

**Foro de Investigación Climática del WCRP**  
**Prioridades de investigación**  
**sobre el clima para**  
**la próxima década**

**América del Sur:** 8-9 de septiembre de 2021  
13:30 – 16:00 Tiempo Universal Coordinado (UTC)

*Bienvenido*

*Welcome*

**WCRP Climate Research Forum**  
**Climate research**  
**priorities for the**  
**next decade**

**South America:** 8-9 September 2021  
13:30 – 16:00 Coordinated Universal Time (UTC)

# Technical Guidance and Participation

- Technical guidance:
  - Please have **slido** loaded – the link for slido is posted in the Zoom Chat window (*or email from WMO/WCRP/Eventbrite with the Zoom videoconference link*).
  - Remember to **turn off your microphone and video** unless you are presenting, **or** you are a Chair / Moderator, **or** you have been asked to speak.
  - For **technical assistance**, please “chat” to Narelle van der Wel or Nico Caltabiano via **Zoom Chat**.
- Participation in today’s Forum:
  - There are two features regarding **language options** on your **Zoom screen**:
    - **Interpretation** enables you to hear the Forum in either Spanish or English.
    - **Live transcript** means you will see on the screen what the speaker is saying\*\*.
  - Please post questions for the Speakers on **Slido**, in either Spanish or English. This will be monitored, and questions conveyed to Chairs and Speakers.
  - We encourage discussion in **Zoom Chat**, and you can ask technical questions here too, but please use **Slido** for questions to the Speakers or Chairs.
- Recording:
  - This Forum is being recorded to assist in documenting the outcomes.
  - The recording will be posted on the WCRP website.

# WCRP Climate Research Forum: Day 1 (September 8)

## Program

**Introduction and Welcome** [*WCRP Joint Scientific Committee (JSC) Chairs*, 10 mins]

***Slido Icebreaker***

**Session 1: WCRP's "Our Climate Future"** *Speakers: Helen Cleugh, Detlef Stammer* [20 mins]

***Slido Poll #1 for Session 1***

**Session 2: My Climate Risk Lighthouse Activity.** Chair: Boris Dewitte [55 mins]

- WCRP My Climate Risk: Inverting the construction of climate information.  
*Regina Rodrigues, Federal University of Santa Catarina, Brazil* (15 mins).
- Constructing regional climate information relevant for risk assessments and decision making.  
*Anna Sörensson, Research Centre of the Sea and the Atmosphere, Argentina* (15 mins).
- Q&A using Slido (up to 25 mins)

**Session 3: Capacity development in South America.** Chair: Carla Gulizia [55 mins]

- Innovation in the WMO Regional Associations: diagnostic and recommendations.  
*Patricia Krecl, Federal University of Technology, Brazil.* (15 mins).
- WCRP Academy Lighthouse Activity.  
*Pablo Borges de Amorim, Federal University of Santa Catarina, Brazil.* (15 mins).
- Q&A using Slido (up to 25 mins)

***Slido Poll #2 for Sessions 2 & 3***

**Concluding discussion and guidance for Day 2.** *Helen Cleugh, Detlef Stammer, RFPs* [10 mins]

***Overnight Slido Poll #3***

# WCRP Climate Research Forum: Day 2 (September 9) Program

**Introduction and Welcome** [*WCRP Joint Scientific Committee (JSC) Chairs*, 10 mins]

**Session 4: Regional Information for Society (RIfS) Core Project.** Chair: Jhan Carlo Espinoza [55 min]

- CORDEX in South America and Introduction to new Regional Information for Society Core Project.  
*Speaker: Silvina Solman, University of Buenos Aires, Argentina (15 mins).*
- Hydroclimate Research Program for the Andes (ANDEX) and the connection with RIfS.  
*Speaker: Germán Poveda, National University of Colombia, Colombia (15 mins).*
- Q&A using Slido (up to 25 mins)

## ***Slido Poll #4 for Session 4***

**Session 5: Connections between WCRP, Future Earth and the UN Ocean Decade – a roundtable** [60 mins]

*Moderated by Ken Takahashi, WCRP Joint Scientific Committee and Regina Rodrigues, My Climate Risk Lighthouse Activity.*

Interventions from, and dialogue between, three representatives:

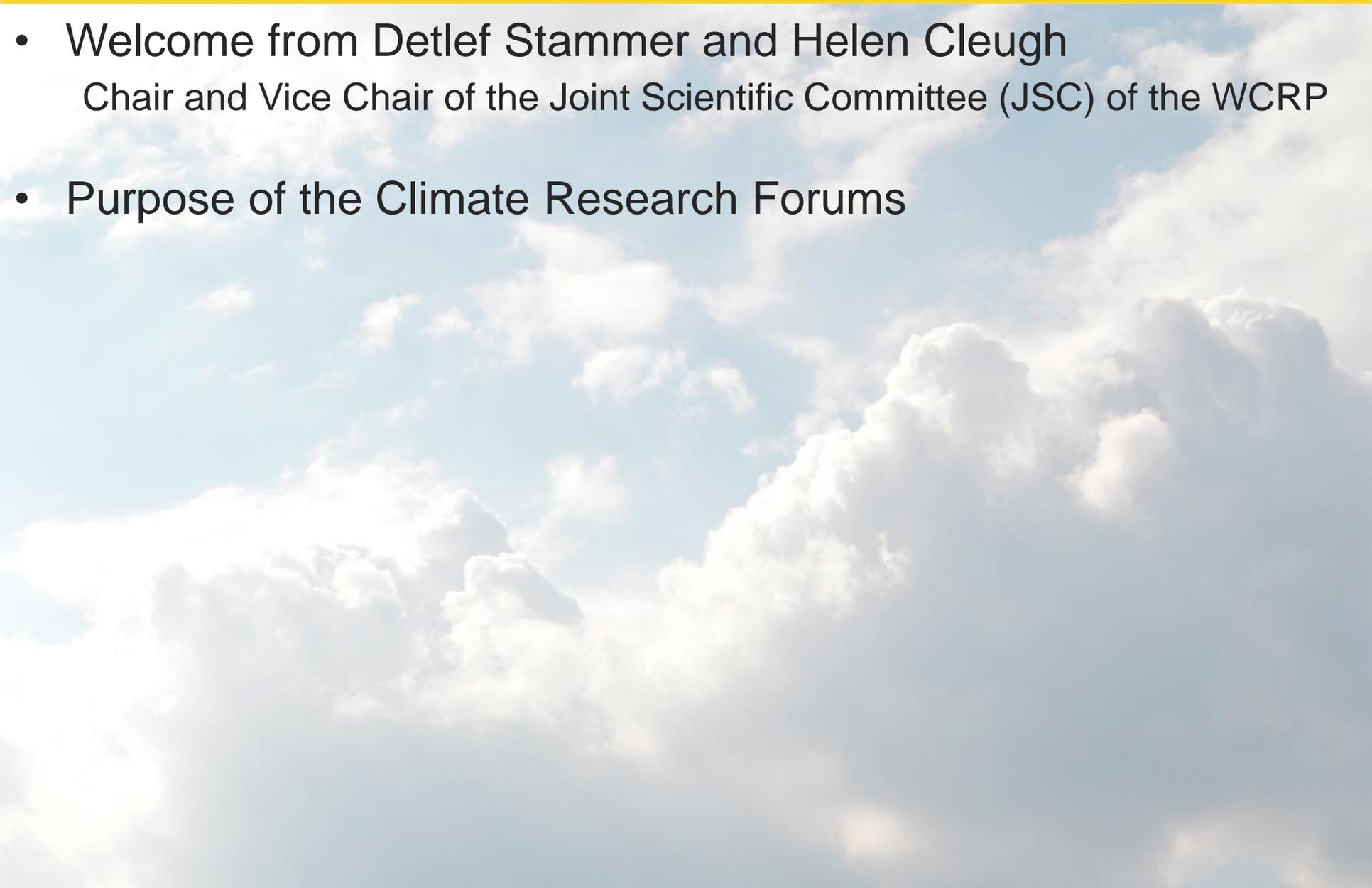
- Salvatore Arico - United Nations Decade of Ocean Science
- Emanuele Di Lorenzo - Future Earth OCEAN Knowledge Action Network
- Ivonne Montes - WCRP CLIVAR

Discussion and Q&A using Slido (up to 45 mins)

**Concluding Discussion and Farewell** [*Detlef Stammer and Helen Cleugh*, up to 25 mins]

# 1. Introduction and Welcome

- Welcome from Detlef Stammer and Helen Cleugh  
Chair and Vice Chair of the Joint Scientific Committee (JSC) of the WCRP
- Purpose of the Climate Research Forums



# Thank you!

**To our WCRP Regional Focal Points** who organized the Forum, and their institutions:

***Regional Focal Point Co-Leads:***

- Carla Gulizia, Research Centre of the Sea and the Atmosphere (CIMA/CONICET-UBA), Argentina
- Boris Dewitte, Centre for Advanced Studies of Arid Zones (CEAZA), Chile/France

***Organising Team of Regional Focal Points:***

- Maria Laura Bettolli, University of Buenos Aires-CONICET, Argentina
- Jhan Carlo Espinoza, Institute of Environmental Geosciences (Univ. Grenoble Alpes, IRD, CNRS), Peru/France.
- Jose Santos, WCRP CLIVAR Core Project, Ecuador/China
- Andrea Carril, University of Buenos Aires, Argentina
- Julieta Massaferro, National Scientific and Technical Research Council, Argentina
- Michelle Simões Reboita, Federal University of Itajubá, Brazil

**For their support and assistance in running the Forum:**

- WCRP's CORA Office - Beatriz Balino, Armelle Remedio and Anke Schluensen-Rico
- WCRP's CORDEX International Project Office - Anna Eronn and Iréne Lake
- WCRP Secretariat - Narelle van der Wel and Nico Caltabiano
- WMO for hosting the Forum and supporting the Zoom videoconference platform

# Slido Introduction

We are using **Slido** to enable the audience to ask questions of our speakers (via **Slido Q&A**) and for WCRP to seek feedback from the audience (via **Slido Polls**)

Please type your questions to our Speakers into **Slido Q&A**, in either Spanish or English:

- You can vote for (“like”) the questions posted by other participants. This helps us to focus on those questions that are of greatest interest.
- We aim to answer as many questions as possible in the time available.
- Missed questions? We will try and address these after the Forum.

Please enter your answers to the questions in the **Slido Poll/Survey** to provide feedback, responses and ideas.

- As an icebreaker, and to practice using slido, please launch slido ...

slido



**Icebreaker**

ⓘ Start presenting to display the poll results on this slide.



# 1. WORLD CLIMATE RESEARCH PROGRAMME (WCRP)

## *Our Climate Future*

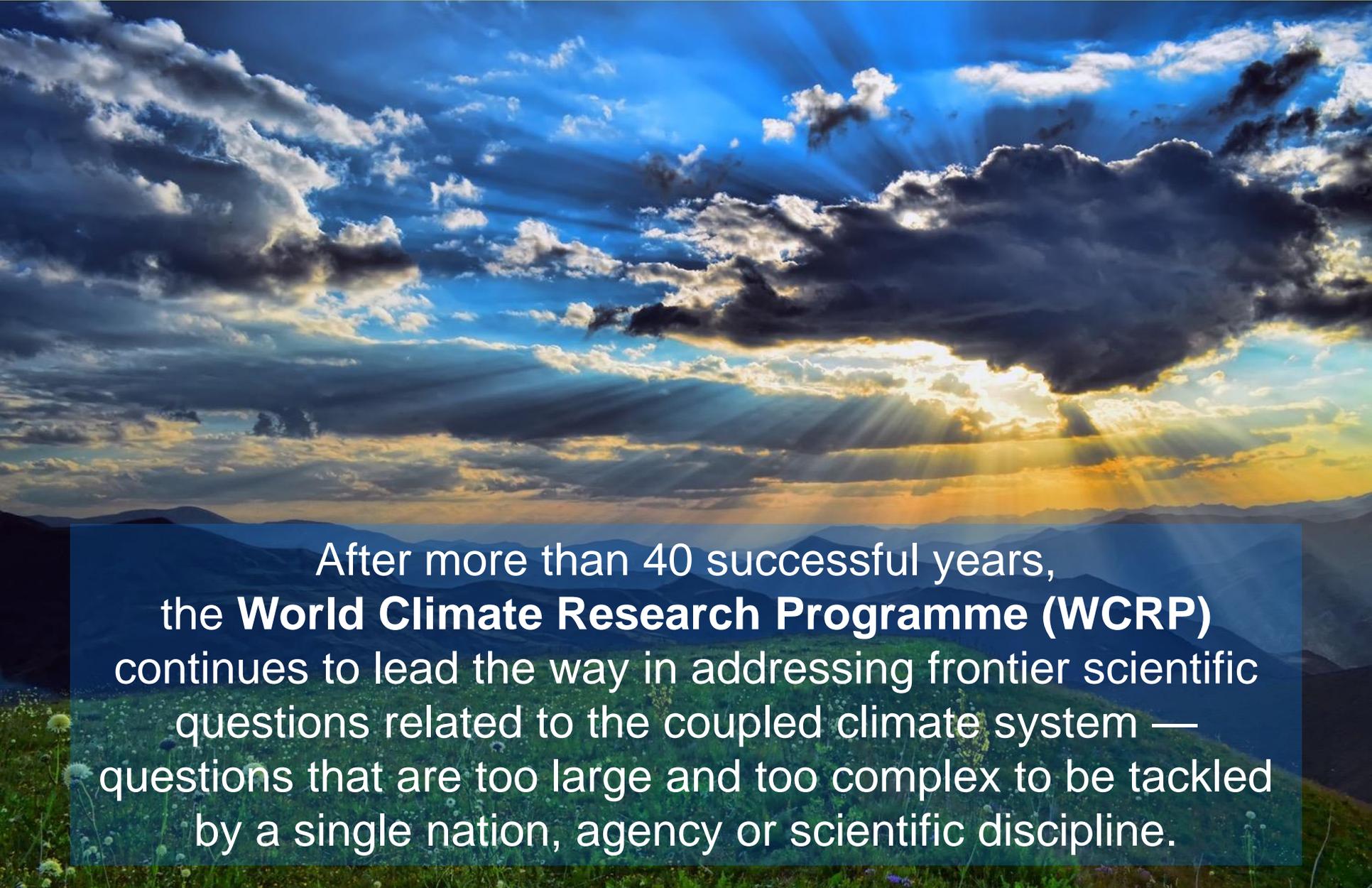
**Detlef Stammer and Helen Cleugh**  
**WCRP JSC Chair and Vice Chair**



International  
Science Council



# Introduction



After more than 40 successful years, the **World Climate Research Programme (WCRP)** continues to lead the way in addressing frontier scientific questions related to the coupled climate system — questions that are too large and too complex to be tackled by a single nation, agency or scientific discipline.

# Introduction

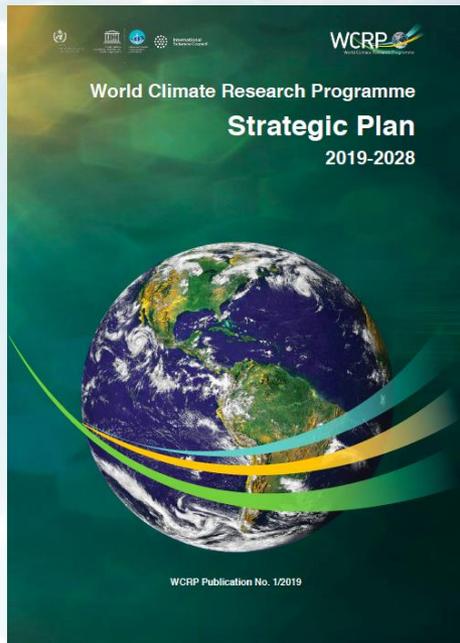
In the past, WCRP pioneered international climate research advancing our understanding of the climate system and how it is being affected by humans.

The next decade will bring even bigger challenges that can only be addressed through a worldwide coordinated effort; involving co-design and stakeholder engagement conducted by a prepared scientific workforce.

Society requires decision-relevant, evidence-based climate information to support adaptation planning and mitigation strategies.

# The Future WCRP

## A Strategic Plan for this Decade



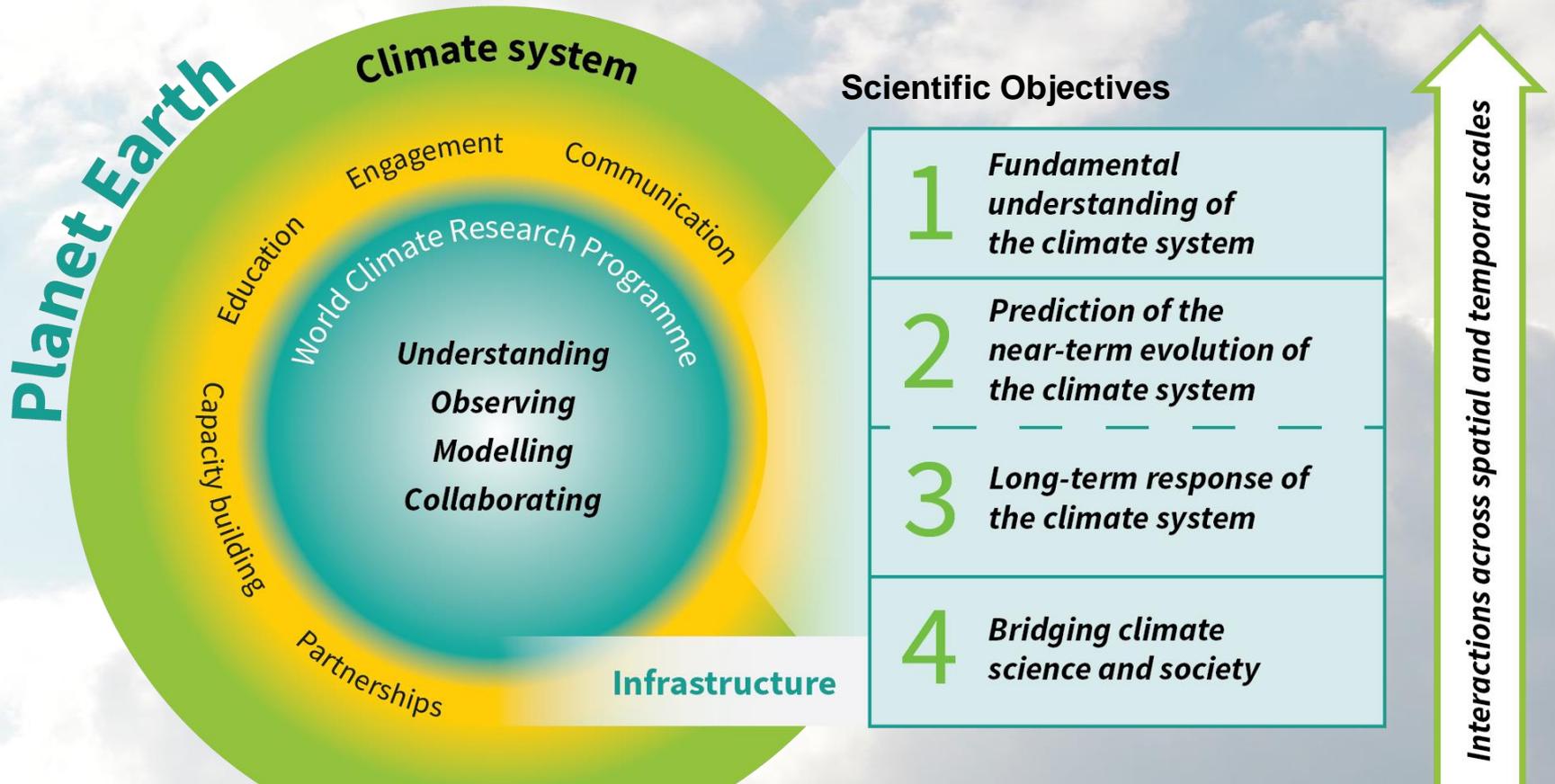
### The Vision *(our aspiration)*

A world that uses sound, relevant, and timely climate science to ensure a more resilient present and sustainable future for humankind.

### The Mission *(what we do, our purpose)*

Coordinate and facilitate international climate research to develop, share, and apply the climate knowledge that contributes to societal well-being.

# Overview of the WCRP Strategic Plan



- A hierarchy of simulation tools
- Sustained observations and reference data sets
- Need for open access
- High-end computing and data management

# Implementing the Strategy

**WCRP will prioritize its science by pursuing a series of Lighthouse Activities, along with other core research activities, to deliver and achieve critical outcomes over the next decade**



Explaining and  
Predicting Earth  
System Change

My Climate  
Risk

Digital Earths

Safe Landing  
Climates

WCRP  
Academy

**WCRP Lighthouse Activities are the major and new scientific approaches, technologies, and institutional frameworks – required to meet society's need for robust and actionable climate information**

# WCRP Lighthouse Activities

## My Climate Risk

To develop a new framework for assessing and explaining regional climate risk to deliver climate information that is meaningful at the local scale.

*Co-leads: Regina Rodrigues and Ted Shepherd*

## WCRP Academy

To determine the requirements for climate research education and to build enabling mechanisms. The Academy will work with WCRP core activities and established climate education providers, including universities, to achieve this.

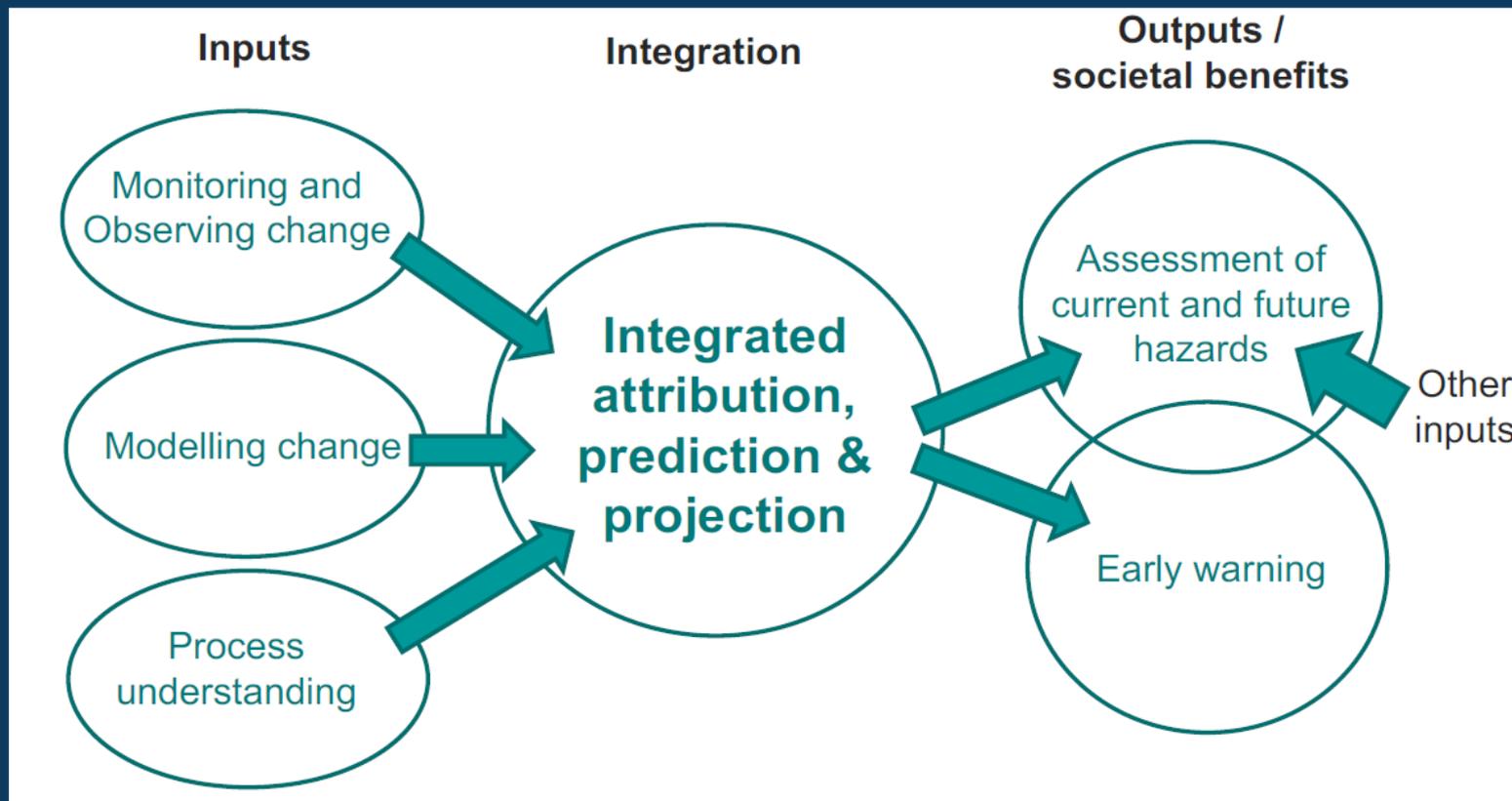
*Co-leads: Angela Maharaj and Andrew Charlton-Perez (stepping down)*

<https://www.wcrp-climate.org/lha-overview>

# WCRP Lighthouse Activities

Explaining and Predicting Earth System Change

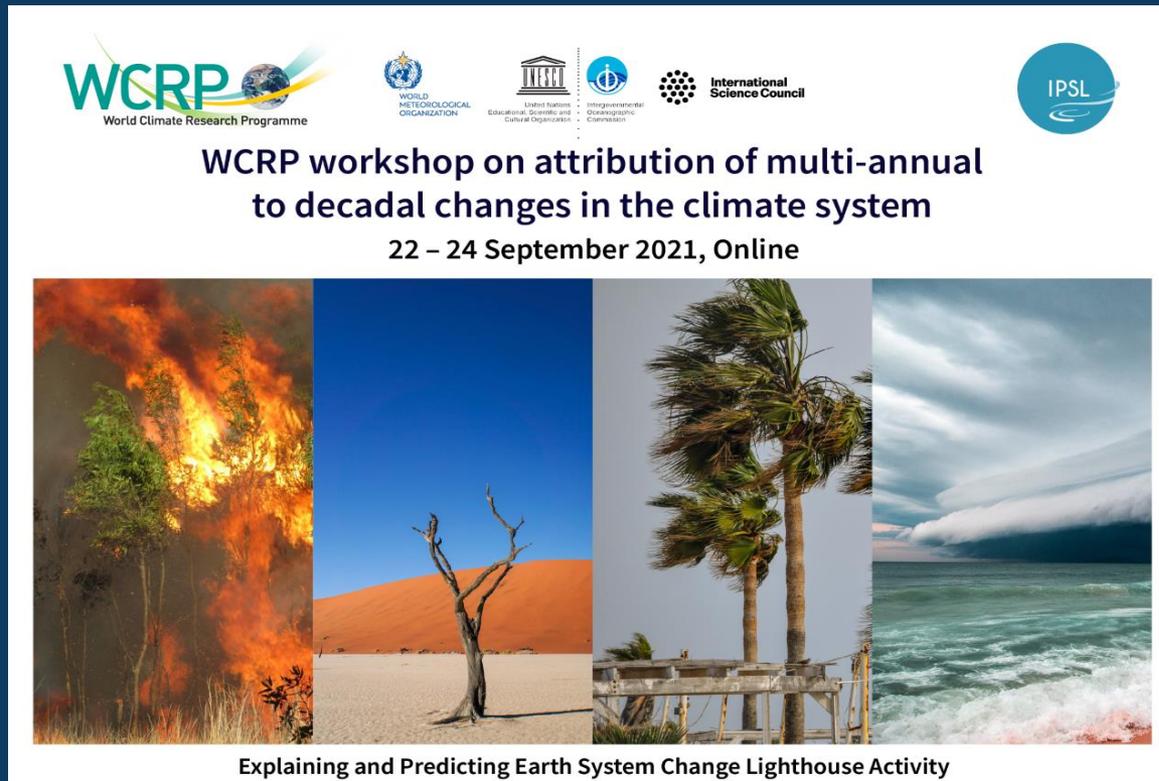
To design, and take major steps toward delivery of, an integrated capability for quantitative observation, explanation, early warning and prediction of Earth System Change on global and regional scales, with a focus on multi-annual to decadal timescales. *Co-leads: Kirsten Findell and Rowan Sutton*



# WCRP Lighthouse Activities

Explaining and Predicting Earth System Change

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The poster features a white background with logos at the top: WCRP (World Climate Research Programme), World Meteorological Organization, United Nations Educational, Scientific and Cultural Organization, Intergovernmental Oceanographic Commission, International Science Council, and IPSL. The central text reads: "WCRP workshop on attribution of multi-annual to decadal changes in the climate system" and "22 – 24 September 2021, Online". Below the text is a horizontal strip of four images: a bush fire, a dead tree in a desert, palm trees on a beach, and a stormy sea. At the bottom, it says "Explaining and Predicting Earth System Change Lighthouse Activity".

**WCRP**  
World Climate Research Programme

WORLD METEOROLOGICAL ORGANIZATION  
United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

International Science Council

IPSL

**WCRP workshop on attribution of multi-annual to decadal changes in the climate system**  
22 – 24 September 2021, Online

Explaining and Predicting Earth System Change Lighthouse Activity

**17 September** is the deadline for registration and final programme  
See workshop website at <https://wcrp-epesc.sciencesconf.org>

# WCRP Lighthouse Activities

## Safe Landing Climates

To explore the routes to climate-safe landing 'spaces' for human and natural systems, on multi-decadal to millennial timescales; connecting climate, Earth system and socio-economic sciences. Explore present-to-future "pathways" for achievement of key SDGs. *Co-leads: Steven Sherwood and Gabi Hegerl*

1. Safe Landing Pathways

2. Understanding High Risk Events

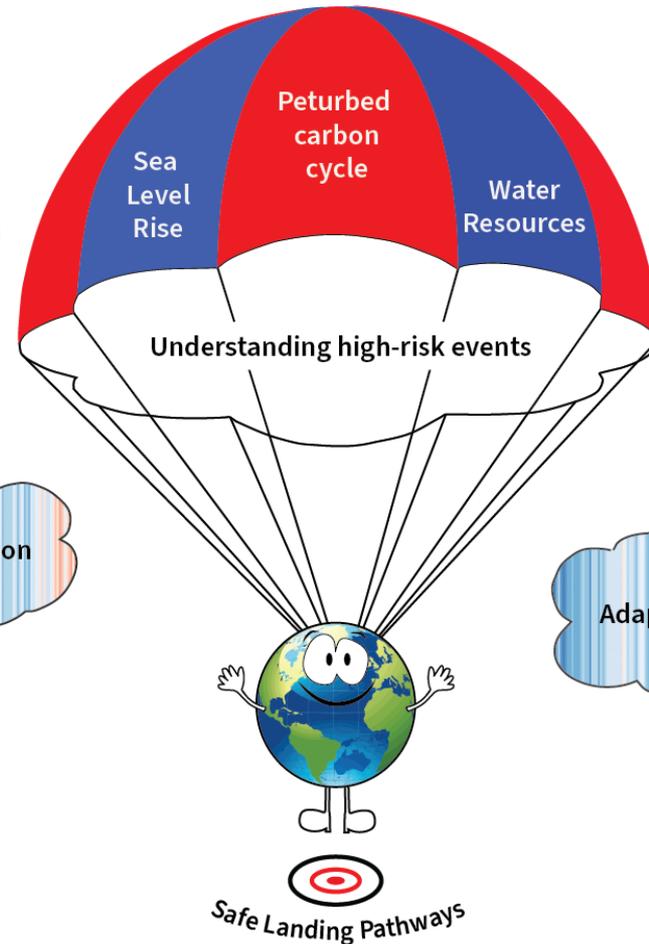
3. Perturbed carbon cycle

4. Water Resources

5. Sea Level Rise

Integrated  
Earth System  
and Societal  
Modelling

Mitigation



Sustainable  
Development  
Goals

Adaptation

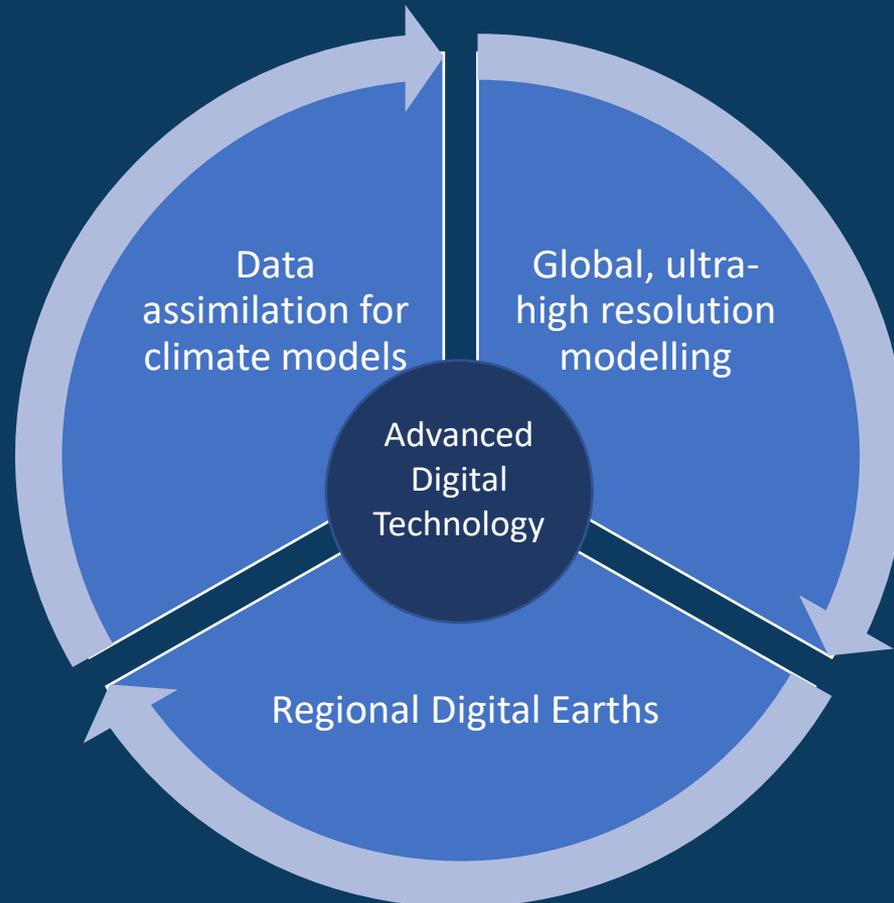
Safe Landing Pathways

# WCRP Lighthouse Activities

## Digital Earths

To develop a digital and dynamic representation of the Earth system, optimally blending models and observations, to enable an exploration of past, present and possible futures of the Earth system. *Co-leads: Peter Bauer and Christian Jakob*

*An integrated information system describing past, present and future states*



# WCRP Lighthouse Activities: Status

**Draft Science / Business Plans** for each Lighthouse Activity were submitted and reviewed in June 2021.

See <https://www.wcrp-climate.org/lha-overview> for **Science Plans and initial planned activities**

Consultation and engagement are a key implementation step:

- **Enhance the diversity** of the science community - as both contributors to, and users of, research.
- **Co-design the activities** with key partners and get input from our stakeholders.
- **Ensure they are linked to** WCRP's core research activities.
- We are also seeking interest from **potential funding partners**.

**More information on how you can connect in our Final Session today**

# WCRP Core Projects and Research Communities

## Enduring Capabilities, “Homes” of Expertise

Fostering and delivering the research and technologies needed to advance our understanding of the multi-scale dynamics of Earth’s climate system, and to quantify climate risks and opportunities, remains a high priority

This requires:

- Expertise and capabilities across oceans, cryosphere, land and atmospheric science domains.
- Process studies, observations, modelling and simulation.
- Capability for providing regional climate information.
- Model – data fusion science.
- Modelling and observing technologies and infrastructure.

# WCRP's Ongoing Core Projects

## Enduring Capabilities, Research Community "Homes"

### **CLIVAR - Climate and Ocean Variability, Predictability and Change**

Understanding the **coupled ocean-atmosphere system**, to better understand climate variability and change.

[www.clivar.org](http://www.clivar.org)



### **GEWEX - Global Energy and Water Exchanges**

Observing, understanding and modelling the **global and regional water cycles and energy budgets** in the Earth's atmosphere and at the surface.

[www.gewex.org](http://www.gewex.org)



### **CliC - Climate and Cryosphere**

Improving our understanding of the **cryosphere and its interactions with the global climate system**; and using the cryosphere to detect climate change.

[www.climate-cryosphere.org](http://www.climate-cryosphere.org)



### **SPARC - Stratosphere-troposphere Processes and their Role in Climate**

The **role of the atmosphere** in climate variability and prediction; atmospheric dynamics and predictability; chemistry and climate.

[www.sparc-climate.org](http://www.sparc-climate.org)



# WCRP's New Core Projects

## Enduring Capabilities, Research Community "Homes"

### ***Earth System Modelling and Observations [ESMO] (new)***

Science and technologies for modelling, observations and model – data fusion.

Unite and strengthen the work of these communities and groups:

- Working Groups on:
  - Coupled Modelling (WGCM) incl. CMIP (CMIP & Infrastructure Panels)
  - Numerical Experimentation (WGNE)
  - Sub-seasonal to Interdecadal Prediction (WGSIP)
- WCRP Modelling and Data Advisory Councils (WMAC and WDAC)



### ***Regional Information for Society [RIfS] (new)***

Science and capability needed for providing societally-relevant climate information for regions.

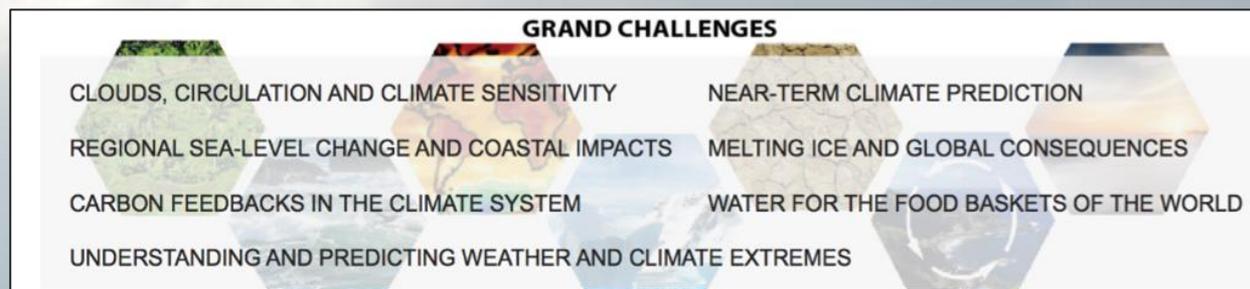
Unite and strengthen the work of these communities and groups:

- CORDEX (science and applications of regional climate downscaling)
- Working Group on Regional Climate (WGRC)



### ***WCRP Grand Challenges***

will “sunset” by 2022; i.e. transition to other research activities and/or conclude.



# WCRP Structure



International  
Science Council



Intergovernmental  
Oceanographic  
Commission

## Joint Scientific Committee (JSC)

## WCRP Secretariat

## Lighthouse Activities

## International Offices

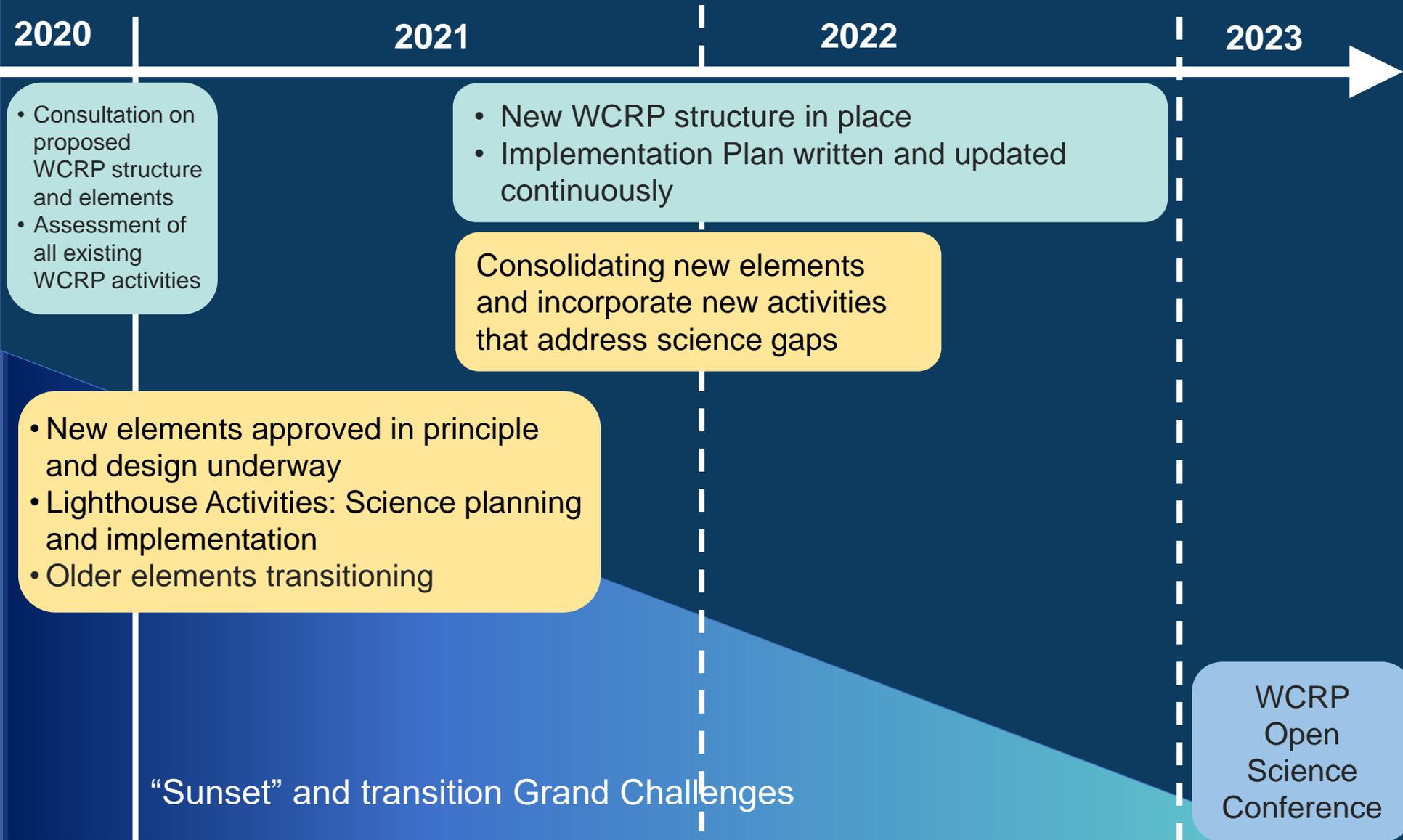
### Core Projects and Research Communities

- Climate and Cryosphere (CliC)
- Global Energy and Water Exchanges (GEWEX)
- Climate and Ocean Variability, Predictability and Change (CLIVAR)
- Stratosphere-troposphere Processes And their Role in Climate (SPARC)
- *Earth System Modelling and Observations (ESMO)*
- *Regional Information for Societies (RIfS)*

## Ongoing Activities and Fora

- Fixed-term projects
- Conferences and workshops
- Reference datasets, evaluations and benchmarking
- Diversity and capacity building: ECRs, regions
- Rapid updates, syntheses, assessments, gap analysis
- Communications and outreach

# A soft transition to the new WCRP: Timeline



# A soft transition to the new WCRP: Timeline

2020

2021

2023

- Consultation on proposed WCRP structure and elements
- Assessment of all existing WCRP activities

- New
- Imple
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- New elements approved in principle and design underway
- Lighthouse Activities: Science planning and implementation
- Older elements transitioning

**WCRP Open Science Conference 2023**  
Advancing climate science for a sustainable future

FIRST CIRCULAR



TENTATIVELY  
MARCH 2023

## Themes

- Recent advances in climate science
- Climate research challenges and opportunities
- Regional climate extremes and risks
- Useful and useable climate information

**WCRP**  
World Climate Research Programme



For more information and to register your interest please visit the Conference webpage

[www.wcrp-climate.org/WCRP-OSC23](http://www.wcrp-climate.org/WCRP-OSC23)

“Sunset” and transition Grand Challenges

WCRP  
Open  
Science  
Conference

# Our Joint Climate Future

WCRP's community stands ready to work with our co-sponsors and partners, and to support nations, to ensure that society has the climate knowledge and information needed.

It is also important for WCRP to engage the next generation of scientists and improve our diversity – across nations, regions and disciplines.

We want to explore ways to better connect and work with you, *during and after this Forum.*

***More in today's final session***



WORLD  
METEOROLOGICAL  
ORGANIZATION



United Nations  
Educational, Scientific and  
Cultural Organization



Intergovernmental  
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Commission



International  
Science Council



# You can help shape the future WCRP

**We welcome your suggestions and feedback** on our new Lighthouse activities, new and ongoing Core Projects, and new structure.

**We are very grateful** to all our sponsors, nations and agencies who have supported us so far.

**We welcome you to continue this journey** with us, to foster, coordinate and co-design the science that is important for you.

*Our last session today provides information describing how you can connect with us*

slido



## Survey 1

ⓘ Start presenting to display the poll results on this slide.

# WCRP Climate Research Forum: Day 1 (September 8) Program

Introduction and Welcome [*WCRP Joint Scientific Committee (JSC) Chairs*, 10 mins]

*Slido Introduction and Icebreaker*

Session 1: WCRP's "Our Climate Future" *Speakers: Helen Cleugh, Detlef Stammer* (20 mins)

*Slido Poll #1 and Q&A for Session 1*

**Session 2: My Climate Risk Lighthouse Activity.** Chair: Boris Dewitte

- WCRP My Climate Risk: Inverting the construction of climate information.  
*Regina Rodrigues, Federal University of Santa Catarina, Brazil*
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**Session 3: Capacity development in South America.** Chair: Carla Gulizia

- Innovation in the WMO Regional Associations: diagnostic and recommendations.

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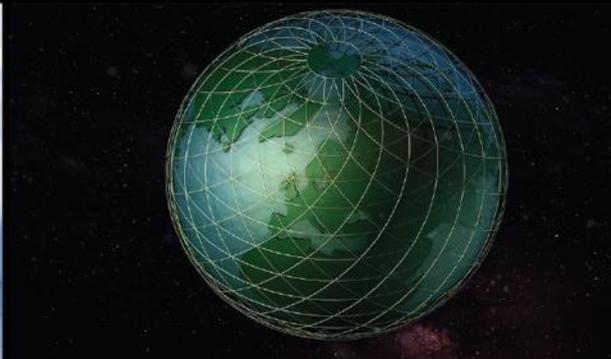
*Slido Poll #2 for Sessions 2 & 3*

slido



## Survey 2

① Start presenting to display the poll results on this slide.



# WORLD CLIMATE RESEARCH PROGRAMME (WCRP)

*Concluding Discussion for Day 1 and Program for Day 2*

*Homework: Slido Survey/Poll #3*

**Helen Cleugh, Detlef Stammer**  
**RFPs**

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International  
Science Council



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**We welcome you to continue this journey** with us, to foster, coordinate and co-design the science that is important for you.

# WCRP is here to support you

**Sponsors, Partners and Nations:** WCRP stands ready to support your needs for relevant, accessible and credible climate knowledge and information, by:

- Working with you to jointly identify research frontiers, challenges and collaborations.
- Directing our scientific expertise towards innovation in new scientific, technological and institutional approaches.

*Through WCRP's core activities, i.e. Core Projects, Lighthouse activities etc.*

# Today's Forum is just the beginning

**We welcome your ideas for follow-up activities.**

For example:

- Forums to focus on specific research themes, from our Core Projects and Lighthouse activities.
- Further engagement with partners and sponsors, to:
  - Build and strengthen partnerships
  - Identify research priorities of mutual benefit
  - Co-design research
- Connecting with Early to Mid-Career Researchers, including YESS (Young Earth System Scientists).

# Our Climate Future – Key Contacts

We are keen to hear from you and continue the conversation.

If you want to know more, or wish to be involved in any of our activities, then you can:

1. Email us with questions or ideas at [climatefuture@wcrp-climate.org](mailto:climatefuture@wcrp-climate.org)
2. Register for email updates at [www.wcrp-climate.org/wcrp-ip-connect](http://www.wcrp-climate.org/wcrp-ip-connect)
3. Register at [www.wcrp-climate.org/climate-research-forums](http://www.wcrp-climate.org/climate-research-forums) to tell us more about you and your interests
4. Check website for updates at [www.wcrp-climate.org/wcrp-ip-overview](http://www.wcrp-climate.org/wcrp-ip-overview)

# WCRP Climate Research Forum Guidance for Day 2 Starts at 13:30 UTC tomorrow (September 9)

**Introduction and Welcome** [*WCRP Joint Scientific Committee (JSC) Chairs, 10 mins*]

**Session 4: Regional Information for Society (RIfS) Core Project.** Chair: Jhan Carlo Espinoza [55 min]

- CORDEX in South America and Introduction to new Regional Information for Society Core Project.  
*Speaker: Silvina Solman, University of Buenos Aires, Argentina (15 mins).*
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*Speaker: Germán Poveda, National University of Colombia, Colombia (15 mins).*
- Q&A using Slido (up to 25 mins)

## ***Slido Poll #4 and Q&A for Session 4***

**Session 5: Connections between WCRP, Future Earth and the UN Ocean Decade – a roundtable** [60 mins]

*Moderated by Ken Takahashi, WCRP Joint Scientific Committee and Regina Rodrigues, My Climate Risk Lighthouse Activity.*

Interventions from, and dialogue between, three representatives:

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Discussion and Q&A using Slido (up to 45 mins)

**Concluding Discussion and Farewell** [*Detlef Stammer and Helen Cleugh, up to 25 mins*]

# WCRP Climate Research Forum: Day 1 (September 8) Program

***Some homework - Slido Poll #3***

***The survey will remain open for 4 hours  
(20:00 UTC)***

slido



## Survey 3

ⓘ Start presenting to display the poll results on this slide.

**Thank you and we hope to  
see you again tomorrow!**

**[climatefuture@wcrp-climate.org](mailto:climatefuture@wcrp-climate.org)**



WORLD  
METEOROLOGICAL  
ORGANIZATION



United Nations  
Educational, Scientific and  
Cultural Organization



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