

Second Meeting of the Capacity Development Panel (CDP)

Report on Science and Innovations/Research Board

15 September 2021

Jürg Luterbacher, Oksana Tarasova, Estelle de Coning, Claudia Volosciuk, Narelle van der Wel, Mike Sparrow, WMO SI Department and

Mary Scholes and Faten Attig Bahar (Research Board)



WMO OMM

World Meteorological Organization

Organisation météorologique mondiale



World Climate Research Programme (WCRP): Capacity Development Activities



WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

World Climate Research Programme (WCRP)

WCRP promotes current and future leadership in climate science, making particular efforts to support and engage *Early Career Researchers (ECRs)* from all regions of the world, towards a sustainable climate research community.

- WCRP undertakes a range of *Capacity Development Activities*, including e.g., summer schools, workshops, sponsorship (incl. new CliC Fellowships)
- Climate Research Forums for different regions including young researcher involvement (**see presentation of Carla Gulizia tomorrow**)
- *ECRs* are directly involved in WCRP activities, including on panels and working groups in the WCRP Core Projects and in the new WCRP Lighthouse Activity science teams.



International
Science Council



Activities in 2020-21

- Capacity development activities in 2020-21 were strongly impacted by COVID-19.
- *Capacity Development* initiatives (e.g. summer schools, training workshops) were postponed, cancelled, or proceeded in an online format.
- ECR involvement in WCRP activities via online meetings was generally good.

A couple of examples:

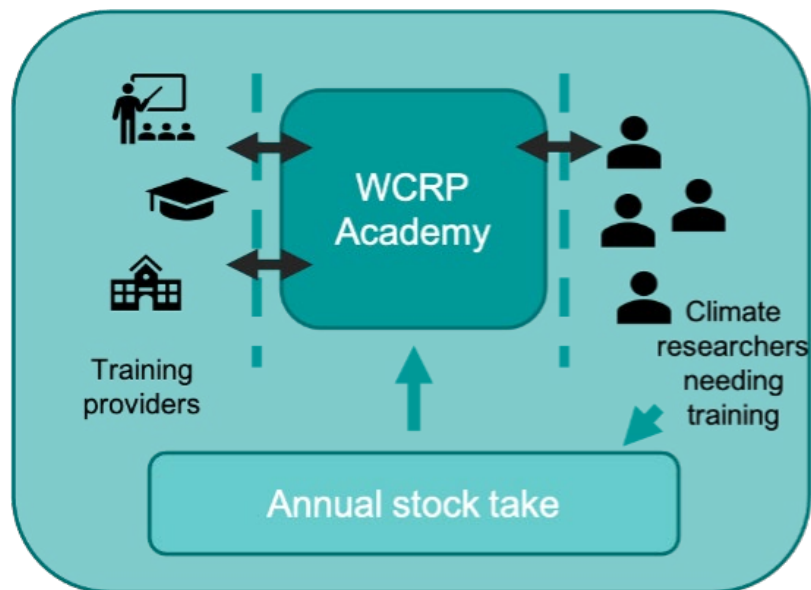
October 2020: **Regional Climate Change Projections: Climate change analysis using CORDEX regional climate models over South Asia** – six-day online training event
(ICIMOD, Met Office, WCRP, CORDEX)

October 2021: **ECS Training Sessions of the WCRP Workshop on Extremes in Climate Prediction Ensembles (ExCPEns)** – two-day training workshop (WCRP WGSIP, WCRP Grand Challenge on Weather and Climate Extremes, WWRP/WCRP Subseasonal to Seasonal Prediction Project (S2S))

WCRP Academy

The WCRP Academy's mission is to equip current and future climate scientists with the knowledge, skills, and attributes required to tackle the world's most pressing and challenging climate research questions.

The Academy is planning to build an online marketplace for climate science training, supported by an annual climate training stocktake survey (now open for comment)



2021 Stocktake Survey

www.wcrp-climate.org/academy-survey



WORLD
METEOROLOGICAL
ORGANIZATION



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission



International
Science Council



Global Atmosphere Watch Programme (GAW): Capacity Development Activities

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Hands-on training: instrumentation



- Continue established capacity development
- Hands-on training not possible during pandemic
- Webinars as additional resource → no substitute of hands-on component
- Towards a blended approach of combining virtual and physical hands-on elements

GAWTEC Course on "R" Studio Online Tutorial on Data Evaluation 

[Dashboard](#) / [My courses](#) / [GAWTEC Course on "R"](#)

General

The GAW community has set high data quality objectives (DQOs) that should be met by all participating stations. Training and education for GAW station personnel are therefore an integral part of the GAW program and critical to the long-term success of the GAW program. As a part of the WMO's capacity building strategy the German Quality Assurance Science Activity Centre (QA/SAC Germany) has established in 2001 the *GAW Training and Education Centre (GAWTEC)*.

GAWTEC objectives include the enhancement of the ability to identify measurement errors to increase data quality within the GAW station network. Therefore, one important topic in GAWTEC training courses is data evaluation and quality control. One tool used in data evaluation is the programme R. R provides a wide variety of statistical (linear and nonlinear modelling, classical statistical tests, time-series analysis, classification, clustering, ...) and graphical techniques and is highly extensible. This course introduces GAWTEC participants to the programme's basics and data handling. The online course serves as preparation for in depth exercises in the presence courses.

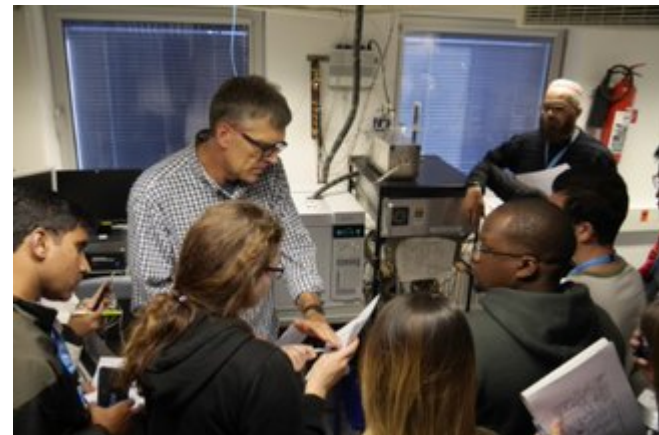
[General Discussion Forum](#)

Introduction and Welcome

With support by ETR Office

1 Introduction and Welcome

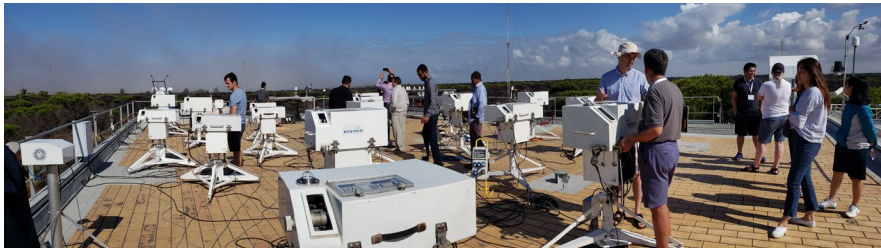
1.1 Introduce yourself



Station twinning, audit, intercomparison campaigns



Source: EMPA



Source: AEMET



Source: MeteoSwiss

- training of the station personnel and knowledge exchange during station audit and comparison campaigns;
- twinning programmes and personnel exchange
- Activities of central facilities
- → many visits were cancelled due to COVID but we hope that these important elements become possible soon again

Modelling training



Training course on Seamless Prediction of Air Pollution in Africa

- Further use of training material (published in 2020) for trainings
- Collaboration with ETR Office
- A first webinar took place December 2020 / January 2021 on “*Greenhouse gases and atmospheric composition measurements*”
- The topic of the second webinar will be on *Reactive Gases* (joint activity between YESS-community and GAW).

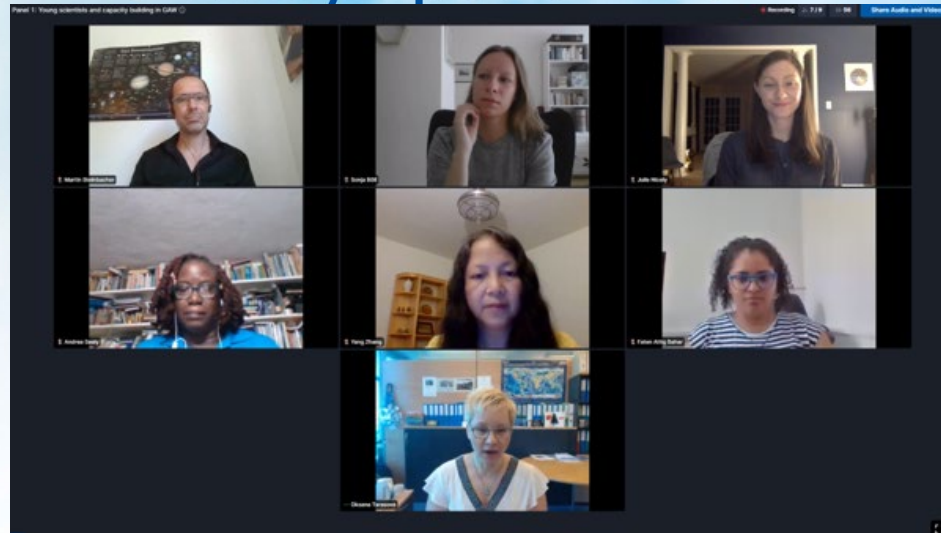
Training on atmospheric composition modelling will be continued



Early career scientist engagement

- GAW supports early career scientists and improved the connection with the YESS community (YESS-member Julie Nicely joined the SSC)
- > 40% of the registered GAW Symposium (virtual) participants from all over the world indicated being early career scientists
- Panel discussion on capacity development during GAW Symposium explored challenges to entraining early career researchers in atmospheric composition measurements and research, and explored possible solutions to these barriers

GAW Symposium 2021



Synergies and partnerships



Follow

A successful week of hands-on work on atmospheric composition satellite data closes today in #Cluj! Thanks to all the students and colleagues at @ESA_EO @CopernicusECMWF @WMO @FMISpace @KNMI and @UnivBabesBolyai for hosting the course.



4:22 AM - 8 Nov 2019

First joint training course on atmospheric composition

- To optimize the use of resources:
 - Partnering with other organizations
 - Synergies through joining existing efforts
 - Mapping existing efforts of atmospheric composition trainings will be beneficial
- Translation of training/outreach material and activities in local language increase the success



WMO OMM



World Weather Research Programme (WWRP): Capacity Development Activities

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale



WWRP: Capacity building within the HIGH impact Weather (HIGHWAY) in E Africa

- From 15-18 July 2019 radar interpretation workshop in Dar es Salaam forecast offices
- Training was provided by NCAR radar meteorologists on interpretation of the radar data and how to make its use for nowcasting thunderstorms & severe winds
- By the end of the training workshop, forecasters and engineers were able to make 1 and 2-hour nowcasts of severe weather



Arctic Science Summit Week 2021

19-26 March | Online, Portugal

Polar Prediction Programm ARCTIC SCIENCE SUMMIT WEEK (ASSW) 2021

- The ASSW 2021 on “**The Arctic: Regional Changes, Global Impacts**” took place virtually between 20-26 March 2021.
 - The Summit invited international experts on the Arctic and indigenous peoples to discuss the “New Arctic” and also its impacts and interactions to and with the lower latitudes
- Some of the science conference themes included:
 - The Changing Arctic Ocean: Dynamics and Impacts
 - Arctic Climate Dynamics
 - Living in the Arctic
 - Education and Capacity Building for the Polar Regions
- A **Polar Prediction School** is planned to be held prior to the **YOPP Final Summit** between 1–4 May 2022, in Montreal (QC), Canada.

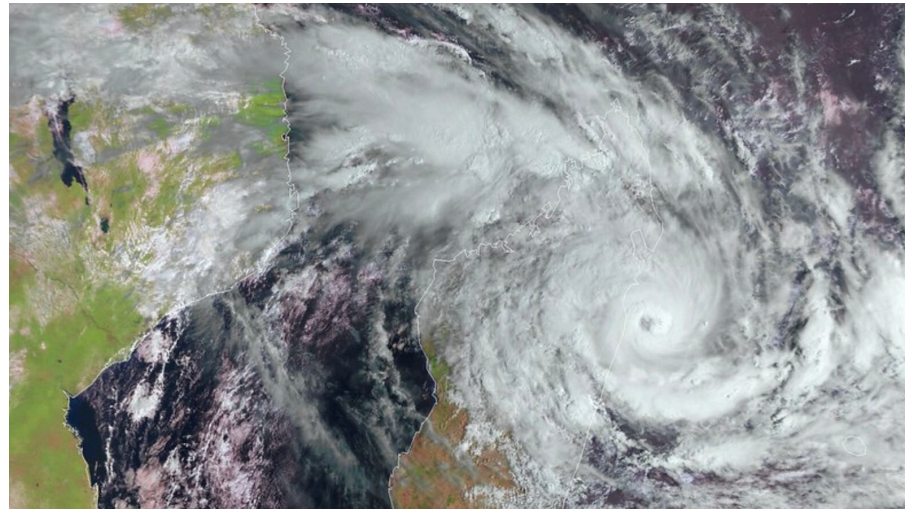


WMO OMM



TROPICAL CYCLONE-PROBABILISTIC FORECAST PRODUCTS (TC-PFP) WORKSHOP

- A **three-day TC-PFP workshop** was virtually held on 15, 17, 18 June 2021 to coordinate across RSMCs and other forecast centers to **identify best practice guidance for probabilistic forecasts of TC position** (including TC formation).
- The topics discussed during the workshop included the physical and social science as well as the currently available and needed resources.
- Follow up workshops are planned as part of this topic in the next 2-3 years.



WWRP Subseasonal to Seasonal (S2S) SUMMER COLLOQUIUM & WORKSHOP

- **2021 Advanced Study Program Summer Colloquium** was held 12-23 July 2021 on "The Science of Subseasonal to Seasonal (S2S) Predictions":
 - Virtual event with live lectures and debates followed by guided hands-on application of S2S diagnostic tools.
- **A scientific workshop on S2S Science and Predictions** was held 2-6 August 2021:
 - The workshop provided an opportunity for the lecturers and additional invited speakers to present their latest work in this fast moving field.
 - **A second in-person workshop** will be held in the **summer of 2022** (date TBD) in Boulder, Colorado

2021 ASP Summer Colloquium

July 12-23, 2021



Workshop on Subseasonal to Seasonal (S2S) Science and Predictions

August 2-6, 2021

THE SCIENCE OF SUBSEASONAL TO SEASONAL (S2S) PREDICTIONS

Scientific Leads: Judith Berner (NCAR), Aneesh Subramanian (CU Boulder)

HIWEATHER Education/Capacity development examples

- HIW webinars as joint activity between YESS-community and WWRP explored the topic of “*Exploring the role of citizen science in weather, climate, and related projects*” (September/November 2020/)
- A joint discussion meeting between the *Warning Value Chain and Citizen Science working groups* took place virtually on 27 July 2021.
- September/October 2021: Summerschool in the frame of the H2020 SECLI-FIRM Project (*The Added Value of Seasonal Climate Forecasting for Integrated Risk Assessment*), (<https://www.secli-firm.eu/secli-firm-summer-school-2021/>)



**HIWeather
Joint
Discussion**

**Warning Value Chain
X
Citizen Science**

JULY 27TH
**07:00-09:00
OR
19:00-21:00**
UTC

Discussion Topic
**How Can Citizens and Citizen Science
Contribute to Effective Warnings?**

