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Advancing Research for Seamless Earth System Prediction

Paolo M. Ruti, Oksana Tarasova, Julia H. Keller, Greg Carmichael, Øystein Hov, Sarah C. Jones, Deon Terblanche, Cheryl Anderson-Lefale, Ana P. Barros, Peter Bauer, Véronique Bouchet, Guy Brasseur, Gilbert Brunet, Phil DeCola, Victor Dike, Mariane Diop Kane, Christopher Gan, Kevin R. Gurney, Steven Hamburg, Wilco Hazeleger, Michel Jean, David Johnston, Alastair Lewis, Peter Li, Xudong Liang, Valerio Lucarini, Amanda Lynch, Elena Manaenkova, Nam Jae-Cheol, Satoru Ohtake, Nadia Pinardi, Jan Polcher, Elizabeth Ritchie, Andi Eka Sakya, Celeste Saulo, Amith Singhee, Ardhasena Sopaheluwakan, Andrea Steiner, Alan Thorpe, and Moeka Yamaji

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Science Summit on Seamless Research for Weather, Climate, Water, and Environment

The Science Summit, organized by the World Meteorological Organization's Commission for Atmospheric Sciences was held from 20 to 22 October 2017 in Geneva, Switzerland.

The Science Summit provided an opportunity to shape the new research agenda of the organization, building on the closer collaboration between weather, climate, water, and environment research. An additional focus of the Science Summit was to close the gap between research and the derived societal benefits. The keynote speeches, round table discussions, and World Cafe breakout sessions of the Science Summit revolved around the following five topics:

- Seamless prediction in 2023: Improving predictive capacity across weather, climate, water, and environment.
- Future infrastructures: Planning and investing in future infrastructures (computing, data handling, observations).
- Science for services: Developing and implementing a new interactive model for integrating research and operations.
- Nurturing scientific talents: Guaranteeing the sustainable development of science; breaking through geographical, gender, and age barriers; ensuring institutional continuity and transfer of knowledge.
- Innovation and resources: Catalyzing innovation and mobilizing resources in weather, climate, water, and environment research globally and locally.

The Science Summit created an inclusive, informal, and interactive forum for leading scientists from academia, the WMO community, and the private sector, as well as the representatives of funding agencies, to prioritize the key issues to be addressed in the five areas. Keynote addresses, panel discussions, and breakout group debates permitted the participants to share thoughts on how to promote both local and global exchange across the multiple disciplines related to Earth system sciences. In so doing, the Science Summit participants could outline a new framework for scientific cooperation in support of weather, climate, atmospheric composition, and related environmental research and its translation into new and better products and services.

An agenda, as well as the keynote talks of the Science Summit, can be found at <https://public.wmo.int/en/events/meetings/science-summit-seamless-research-weather-climate-water-and-environment>.

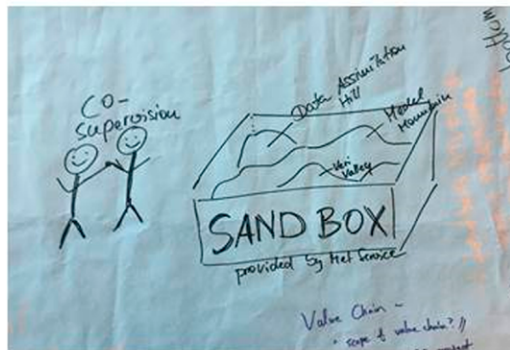


Fig. ES1. Further impressions from the World Cafe, where participants could express their view and visions also graphically.

Impressions from the World Cafe

Figures ES1 and ES2 contain impressions from the World Cafe.

Participants and organizers

Tables ES1 and ES2 contain lists of the speakers and participants, respectively, and the Organizing Committee is as follows:

- Øystein Hov (Norway, President of Commission for Atmospheric Sciences)
- Sarah Jones (Germany, Chair World Weather Research Programme Scientific Steering Committee)
- Greg Carmichael (United States, Chair Environmental Pollution and Atmospheric Chemistry Scientific Steering Committee)
- Deon Terblanche (WMO Secretariat)
- Oksana Tarasova (WMO Secretariat)
- Paolo M. Ruti (WMO Secretariat)

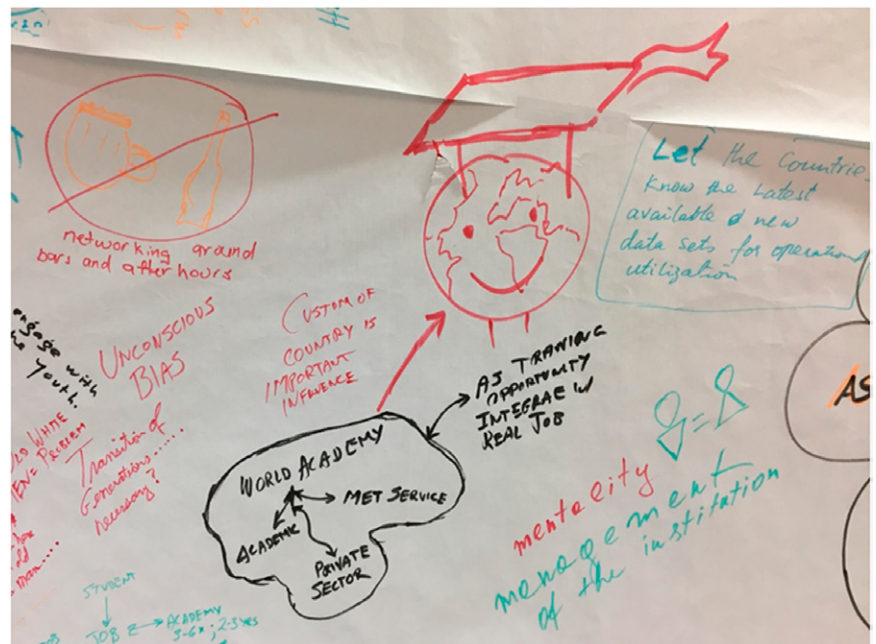
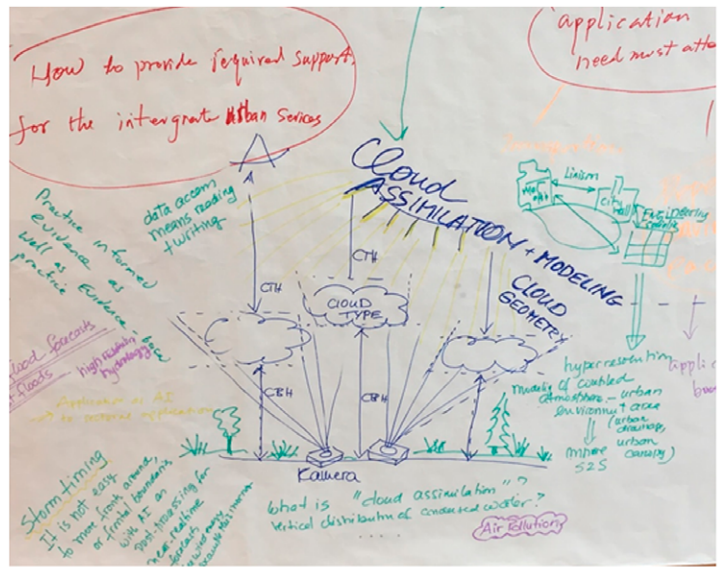


Fig. ES2. As in Fig. ES1.

Table ES1. List of speakers.

| Name | Country | Name | Country |
|----------------------|-----------|-------------------|----------------|
| Andrea Celeste Saulo | Argentina | Wilco Hazeleger | Netherlands |
| Elizabeth Ritchie | Australia | David Johnston | New Zealand |
| Véronique Bouchet | | Mariane Diop Kane | Senegal |
| Gilbert Brunet | Canada | Christopher Gan | Singapore |
| Michel Jean | | Nam Jae-Cheol | South Korea |
| Victor Dike | | Alastair Lewis | |
| Peter Li | China | Valerio Lucarini | United Kingdom |
| Xudong Liang | | Alan J. Thorpe | |
| Jan Polcher | France | Peter Bauer | |
| Vladimir Ryabinin | | Ana P. Barros | |
| Guy Brasseur | Germany | Philip Decola | United States |
| Julia H. Keller | | Kevin R. Gurney | |
| Andrea Steiner | | Steven Hamburg | |
| Amith Singhee | India | Amanda Lynch | |
| Nadia Pinaridi | | Elena Manaenkova | WMO |
| Moeka Yamaji | Japan | | |
| Satoru Ohtake | | | |

Table ES2. List of participants.

| Name | Country | Name | Country |
|--|--------------|---|--------------------------------------|
| Elizabeth Ebert Peter May | Australia | Cheryl Anderson Greg Pearson | New Zealand |
| Alice Marlene Grimm | Brazil | Abdulrasheed Darazo Zakariyau | Nigeria |
| Pierre Tabsida Zongo | Burkina Faso | Cynthia Celebre | Philippines |
| Michel Beland Lawrence Wilson | Canada | Janusz Filipiak | Poland |
| Min Chen Yihong Duan Yaqiang Wang Min Wen Hui Yu Haijia Zang | China | Ji hyeon Do Sangok Han Hyojeong Jeong Hyun-Suk Kang Dongkyou Lee Youngsan Park Jaegwang Won | South Korea |
| Alphonse Kanga | Congo | Violeta Balan | Moldova |
| Branka Ivancan-Picek Cleo Kosanovic | Croatia | Chin Ling Wong Alick Haruhiru | Singapore Solomon Islands |
| Abdalla Abdelrahman Baligh Mohamed Salah M. Okka | Egypt | Lucky Dalton Ntsangwane Abdelgadir Lado | South Africa South Sudan |
| Dula Shanko Lebeta Finland Antti Makela | Ethiopia | Dahanayake Ananda Jayasinghearachchi Joakim Langner | Sri Lanka Sweden |
| Philippe Dandin Véronique Ducrocq Marc Pontaud | France | Jörg Klausen Heike Kunz Philippe Sierra | Switzerland |
| Susanne Crewell Martin Goerber Sarah Jones Thomas Jung Matthieu Masbou Christian Plass-Duelmer Roland Potthast | Germany | Songkran Agsorn Yusuf Nsubuga Carla Cardinali Brian Golding Frederic Vitart Keith Williams | Thailand Uganda United Kingdom |
| Bozo Laszlo | Hungary | Doreen Mwara Pascal Waniha | Tanzania |
| Urip Haryoko Bagus Rachmat Rievan Ardhasena Sopaheluwakan Maman Sudarisman | Indonesia | Roelof Bruintjes James Butler Gregory R. Carmichael Brittany Croll Thomas Cuff Randall Dole Jenni Evans | United States |
| Kazuto Suda Munehiko Yamaguchi | Japan | Michael Morgan | |
| Ahmed Rasheed | Maldives | Shanna Pitter Rita Roberts | |
| Siham Sbihi | Morocco | Duane Waliser | |
| Tun Hla Su Su Win | Myanmar | | |
| Bartholomeus van den Hurk | Netherlands | | |