

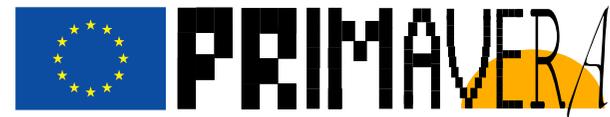
General Assembly 2

Perspectives

Malcolm Roberts

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Overview of GA2

- International perspective
 - External Expert Advisory Board members
 - Sister projects and links between them
 - CMIP6 and IPCC
 - CLIVAR community
- Progress of WP work
 - Including problems, timescales (particularly cross-WP implications)
- WP discussions
 - AM:
 - Overview of issues
 - Inter-WP discussions
 - PM:
 - Overview of cross-cutting science
 - Cross-WP discussions
- Report back from WP discussions
- Be involved! Make the meeting interactive with lots of discussion

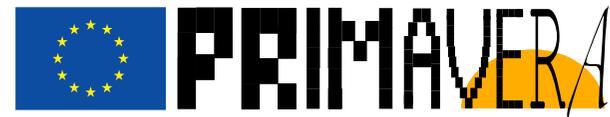
PRIMAVERA key aims

- Process-understanding and robustness across multi-model ensemble
- Enhanced capability of models
- Trustworthy predictions and projections
- Understanding the role of horizontal resolution
 - Process representation
 - We don't expect the model to be better in all aspects at higher resolution
 - But we can understand how robust this is, and why

IPCC AR6

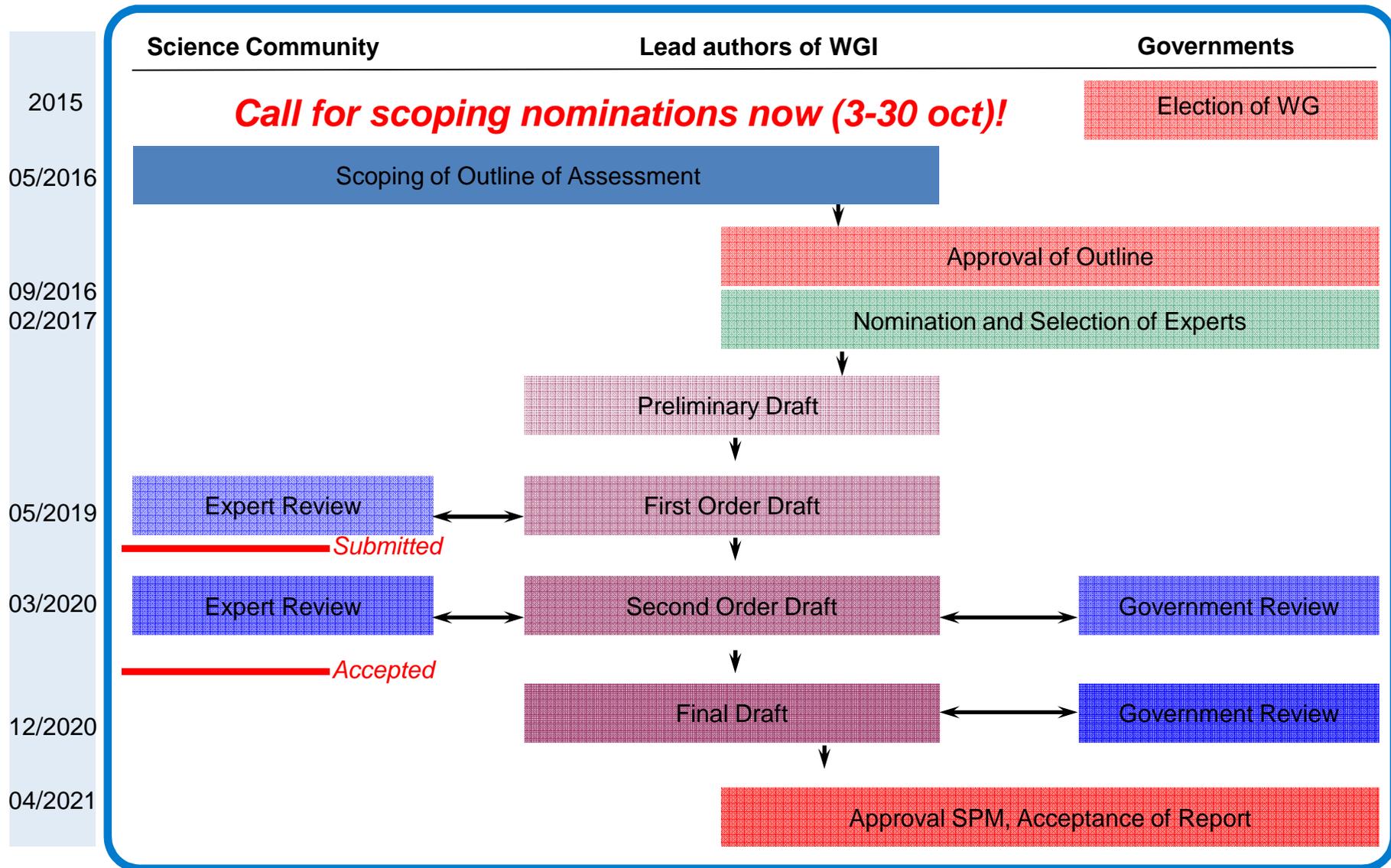
- Do we have any Lead or Chapter authors
 - Conduit for our science outputs

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WGI AR6 schedule



Expertise areas for AR6 scoping

WGI

- ❖ Climate system (atmosphere, ocean, land surface, cryosphere): **observations** (past and present), **processes**, and interactions
- ❖ **Natural and anthropogenic drivers of climate change (land use, well-mixed greenhouse gases, short-lived forcers including aerosols), carbon and other biogeochemical cycles**
- ❖ **Climate modelling, model evaluation, predictions, scenarios and projections, detection and attribution, on global and regional scales**
- ❖ Earth system **feedbacks and dynamical** responses, including abrupt change
- ❖ **Climate variability, climate phenomena and teleconnections, extremes and implications for regional climate**

Expertise areas for AR6 scoping

Cross-cutting

- ❖ **Co-benefits, risks and co-costs of mitigation and adaptation, including interactions and trade-offs, technological and financial challenges and options**
- ❖ Ethics and equity: climate change, sustainable development, gender, poverty eradication, livelihoods, and food security
- ❖ **Perception** of risks and benefits of climate change, adaptation and mitigation options, and societal responses, including psychological and sociological aspects
- ❖ Climate **engineering**, greenhouse gas **removal**, and associated **feedbacks** and impacts
- ❖ **Regional and sectorial climate information**
- ❖ Epistemology and different forms of **climate related knowledge and data**, including indigenous and practice-based knowledge

A few sensitive issues from AR5 WGI

❖ Links with global targets

It is *more likely than not* that the mean global mean surface air temperature for the period 2016–2035 will be more than 1°C above the mean for 1850–1900, and *very unlikely* that it will be more than 1.5°C above the 1850–1900 mean (*medium confidence*).

❖ Arctic sea ice

A nearly ice-free Arctic Ocean (sea ice extent less than 1×10^6 km²) in September before mid-century is *likely* under RCP8.5 (*medium confidence*), based on an assessment of a subset of models that most closely reproduce the climatological mean state and 1979–2012 trend of the Arctic sea ice cover.

❖ Rate of global warming

The observed recent warming hiatus, defined as the reduction in GMST trend during 1998–2012 as compared to the trend during 1951–2012, is attributable in roughly equal measure to a cooling contribution from internal variability and a reduced trend in external forcing (expert judgement, *medium confidence*).

❖ Hydrological cycle

Confidence is low for a global-scale observed trend in drought or dryness (lack of rainfall) since the middle of the 20th century, owing to lack of direct observations, methodological uncertainties and geographical inconsistencies in the trends.

Pre-scoping considerations

❖ From global to regional aspects

Strengthen regional assessment (incl. extreme events)

Strengthen process-based understanding (e.g. clouds-circulation)

❖ Observations :

*Skills of reanalysis products (atmosphere, land, ocean)
for assessments of regional trends, extreme events...*

❖ Integration between WGI and WGII :

*Regional aspects at the interface between climate response and impacts
(incl. mountains, cities, small islands)*

End-user / sectorial needs

Near-term (including volcanic eruption) / long term

Attribution

❖ Model evaluation :

Regional aspects, processes

Lessons learnt from forecast and hindcast

Role of ocean surface state on regional climate

From evaluation to model selection?

Aspects to consider

- Any PRIMAVERA people put forward as lead authors?
 - Use as project links into process to influence and deliver project outcomes
- WG2 delivered later this time
 - Chance to input to this, particularly as we're working with HighResMIP data immediately
 - WP10 and 11 well placed

CLIVAR panels

- Dynamics panel
 - Co-chairs Shoshiro Minobe, Matt Collins
- Atlantic Ocean regional panel
 - Co-chairs Walter Robinson
- Indian Ocean region panel
 - Co-chairs Tomoki Tozuka
- 18 proposals received from CLIVAR so far
 - Need to sort, discuss, agree and prioritise

Expectations for meeting

- Clear idea of when simulations will deliver
- Clear idea of who is doing what
 - Timeline for core papers and what they will be
 - WP break out meetings
 - What we keep in-house and what we do as collaboration
 - And hence where the collaborations to CLIVAR can really deliver themselves
 - WP timeline of analysis, what will deliver when
- Cross-WP science
 - How we are exploiting cross-WP science, what are the plans
 - What evidence of cross-WP work e.g. themes
 - Robustness of science
 - Multi-model
- Have template for reporting WP meetings
 - What obstacles are there – we need to know NOW

Wednesday morning

- Project overview
 - Core simulation timescales and implications for other WPs
 - May need some negotiation with EC
 - Different deliverables/different timescale

Core model simulations (for cross-WP work)

- Forced atmosphere
 - 1950-2050
 - 1 ensemble member at ~100km and 1 at ~25km
- Coupled
 - 1950 control (repeat forcing) at low and high resolution
 - 1950-2050 transient (starting from control) at low and high resolution
 - 1 ensemble member for each
- Additional simulations
 - Including a 10 year period with enhanced diagnostic output

Timescales

- Core simulations were meant to be delivered:
 - Forced atmos
 - 1950-2014 – Now (M12)
 - 2015-2050 – Jan (M14)
 - Coupled simulations – Apr (M18)
- Revised timescales
 - Based on current estimates:
 - Summer 2017

Wednesday afternoon

- Cross-WP and external collaborations
 - CMIP6 and IPCC
 - CLIVAR
- Science
 - Arctic and sea-ice
 - Influence on mid-latitudes and European weather/climate variability
 - Jets, storms and mid-latitude interactions
 - Influence on European weather and climate
 - Elements of predictability
 - Firmer grounding for jet position in future?

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