Hardware and infrastructure needs

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# Context

- Study commissioned by IS-ENES3: *Initial requirements on model evaluation*
- Survey of broad section of climate community
  - Using/developing ESM evaluation tools
  - ~30 study participants
- Open-ended questions:
  - Qualitative
  - One-to-one interviews
  - ESMValTool: a “benchmark”



# The survey

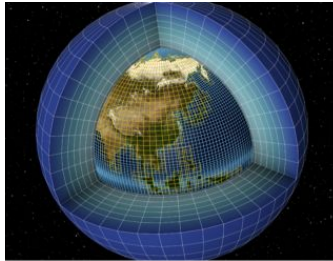
- Context: job description of interviewee
- Which model evaluation tools the interviewee uses, is familiar with or contributed to (including as developer, or data provider)
- How and why the tools are used, including issues of workflows and pros and cons of different approaches
- Most important aspects of these evaluation tools and features used by the interviewee
- The challenges of developing and using model evaluation tools
- Future developments for the tools
- Governance of a community tool with particular reference to ESMValTool



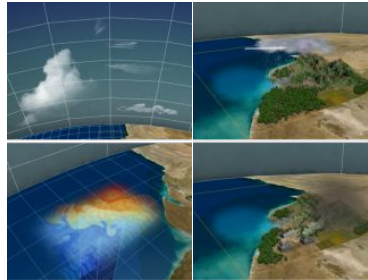
# Users and requirements

- Who needs to be considered?
- Size of community?
- Impact of evaluation?

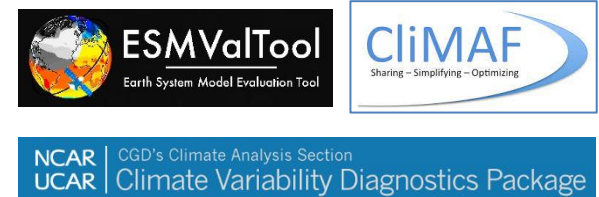
Model developers/  
scientists/analysts



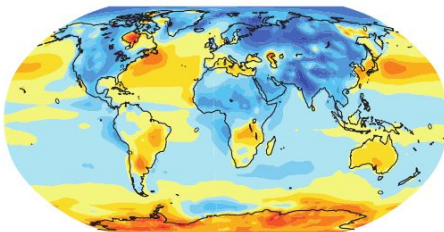
Process scientists



Software developers



Model evaluation/  
intercomparison  
(MIP/CORDEX/IPCC)



Impact community



Data scientists



# Changing hardware and infrastructure needs

- Future of CMIP and ESGF
  - Key drivers for evaluation tools
  - Future content of intercomparisons and architecture
    - Organisation of modelling centres, archiving model outputs, location of observational data sets
    - Timing of MIP cycles
  - Where and how evaluation will be carried out?
    - At modelling centres (eg on-the-fly)
    - At (distributed) ESGF nodes
    - In the cloud
    - Locally
    - All the time or peaks and troughs
- Data volumes
  - More models – how many?
  - Ensembles
  - Higher temporal and spatial resolution
  - Sub-setting: giving users what they want
- Longer term and encouraging innovation
  - Machine learning and AI for ESM evaluation
  - On-fly diagnostics and metrics while the model is running



# Other infrastructure needs

- Not just about hardware for evaluations
- Other infrastructure needs:
  - Communications
  - Training – particularly online training
  - Governance
  - Administration





# ASSIMILA

**Thank you**

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