

**WCRP**

World Climate Research Programme



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# World Climate Research Programme 34<sup>nd</sup> Session Joint Scientific Committee

## Brasilia, Brasil, 27-31 May, 2013

Antonio J. Busalacchi  
Chairman, Joint Scientific Committee, WCRP

# World Climate Research Programme

## Climate Research in Service to Society

- WCRP Mission and Objectives
- Introduction of New JSC Members
- Summary of JSC 33
- Implementation of Grand Challenges
- WMO Executive Council-65
- Interactions with Future Earth
- Interactions with Partners
- Approach to Membership
- Communication across WCRP
- Agenda
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## Mission & Objectives



**World Climate Research Programme** supports **climate-related decision making** and planning **adaptation to climate change** by coordinating research required to improve

- (1) climate predictions and
- (2) our understanding of human influence on climate

*“for use in an increasing range of practical applications of direct relevance, benefit and value to society”* (WCRP Strategic Framework 2005-2015).

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## Future Directions: Actionable Science

**Defined as: data, analysis, and forecasts that are sufficiently predictive, accepted and understandable to support decision-making, including capital investment decision-making.**



World Climate Conference-3, OceanObs '09, ICSU Review and Visioning, acknowledge WCRP past contributions and identify future challenges and opportunities.



Need for more flexibility/agility to respond to expanding users needs, that includes information:

- At regional scale
- For key sectors of global economy
- For adaptation, mitigation and risk management

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## Future Directions: Useful Science

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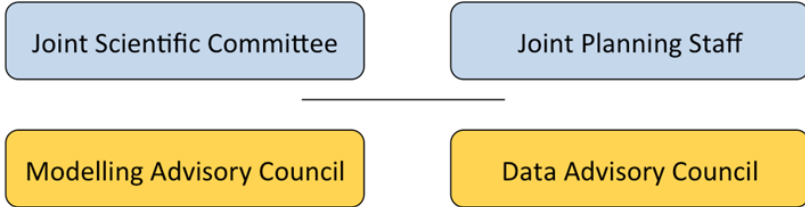
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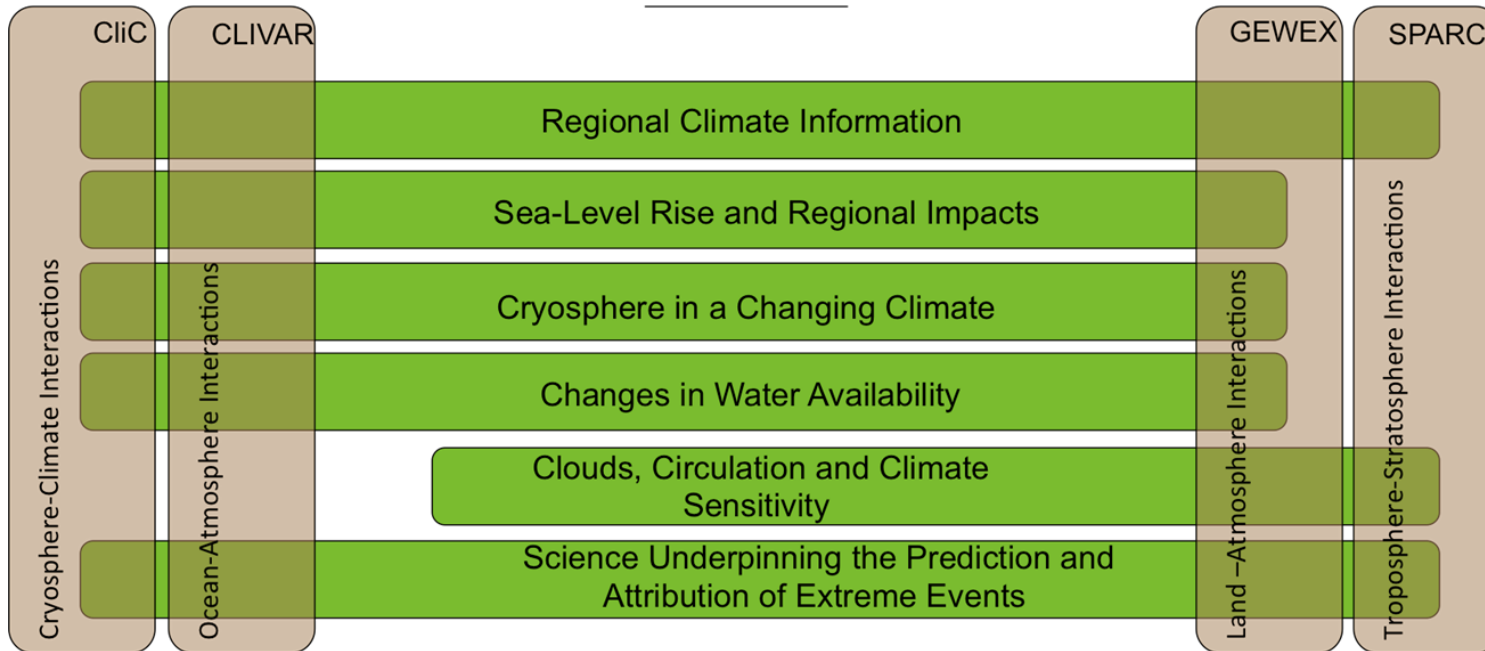
## Welcome New JSC Members!

- **Stephen Belcher**  
Met Office Hadley Centre, UK
- **Guy P. Brasseur**  
German Climate Service Center
- **Anny Cazenave**  
LEGOS, France
- **In-Sik Kang**  
Seoul National University, Rep. of Korea
- **Rodney G. Martinez Guingla**  
CIIFEN, Ecuador
- **Mauricio M. Mata**  
FURG, Brazil
- **James Renwick**  
Victoria University of Wellington, New Zealand
- **Soroosh Sorooshian**  
Uni. California, Irvine, USA

# WCRP Organization

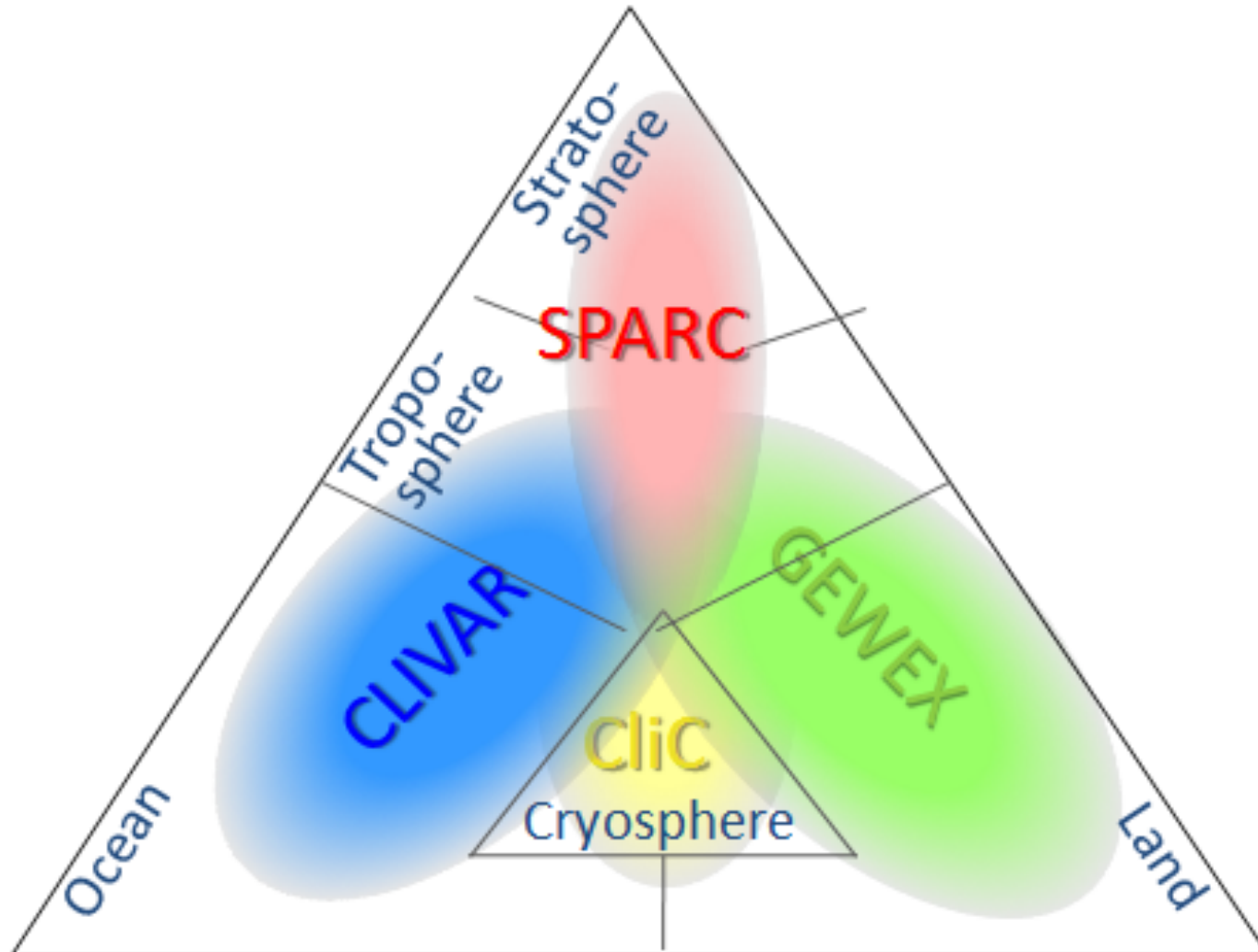


Working Groups on: Coupled Modelling (WGCM), Regional Climate (WGRC), Seasonal to Interannual Prediction (WGSIP), Numerical Experimentation (WGNE)



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## Summary

### WCRP JSC 33, Beijing, China July 17-20, 2012

- Future Directions of the WCRP
  - Rollout of Grand Challenges
  - WMAC
  - WDAC
- Core project buy in to final decision on future direction/naming
- Initiate WG on Regional Climate
- Regional African Climate and Latin America/Caribbean Conferences
- Refine our support of GFCS, sustained ocean obs, and FE
- Revise approach to SSG and WG nominations

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## WCRP Grand Challenges

- A Grand Challenge is both **highly specific and highly focused** identifying a specific barrier preventing progress in a critical area of climate science.
- This focus enables the development of **targeted research efforts** with the likelihood of significant progress over 5-10 years, even if its ultimate success is uncertain.
- It should thus enable the implementation of effective and **measurable performance metrics**.
- By being transformative, a Grand Challenge should bring the **best minds** to the table (voluntarily), **building and strengthening communities of innovators that are collaborative**, perhaps also extending beyond “in-house expertise”.
- It can **capture the public’s imagination**: teams of world-leading scientists working to solve pressing challenges can offer compelling storylines to capture the interest of media and the public.

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## WCRP Grand Challenges

- **Regional Climate Information**
- **Regional Sea-Level Rise**
- **Cryosphere in a Changing Climate**
- **Clouds, Circulation, and Climate Sensitivity**
- **Changes in Water Availability**
- **Prediction and Attribution of Extreme Events**



## Implementation of WCRP Grand Challenges

- Need to transition to implementation mode
- JSC does not want to be prescriptive with respect to approach
- One approach may not fit all, cf., Clouds/Circulation *vis a vis* Cryosphere
- Steering Group or/and Kickoff Workshop (s)
- Overall GC 5-10 years, sub initiatives order 5 years
- Essentials
  - Leadership/PoC (Chair, core project WG scientist, new SSG member)
  - Intra Project Assessment/Alignment wrt GC
  - Cross Project Coordination
  - Not meant to come at expense of existing core project activities
  - Well defined Implementation Plan, e.g., Clouds/Circulation

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## WMO Executive Council-65

- The Council acknowledged with appreciation that the WCRP is organizing a series of regional projects, conferences, capacity development and training activities focussing on the role of science in climate services and risk management. It encouraged Members to participate in the WCRP/ACPC Conference on the African Climate System - Addressing Priority Research Gaps to Inform Adaptation Decision-Making in Africa that will take place from 15-18 October 2013 in Arusha, Tanzania.
- The Council was also pleased to note that the WCRP was organizing a Conference on Climate and Society for Latin America and the Caribbean scheduled for February 2014 in Montevideo, Uruguay.
- The Council recognized the key contribution of the WCRP to the Global Framework for Climate Services in addressing the needs for science-based climate information at global and regional levels.
- The Council endorsed the recommendations of the WMO/ICSU/IOC appointed Joint Scientific Committee (JSC) for the World Climate Research Programme at its most recent session in July 2012 in Beijing, China, that identified six “grand science challenges” resulting from the community based scientific papers and subsequent deliberations at the WCRP Open Science Conference (24-28 October 2011).

## WMO Executive Council-65

- The Council recognized that these grand science challenges are intended to integrate scientific activities across the four WCRP core projects and the various WCRP Working Groups and Panels to deliver “actionable” climate information for decision makers in support of the GFCS and Future Earth.
- The Council welcomed the establishment of a new WCRP Working Group on Regional Climate Science and Information (WGRC) to provide strategic advice on regional aspects of climate science, relevant aspects of climate services and vulnerability, climate variability and change, and climate impact and adaptation applications. In particular WGRC would contribute to the four near-time priorities of the GFCS and serve as the WCRP interface with the GFCS User Interface Platform.

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Meeting of GEC Programme Chairs and Directors and Subsequent  
Meeting with Members of the Future Earth Alliance and  
Implementation Management Project Board  
London, 14-15 January 2013

**In summary, the GEC programme chairs and directors expressed that they are all, as ever, committed to FE.**

## FE Meeting of GEC Programme Chairs and Directors, London, 14-15 January 2013

### General Comments

- Our main conclusion is that we hope to work with the Alliance to improve our confidence in the process of moving from the programmes we have now to full FE implementations. We would most welcome a well understood plan for FE implementation that follows the principle of 'do no harm'.
  - We are not at the moment confident of the process that is in place, and we are concerned that there is a serious risk about loss of continuity of both the science needed for FE, and the communities of scientists that supports it.
  - We know that top-down programmes for science do not work, especially for integration cross disciplines. We have among us great experience of organising networks for successful delivery of integrated, large-scale science. We consider the current plans have misplaced confidence in top-down planning, and that it is through open science and engaged networks of scientists that the integrated, transdisciplinary, solutions-oriented science will emerge.
  - The complexity of FE is such that we think it will be necessary to overlap the current programmes with the launch of FE. This overlap, and the complexity of FE, means that more resources will be required. We are concerned that sufficient resources are not in place and so this is a risk-prone process. Some funds are not transferable.

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## FE Meeting of GEC Programme Chairs and Directors, London, 14-15 January 2013

### General Comments (cont'd)

- Our main conclusion is that we hope to work with the Alliance to improve our confidence in the process of moving from the programmes we have now to full FE implementations. We would most welcome a well understood plan for FE implementation that follows the principle of 'do no harm'.
  - This overlap of current and future structures, and the parallel running, will need careful co-design. We all need to be communicating a common message to our networks of scientists, funders and users.
  - There are critical bits of the science network, within and between existing projects that need special attention. Some of these relate to WCRP, which has a partial role in FE that we would like to clarify.



## FE Meeting of GEC Programme Chairs and Directors, London, 14-15 January 2013

### For the record:

*Future Earth will build upon and integrate the existing Global Environmental Change (GEC) Programmes – the World Climate Research Programme (WCRP), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme (IHDP), DIVERSITAS – biodiversity science, and the Earth System Partnership (ESSP). It will also have to expand significantly beyond the existing global networks and engage new institutions and researchers. It must ensure research excellence by being open and inclusive, attracting the brightest minds from a broad range of disciplines and countries.*

### Moreover:

FE looks to WCRP to provide the research foundation for the physical climate system across observations, modelling and prediction, and interface to climate services, and the WCRP looks forward to supporting FE in this regard.

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## FE Meeting of GEC Programme Chairs and Directors, London, 14-15 January 2013

### On the programme as a whole

- What FE can do better than 4 GECs
  - Attract new and reliable funds, a positive step change in funding for GEC science
  - Enable fully integrated, transdisciplinary programmes of appropriate breadth
  - Be solutions oriented, working with users across the environmental change arena
  - Build relationships with the most significant communities of users and other stakeholders, including policy, decision, observation networks, and funders.
- What current FE plans miss that GECs do well
  - Research programme design and delivery.
  - Science gap identification
  - Networks of experts in all relevant areas, working collaboratively, existing strong brands and reputations in certain areas
  - Depth of science – disciplinary excellence and relevance

## FE Meeting of GEC Programme Chairs and Directors, London, 14-15 January 2013

### On the programme as a whole (cont'd)

- What FE needs to address
  - Considering the balance of breadth and depth, for stakeholders
  - Develop a strong, respected brand. Not there at the moment.
  - Retain disciplinary strength (somehow) within the new structure – attract young researchers, deliver best science.
  - Retain the ability to operate at a scale where science gaps can be effectively identified and filled. Is the FE SC at too high a level?

**Note:** IGBP has decided it will formally end in 2015.

WCRP needs to monitor joint activities in the years ahead as it pertains to IGAC, iLEAPS, AIMES, IMBER, PAGES, SOLAS, etc

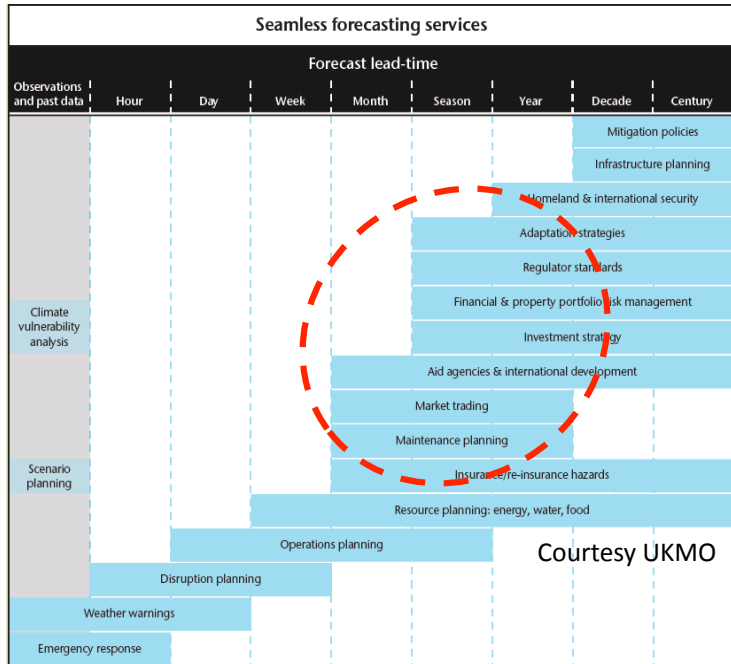
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# Subseasonal to Seasonal (S2S) Project



## Objectives:

- To improve forecast skill and understanding on the S2S timescale with emphasis on HIW
- To promote uptake by operational centres and exploitation by the applications community
- To capitalize on the expertise of the weather and climate research communities to address GFCS priorities

Implementation underway: TIGGE-like multi-model data base being established

Demonstration projects on extreme events (e.g. 2010 Russian heatwave, floods in Pakistan in 2010 and Australia in 2011, and 2012 European cold spell)

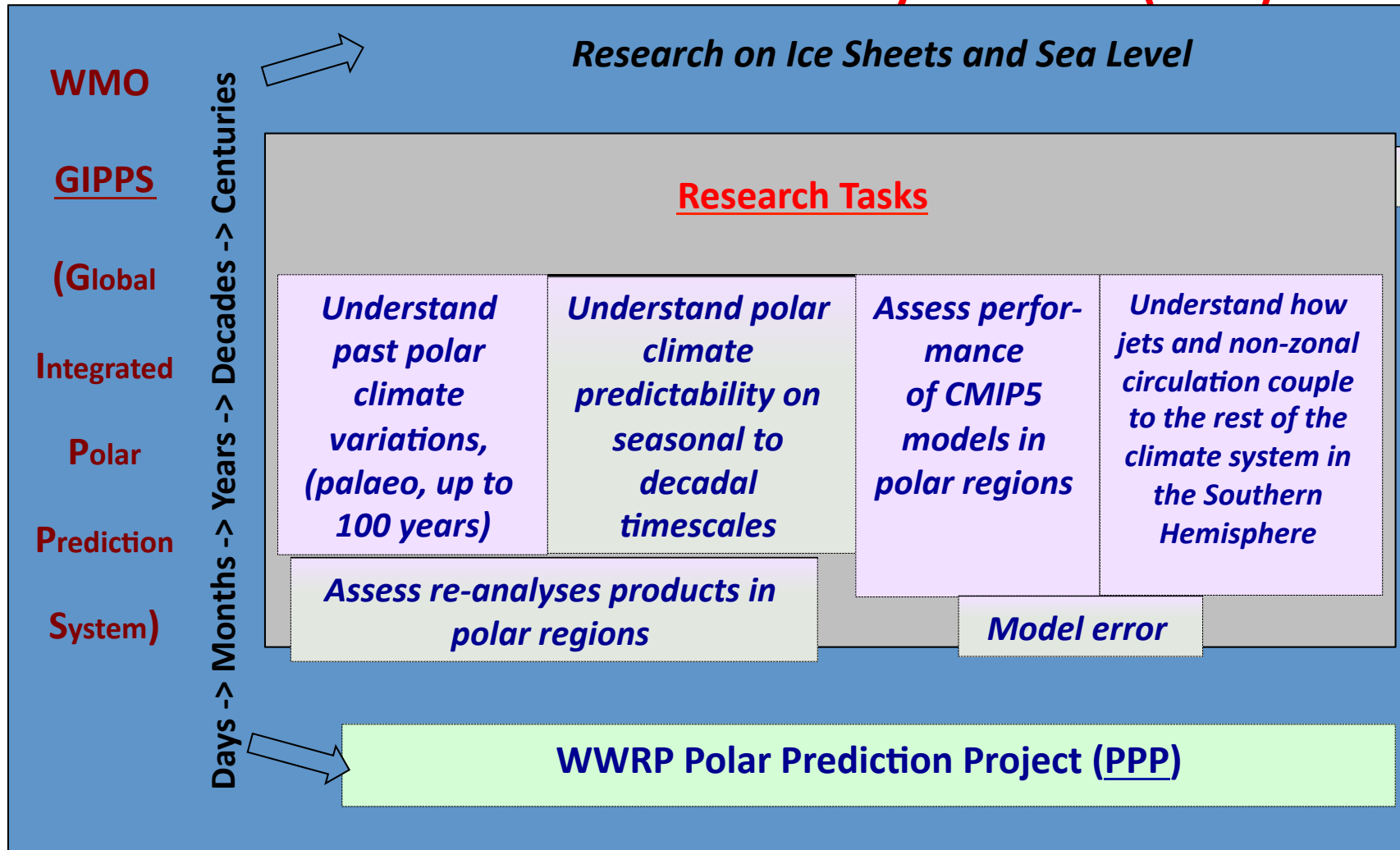
Project Office: NIMR, KMA, Jeju, Korea (official ceremony at EC-65)

Trust fund: we expect and welcome support and contributions by Members.





## WCRP Polar Climate Predictability Initiative (PCPI)



# Polar Prediction Project (PPP)

The Science Plan and Implementation Plan will be available soon!



## Objective:

- “Promote cooperative international research enabling development of improved weather and environmental prediction services for the polar regions, on time scales from hourly to seasonal” (contribution to WMO GIPPS)

## Research components:

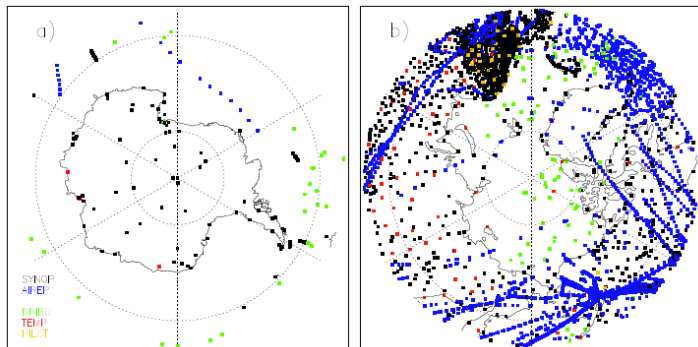
- observations, modeling, data assimilation, ensemble forecasting
- predictability, diagnostics, teleconnections
- societal and economic research applications, verification

## Implementation: Year of Polar Prediction (YOPP) – period 2017-2018

## Synergies with the WCRP Polar Climate Predictability Initiative (PCPI)

## Project Office: under discussion

## Trust fund: contributions welcome



Courtesy T. Jung, AWI



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## WG and SSG Membership

- The JSC has created a 'membership committee' within the JSC.
- This is comprised of the Officers and chaired by the JSC Vice-Chair.
- Their task is to work with each working group and steering group (on a suitable annual schedule) to fill a slate of candidates, one for each vacant position, but with serious attention to the issues we need addressed (gender, regional balance, etc.).
- This might take several iterations over the course of the year.
- This committee is charged with exerting the JSC influence on the process and with ensuring that the process starts early and is completed in a timely manner.
- Then at the JSC meeting a well-considered slate of candidates will be presented, along with their bios and other pertinent information, and we could approve this, confident that it will be the best slate achievable and that it has our intentions well-considered.

**GEWEX Scientific Steering Group (Rationale)**

NAME (Gender)	YEAR OF BIRTH	CAPACITY	AFFILIATION, COUNTRY	SPECIALTY/ EXPERTISE	MEMBER SINCE	EXPIRY OF APPOINTMENT (end of year)	MEMBERSHIP RECOMMENDATION (subject to review by JSC)
K. Trenberth (M)	1944	Chair	NCAR, USA	Global energy and water cycle, climate variability and climate change	2008	2014	Stepping down as Chair at end of 2013
H. Wheeler (M)	1949	Vice-Chair	University of Saskatchewan, Canada	Hydrological processes; hydrological and precipitation modeling; flood risk, water resources and water quality management; arid zone hydrology	2009	2014	Stepping down as Vice-Chair at end of 2013
R. Anyah (M)		Member	University of Connecticut, USA	Regional climate dynamics and modeling, regional climate-hydrology-land use connections (over the Nile River Basin and Horn of Africa), large inland lakes and regional climate processes, regional climate change impacts and adaptation mechanisms for the water and agricultural sectors	2013	2015	
P. Bauer (M)	1963	Member	ECMWF, UK	Satellite data assimilation in NWP models, moist atmospheric processes, radiative transfer modeling	2011	2013	Proposed extension for 2 years
E. Blyth (F)	1964	Member	Centre for Ecology and Hydrology, UK	Land surface modeling, using data for benchmarking land-surface model performance, linking hydrological and meteorological models, land-atmosphere interactions and arctic land surface processes	2011	2013	Proposed extension for 2 years

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## Communication across the WCRP

- WCRP Accomplishment Report
- Communication post-JSC
- Engagement of Early Career Scientists
- Project Outreach

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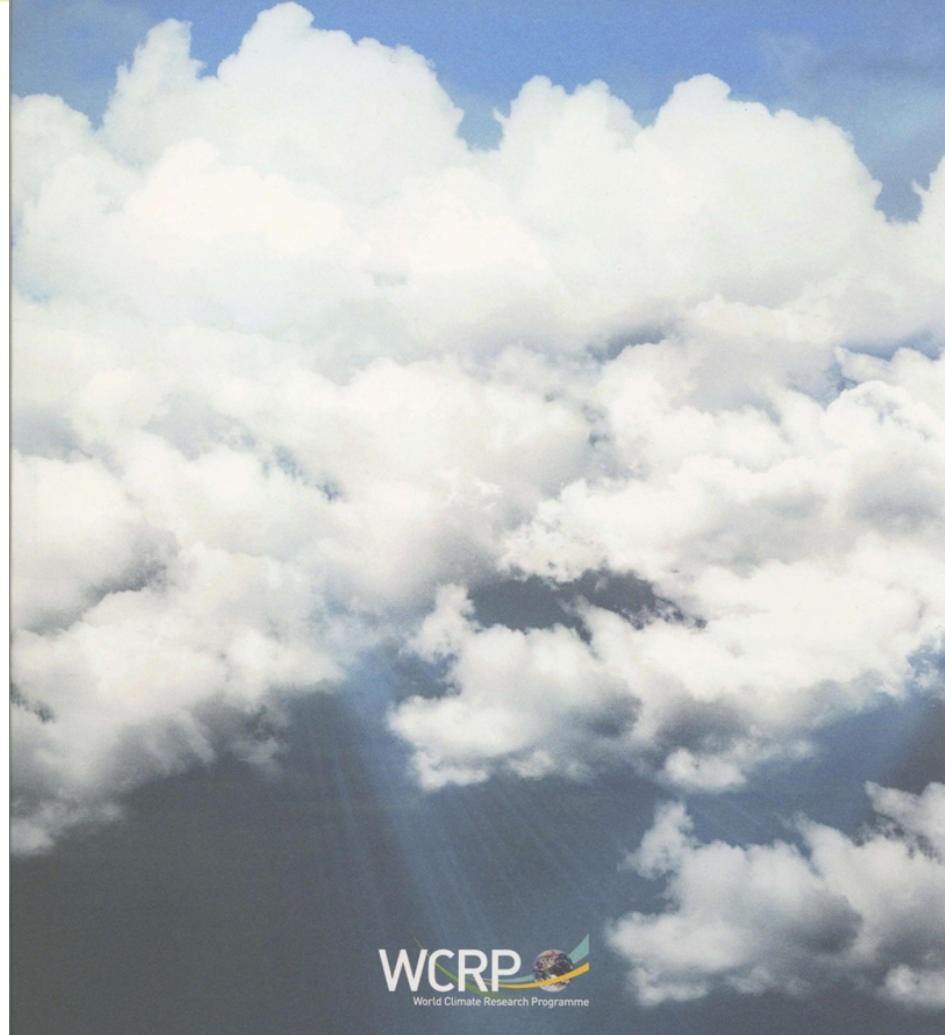
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## THE WORLD CLIMATE RESEARCH PROGRAMME — ACCOMPLISHMENT REPORT

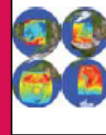


WCRP I. Programme overview



Major scientific initiatives and results

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Regional climate studies

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Analysis of climate system observations

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Contributions of WCRP Core Projects

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Climate information for decision-makers

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Capacity development

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Partnerships are key to success

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Future plan and priorities

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## HOW TO GET INVOLVED

The great success of WCRP is directly related to the proactive involvement of climate scientists and effective participation with organizations around the world. The following are the primary means of partnering with this Programme.

**Sponsors:** sponsors support WCRP financially or sponsor scientists, our Core Projects and integrative research activities. Many WCRP workshops and meetings are possible, thanks to the contributions from a variety of sources. For example, relatively small contributions can make it possible for scientists from developing countries to participate in WCRP regional and international capacity-building efforts that would normally be beyond a country's means.

**Partners:** partners contribute to WCRP initiatives by identifying joint scientific priorities, contributing scientific expertise and securing financial resources to conduct joint projects. WCRP welcomes the opportunity to form partnerships with private industries, non-governmental and intergovernmental organizations, foundations, associations and development banks.

**National academies, agencies, and climate committees:** WCRP benefits greatly from the active involvement of national agencies and national academies. The establishment of national climate committees as a means of building a truly international network in support of integrated climate research is very helpful. The greatest

benefit to all parties involved is the strengthening of complementary research and avoidance of redundant efforts.

**Scientists:** WCRP invites and encourages individual scientists to make the WCRP global secretariat aware of their ongoing research and to suggest ways to integrate national, regional and international initiatives. The WCRP Joint Scientific Committee, Core Projects and cross-cutting activities welcome proposals for new collaborative activities that support implementation of the WCRP Strategic Framework.

**Interested participants:** keep up-to-date with WCRP activities by subscribing to the Programme's quarterly newsletter (e-zine) and submit news on recent research findings, publications, upcoming or successfully completed meetings for listing on the WCRP Website.

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## Communication across the WCRP

- WCRP Accomplishment Report
- **Communication post-JSC**
- **Engagement of Early Career Scientists**
- **Project Outreach**

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## WCRP JSC 34, Brasilia, Brasil, May 27-31, 2013

### Sunday, 26 May

14h00 – 17h00 JSC Officers meeting

### Monday, 27 May

#### Opening Session of WCRP Joint Scientific Committee 34th Session (JSC-34)

09h00 - 09h30 Welcome Remarks – MCT Host – C. Nobre

09h30 - 10h00 Report on WCRP developments, time line for new implementation - A. Busalacchi

#### Dialogue with Sponsors and Stakeholders

Sponsor Updates - Present Status, Evolving Role of WCRP and charges to WCRP JSC-34  
(30 min presentation + 10 min discussion)

10h00 – 10h40 WMO Global Framework for Climate Services – J. Lengoasa (via VC)

10h40 – 11h20 ICSU Future Earth – S. Wilson (via VC)

11h20 – 11h40 [Coffee Break](#)

11h40 – 12h20 IOC Integrated Framework for Sustained Ocean Observations – Capt. (Ret)  
Frederico A. SARAIVA NOGUEIRA

12h20 – 13h00 Report on JPS developments, program, personnel, budget - G. Asrar

13h00 - 14h00 [Lunch Break](#)

[08h30 – 18h00 - WMAC Parallel Meeting](#)

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14h00 - 15h00 Agency Updates- e.g., NOAA/R. Rosen, EUMETSAT/J. Schulz, ECMWF/A. Simmons, CEOS, ESA, etc.

Presentation of WCRP Grand Challenges (progress to date, impediments, implementation schedules, cross project interdependencies and coordination)

Regional Climate Information (each session 30 min presentation) 15h00 – 17h30

15h00 – 16h00 Long-term regional climate information (WGRC lead, inclusive WGRC report and CORDEX update) – C. Goodess/B. Hewitson (G. Asrar/F. Giorgi reporting)

16h00 – 16h30 **Coffee Break**

16h30 – 17h00 Update on Regional Workshops  
Africa Climate Conference – P. Yanda and F. Semazzi  
Latin America Workshop – C. Saulo (via VC)

17h00 – 17h30 Regional Partner Updates (APN/L. Stevenson, IAI, MAIRS, START/H. Virji (Via VC))

17h30 – 18h00 Summary of day's discussion

18h00 Ice Breaker

## WCRP JSC 34, Brasilia, Brasil, May 27-31, 2013

**Tuesday, 28 May**

WCRP Grand Challenges (cont'd)

Regional Climate (cont'd)

- |               |   |
|---------------|---|
| 08h30 - 09h30 | Intraseasonal to seasonal to interannual prediction (CLIVAR lead) + Decadal prediction (CLIVAR lead/L. Goddard)                   |
| 09h30 - 10h30 | Cloud, circulation and Climate Sensitivity (WGCM; 45 minute presentation with 15 min discussion) – S. Bony (via VC)               |
| 10h30 - 11h00 | <a href="#">Coffee Break</a>  |
| 11h00 - 12h00 | Cryosphere in a Changing Climate (CliC/SPARC; 45 minute presentation with 15 min discussion)                                      |
| 12h00 – 13h00 | Science Underpinning the Prediction and Attribution of Extreme Events (GEWEX LEAD; 45 minute presentation with 15 min discussion) |
| 13h00 – 14h00 | <a href="#">Lunch</a>   |
| 14h00 – 15h00 | Changes in Water Availability (GEWEX lead; 45 minute presentation with 15 min discussion)   |
| 15h00 - 16h00 | Regional Sea-Level Rise (CLIVAR lead/M. Visbeck; 45 minute presentation with 15 min discussion)                                   |
| 16h00 – 16h30 | <a href="#">Coffee Break</a>  |
| 16h30 - 17h00 | Discussion of Grand Challenges and Next Steps   |
| 17h00 – 17h30 | WMAC Meeting Summary (20 minute presentation with 10 min discussion) – Co-Chairs  |
| 17h30 - 18h00 | WDAC Meeting Summary (20 minute presentation with 15 min discussion) – O. Brown   |

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## WCRP JSC 34, Brasilia, Brasil, May 27-31, 2013

Wednesday, 29 May

### WCRP Core Projects: Progress and Plans

(Project response to JSC 33 and actions as a result, implementation plans/timeline for new directions, internal structural changes, and cross project interdependencies) (60 min presentation, 30 min discussion)

08h30 - 10h00	CLIVAR
10h00 - 10h30	Coffee Break
10h30 - 12h00	CliC
12h00 - 13h00	Lunch (JSC Executive Session)

### Project Reports - (continued)

13h00 – 14h30	GEWEX
14h30 - 16h00	SPARC
16h00 - 16h30	Coffee Break
16h30 - 17h30	Science Presentations by host nation Dr Paulo Nobre, INPE/CPTEC - "The South Atlantic Convergence Zone and the paradigm of SST-driven climate variations." Prof. Edmo Campos, USP - "Strengthening of the Agulhas Leakage and weakening of the Atlantic Meridional Overturning Circulation. Fact or model artifact?"
20h00	Optional visit to Clube do Choro

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## WCRP JSC 34, Brasilia, Brasil, May 27-31, 2013

Thursday, 30 May

### Modelling WG Reports

08h30 – 09h00	WGCM
09h00 – 09h30	WGSIP
09h30 – 10h00	WGNE

### WCRP Partnerships and Joint Initiatives

10h00 - 10h30	WCRP perspective on subseasonal to seasonal prediction project – WGSIP Co-Chair
10h30 - 11h00	Coffee Break
11h00 – 11h30	Status of WCRP Polar Climate Prediction initiative – (SPARC/CLiC)
11h30 – 13h00	Partner Presentations (20 min presentation + 10 min discussion) GCOS – A. Simmons IGBP – J. Marengo WWRP (+ report on joint subseasonal to seasonal prediction project and polar prediction) – G. Brunet Other (eg IRDR, SOLAS, CCI, etc.)
13h00 – 14h00	Lunch
14h00 – 14h30	IPCC: What next? – K. Trenberth
14h30 - 15h00	Summary of JSC-34 and Closing Comments - A. Busalacchi
15h00 – 15h30	Coffee Break
15h30 – 17h30	Executive Session with WCRP Chairs and Directors

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## WCRP JSC 34, Brasilia, Brasil, May 27-31, 2013

### Friday, 31 May

#### JSC Executive Session

09h00 - 12h00

JSC Executive Session

Implementation Issues with respect to Grand Challenges

Engagement with Future Earth (FE)

Membership

Action Items

Other items



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## Climate Research in Service to Society

- WCRP Mission and Objectives
- Introduction of New JSC Members
- Summary of JSC 33
- Implementation of Grand Challenges
- WMO Executive Council-65
- Interactions with Future Earth
- Interactions with Partners
- Approach to Membership
- Communication across WCRP
- Agenda
- **Expectations for the week**

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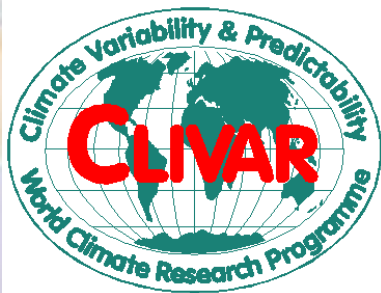
International Council for Science

# WCRP JSC 34, Brasilia, Brasil, May 27-31, 2013

## Expectations for the Week

- Continued progress on implementing the Grand Challenges
- In this regard the designated GC leads are asked to address progress to date, impediments, implementation schedules, cross project interdependencies and coordination.
- All JSC 34 presenters should specifically address issues raised at JSC 33 and actions items as documented in the JSC 33 report.
- Enhanced communication across the WCRP
- Assess progress of WMAC and WDAC
- Continued engagement with partners, especially other GECS and FE during the transition period
- Refine new approach to membership
- Agree on date of JSC 35, joint with CCI XVI, Heidelberg on or about June 30-July 4, 2014

With sincere thanks to: “Os Tres Amigos”



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## 2/20/13 Guidance to Chairs and Directors

- WRT to the Grand Challenge presentations, I ask the designated leads, as stated, to address progress to date, impediments, implementation schedules, cross project interdependencies and coordination. In addition, I ask that the presenters should specifically address issues raised at JSC 33 and as documented in the JSC 33 report (the same holds as always for the individual project reports as appropriate). When a lead is designated for the GC presentation it should be interpreted that this is to include and engage the other relevant projects for this particular GC.