

WORLD CLIMATE RESEARCH PROGRAMME

Summary of Grand Challenges Reports
relevant to New WCRP SP/IP

*Boram Lee with input from GC presenters
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Regional Sea Level Change

- Outlined plans in the 10-year Science and Implementation Plan (2015-2025)
- Major success compiled in conference and workshops (e.g. 2017 Sea Level Conference, follow-on Conference planned in 2022)
- Continuing effort for summer school/training
- Emphasis on partnership





Clouds & Circulation

- Planned conclusion in 2022
- Focused efforts for a few strategic initiatives promoting complementarity among modelling, observation and process studies (Equilibrium climate sensitivity assessment, field study for low-cloud feedback...)
- **Action required:**
 - JSC to endorse aerosol forcing assessment (activity + report) as official WCRP activity
 - CPs to support EUREC⁴A
 - New SP/IP to consider science-focused issues to address following questions (e.g. paleo-climate studies)



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Climate & Carbon

- Launched in Nov 2016, plans through 2019
- Closer connection between science and policy (e.g. towards providing relevant analysis for the Global Stocktakes)
- **Suggest the new SP (overarching objectives)** to demonstrate stronger connection between science (current O1-O3) and society/policy (current O4); e.g., climate and carbon feedbacks for PA, decadal predication (climate/carbon) for GST



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Water for Food Baskets

- Linked with GEWEX Science Questions & activities (RHPs in particular), in collaboration with other groups
- Elaborated implementation plan based on ongoing global & regional activities: observation-based process studies, addressing predictive capabilities
- Further emphasis on the human control of the natural system (water management)
- Need & ongoing effort to engage the community



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Climate & Weather Extremes

- 2018 (OSC) as milestone to review activities/achievements
- Emphasis on service perspective (hence the needed link to users) together with science perspective
- Notable progress in addressing extremes across the scales & themes (data assessment and guidance, compound event, contribution to AR6...) and community integration/mobilization (RISK-KAN, WG1/WG2 collaboration...)
- **Action required**
 - JSC to endorse Summer School (Institute of Advanced Studies in Climate Extremes and Risk Management, Fall 2019, NUIST WMO Training Center)



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Climate & Weather Extremes

- Suggestion for new SP/IP to identify a home for climate change research
 - Closure of ETCCDI: highlighting the need for climate change research within WCRP
 - need to identify a suitable home under the WCRP structure, link to WMO & partners, link to a global framework (PA, Sendai framework, etc.)





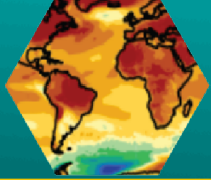
Melting Ice

- Timeline closely associated with the CMIP6 cycle (SIMIP, ISMIP6, LS3MIP...)
- Natural home in CliC, calling for clarity between the GC and CP activities (a milestone 2020)
- Inspiring cross-cutting collaboration



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Near Term Prediction

- Initiating dry-run in 2018 for “annual to decadal climate update”, standard/guidance to issue in 2019
- Operation-driven implementation
 - WMO GPC/Lead Center for Annual-to Decadal Prediction
 - GDPFS standards
- Need further understanding on dynamics in decadal scale
- Paris Agreement .vs. initialized climate prediction – **require JSC input** to a diagnostics/paper
- Decadal prediction to be a pan-WCRP activity: **New IP** should indicate a mechanism for GC follow-on



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General Consideration



- Notable extension of collaboration among GCs, WCRP groups and (external) partners
- Common difficulties of limited resources
- Need further clarification/emphasis in the new SP/IP to address science advances, and provide umbrella to address (GC follow-on) new science questions (e.g. new analysis pertaining palaeo-climate record, compound events, decadal prediction, guidance documents)

Thank You



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