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OPEN ASIA
UNIFYING SCIENCE, EMPOWERING INNOVATION

OPEN SCIENCE in CLIMATE RESEARCH

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In climate research, open science promotes

transparency, accessibility, and
collaboration between scientists, policy makers and
public.

The most popular Open Science effort in climate:



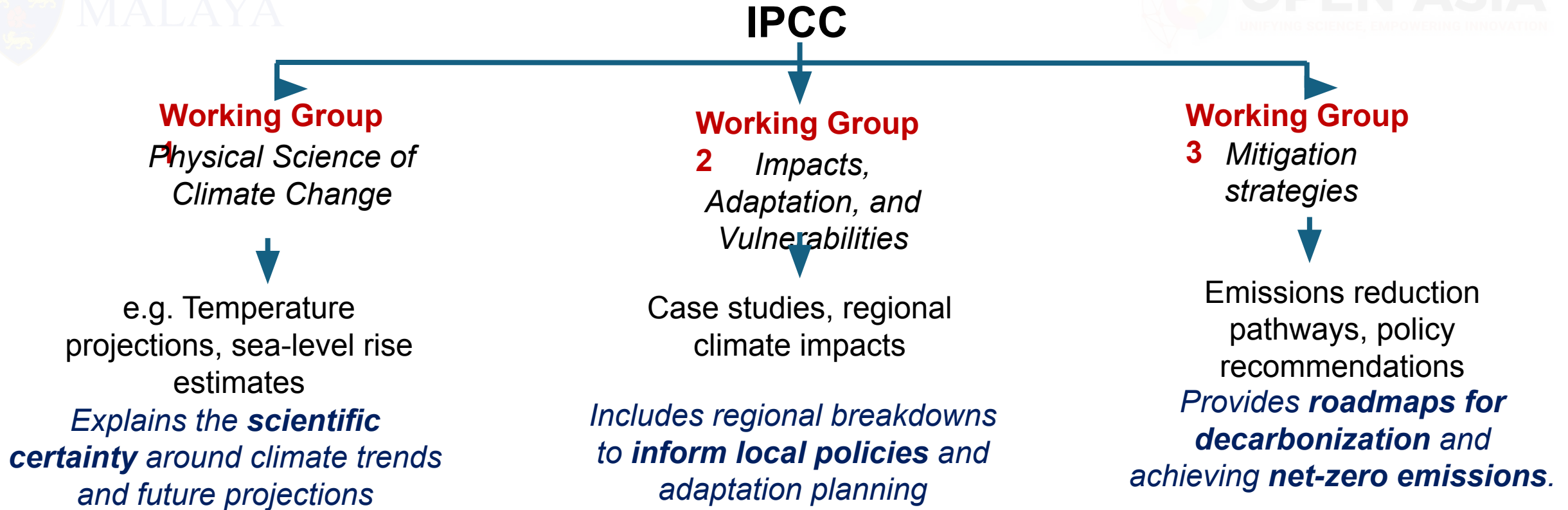
Intergovernmental Panel on Climate Change Assessment
Report

... to provide **policymakers** with regular assessments of the **scientific basis of climate change**, its **impacts** and **future risks**, and options for **adaptation** and **mitigation**.

The most popular Open Science effort in climate:

The IPCC prepares comprehensive Assessment Reports about **knowledge** on climate change, its **causes**, potential **impacts** and **response** options.

*The IPCC also produces Special Reports, which are an assessment on a specific issue and Methodology Reports, which provide practical guidelines for the preparation of greenhouse gas inventories.



- The group of scientists will **cross-check** between findings and carry out additional fact-checking, and works on reference
- IPCC reports undergo **multiple rounds of drafting and review** to ensure they are comprehensive and objective and produced in an **open and transparent way**.
- Thousands of other experts **contribute** to the reports by acting as reviewers, ensuring the reports reflect the full range of views in the scientific community

Projection data:



The screenshot shows the CMIP6 website header with navigation links: About CMIP, CMIP7, CMIP Data, News and Events, and Resources. The main content area is titled "CMIP Phase 6 (CMIP6)" and includes a list of subpages: Overview of the CMIP6 Experimental Design and Organization, CMIP6 Special Issue, CMIP6 Data Request, CMIP6 Model Evaluation System, CMIP6 Community Survey, and CMIP5 survey. A sidebar on the right contains social media icons for Twitter, Facebook, LinkedIn, WhatsApp, and Email. A footer at the bottom contains a cookie consent message and a "Cookie settings" link.

CMIP Coupled Model Intercomparison Project

WCRP

About CMIP CMIP7 CMIP Data News and Events Resources

Home / CMIP Phase 6 (CMIP6)

CMIP Phase 6 (CMIP6)

On this Page

- Overview of the CMIP6 Experimental Design and Organization
- CMIP6 Special Issue
- CMIP6 Data Request
- CMIP6 Model Evaluation System
- CMIP6 Community Survey
- CMIP5 survey

CMIP6 modellers, data managers, and data users can find the answers to most of their questions in one of the three specialized guides available at the [PCMDI CMIP6 website](#).

Overview of the CMIP6 Experimental Design and Organization

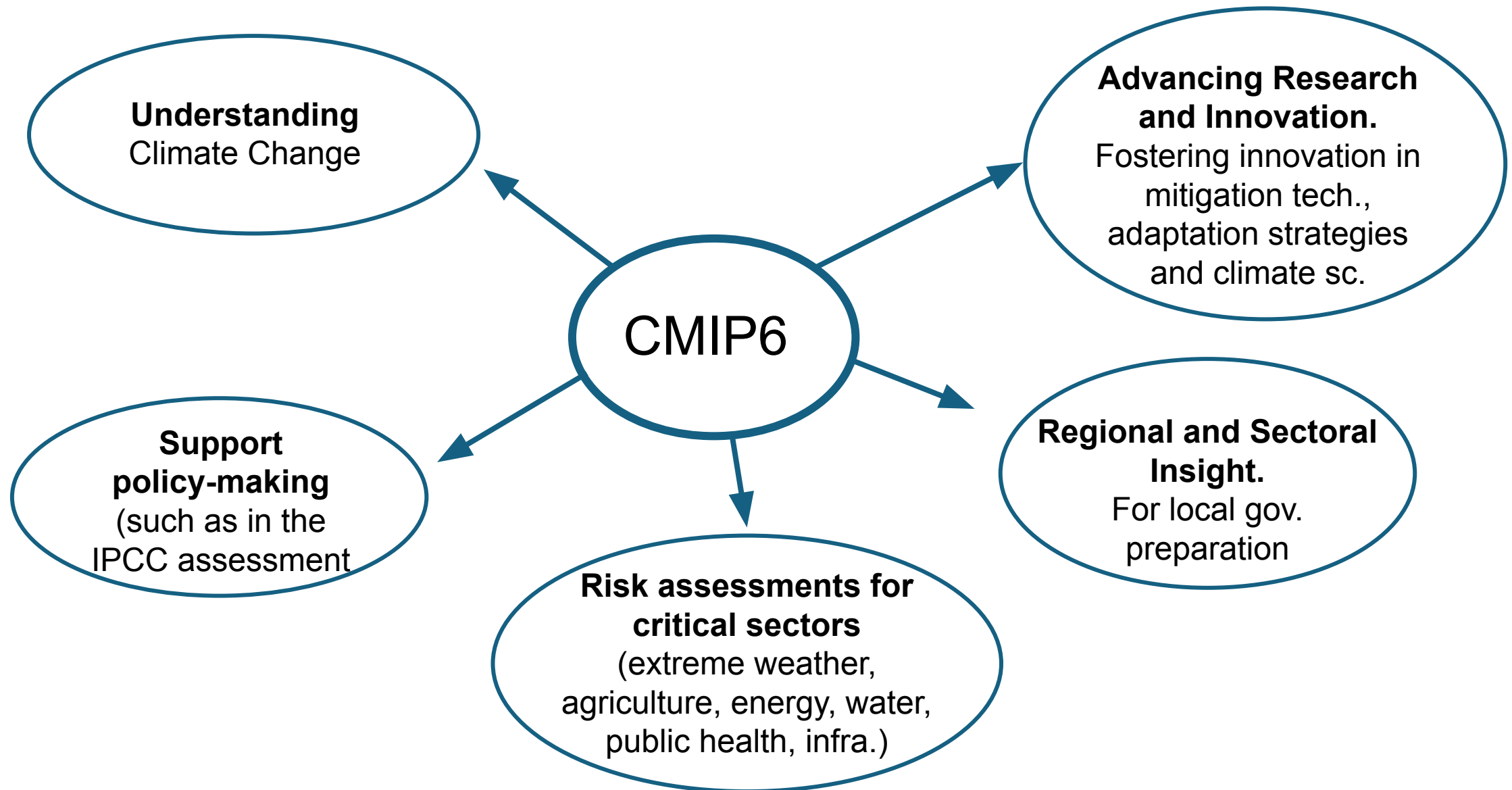
The overview paper on the CMIP6 experimental design and organisation is published in GMD (Eyring et al., 2016). This CMIP6 overview paper presents the background and rationale for the new structure of CMIP, providing a detailed description of the CMIP Diagnostic, Evaluation and Characterization of Klima (DECK) experiments and CMIP6 historical simulations, and includes a

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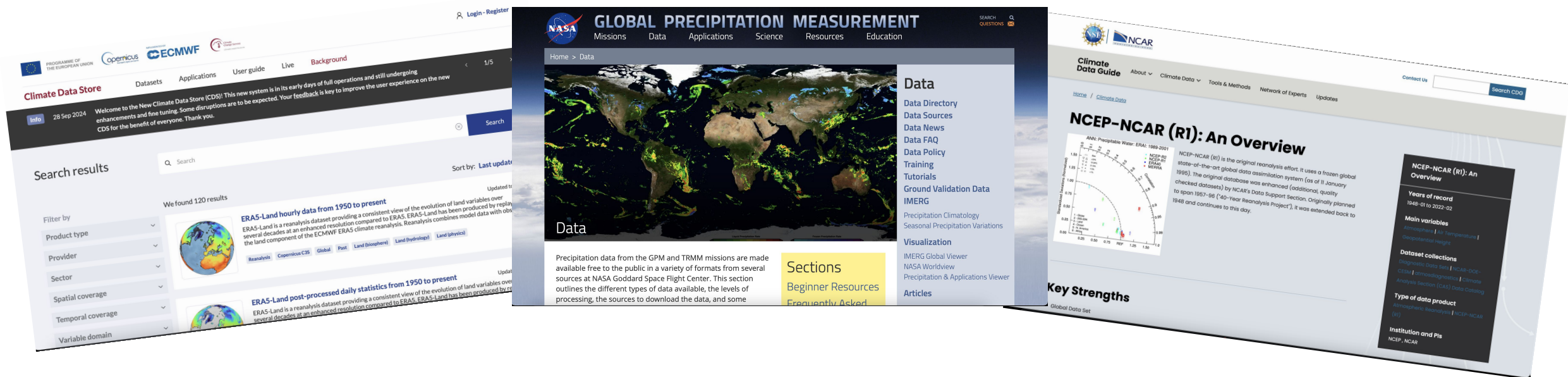
[Cookie settings](#) ACCEPT

- An initiative from **World Climate Research Programme (WCRP)**.
- It involves **contributions** from many research institutions worldwide, generating standardized climate projections through the use of advanced **Earth system models (ESMs)**

- **Historical simulations:** Reproduce past climate data to validate models.
- **Future scenarios:** Simulate potential futures based on different **Shared Socioeconomic Pathways (SSPs)** (e.g., SSP1-2.6, SSP5-8.5), which consider greenhouse gas emissions and socio-economic trends.
- **Variables:** CMIP6 provides data for variables like temperature, precipitation, sea level rise, and ocean circulation.



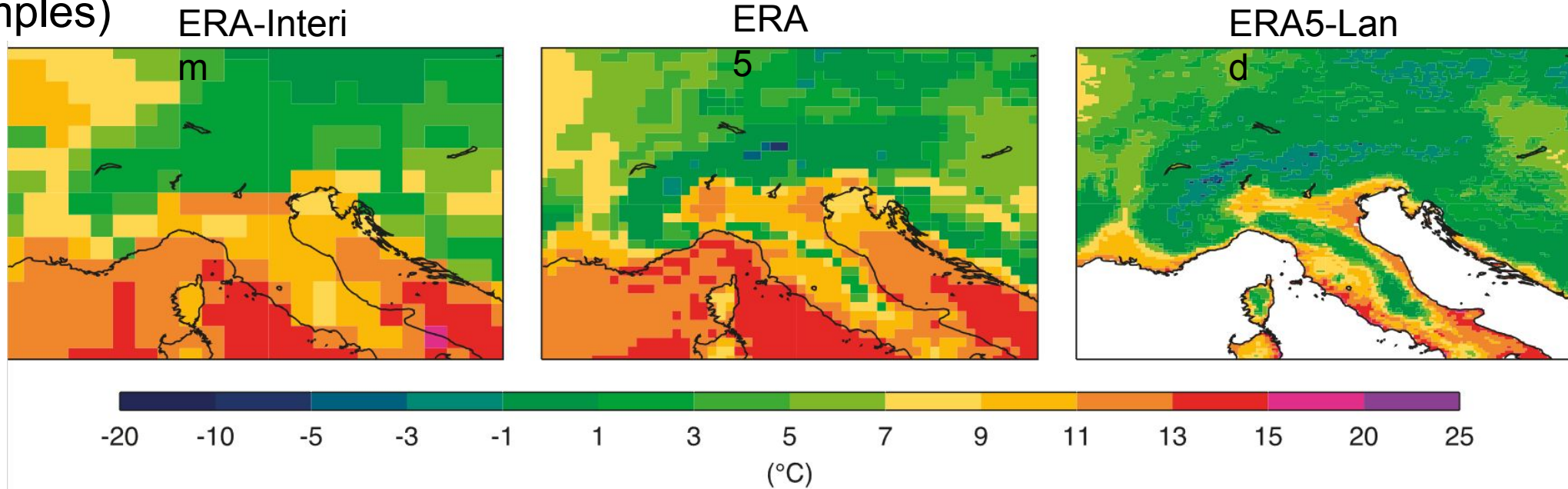
Open data I've been using:



- A combination of surface observations, satellite, etc and modelled to be a complete global data.
- The data is in slightly lower resolutions, but good enough (2.5° - NCAR, 31 km – ERA5, 0.1° - GPM)
- Models will calculate the values for each grid based on available data (stations, in-situ measurements and satellite radar).
- The data is useful for climate scientists and other scientists who are working with climate data

More open data available: MERRA, MERRA-2 (satellite data) and

Open data I've been using:
(examples)



ERA5 (Pros)

- **High spatial** (30 km) and temporal (hourly) resolution
- **Wide range of parameters** available
- **Long historical record** (1950-present)
- **Freely** accessible (Open Access)

ERA5 (Cons)

- Limited ability to capture **small-scale phenomena** (thunderstorms)
- Model **biases**, especially in regions with sparse observations
- Less accurate in **remote areas** (e.g., oceans, polar regions)
- Not a perfect substitute for direct observations

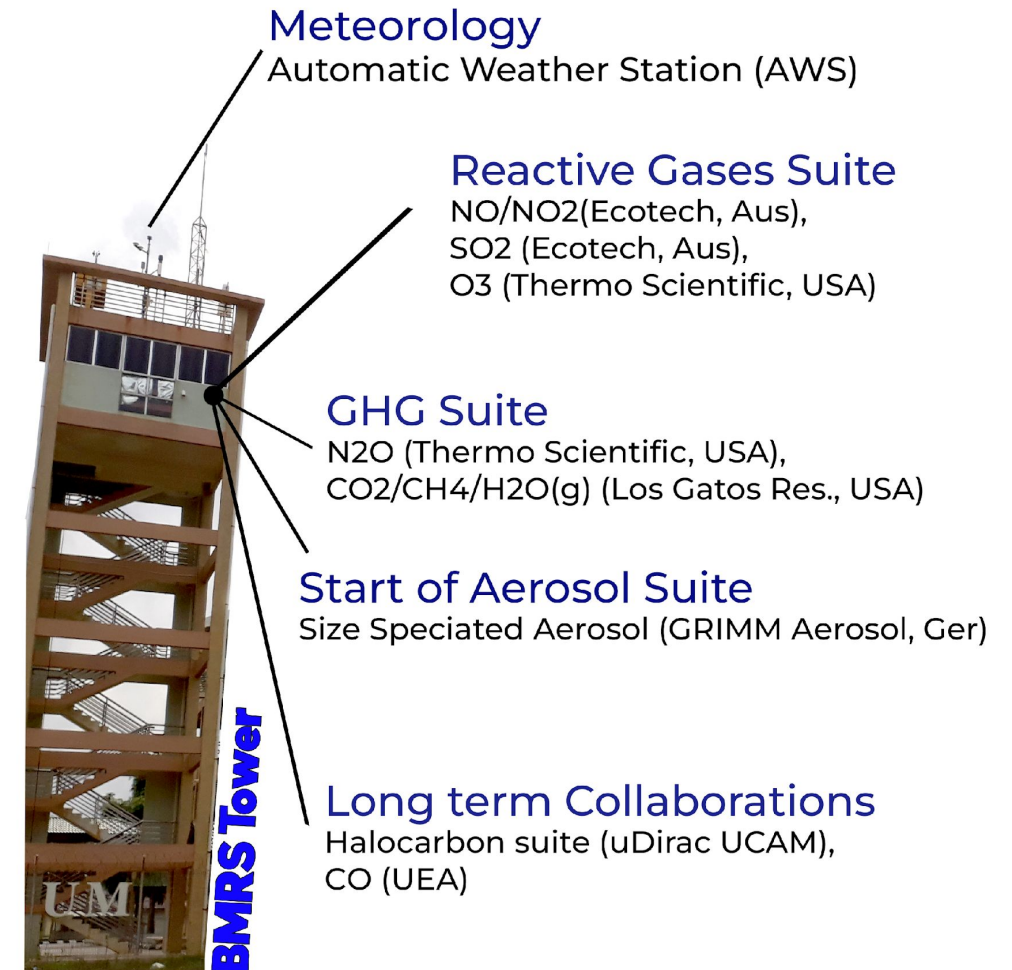
Atmospheric Monitoring Station (IOES's Bachok Marine Research Station, Bachok, Kelantan)

A collaboration between UM, University of Cambridge, University of East Anglia and Malaysian Meteorological Department (METMalaysia).

Planned to be one of the GAW contributing station with the help from METMalaysia.

GAW contributing station is under Global Atmospheric Watch, by World Meteorological Organisation WMO

Data available upon request.



Atmospheric Monitoring Station (IOES's Bachok Marine Research Station, Bachok, Kelantan)

[Home](#)

Quick access

Generate station report by:

Station name

GAW ID

Generate station lists by:

Country

Type

Class


Observed variable

Find people by:

Contact name

GAW World Data Centres
[WDC-RSAT \(World Data Center for Remote Sensing of the Atmosphere\)](#)
[WDCA \(World Data Centre for Aerosols\)](#)
[WDCGG \(World Data Centre for Greenhouse Gases\)](#)
[WDCRG \(World Data Centre for Reactive Gases\)](#)
[WOUDC \(World Ozone and UV Data Centre\)](#)

Welcome to GAWSIS



☒ Global ☒ Regional ☒ Contributing networks ☒ Local
☒ Other elements
☒ Planned ☒ Pre-operational ☒ Operational ☒ Partly operational
☒ Non-reporting ☒ Closed ☒ Stand-by

Latest news

Meteorology

Automatic Weather Station (AWS)

Reactive Gases Suite

NO/NO₂(Ecotech, Aus),
SO₂ (Ecotech, Aus),
O₃ (Thermo Scientific, USA)

GHG Suite

I₂O (Thermo Scientific, USA),
CO₂/CH₄/H₂O(g) (Los Gatos Res., USA)

Part of Aerosol Suite

Ultrafine Speciated Aerosol (GRIMM Aerosol, Ger)

Long term Collaborations

Global Carbon suite (uDirac UCAM),
CO₂ (UEA)

Global Atmospheric Watch (GAW) by World Meteorological Organization (WMO)

to monitor trends in the Earth's atmosphere. Missions:

- to conduct **accurate and thorough observations** of the atmospheric chemical composition and physical characteristics on both global and regional scales.
- To **provide** the scientific community with the means to predict future atmospheric states;
- To **organize assessments** in support of formulating environmental policy.



(<https://community.wmo.int/en/activity-areas/gaw>)

Acid Deposition Monitoring
Network in East Asia
(EANET)

Current Contributing Stations
for Malaysia:

- Danum Valley (Sabah)
- Kuching,
- Petaling Jaya,
- Tanah Rata (Pahang)

<https://www.met.gov.my/en/pendidikan/aktivitigaw/#Background>



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*Thank
You*



**IPC
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