# WDAC Report
# (draft 1)

## 1. Highlights for JSC

- obs4MIPS documented and organized 100+ observational products according to CMIP output requirements with summary of achievements given in Duane et al., in revision
- Task Team for Intercomparison of Reanalyses (TIRA) proposed concept for a WCRP Earth System Reanalysis Intercomparison and Evaluation group
- Surface Flux Task Team White Paper
- WCRP/GCOS International Data Prize 2019 awarded to Dr Phu Nguyen (CHRS, University of California-Irvine, USA) and Dr Hamed Ashouri (Risk Management Solutions, CA, USA)
- Coordinated report from the 'WCRP Task Team on Seamless Data and Data Management' as input to the WCRP Implementation Plan

## 2. Primary science issues (looking ahead, 3 to 5 years)

- Observations for process understanding (including dedicated field experiments)
- Observational climate data records
- Reanalyses and data generated by climate models (need to define 'data' in general)
- Data assimilation
- Data availability, access and usability via open data infrastructures: definition of the role of operational infrastructures and gap analysis needed
- Strategy on capturing observational uncertainties/covariances
- Synthesis on data stability and quality control (need for guidelines within WCRP)
- Data science and data mining/machine learning (information and knowledge exchange)
- New sensors and data products (e.g., micro-satellites, IoTs, citizen science)
- Research-operations synergies (data management infrastructures, observational campaign vs operational networks, climate services)
- Training and education

## 3. Issues and challenges

There is a clear need to coordinate observations, reanalyses, data science and data management issues across the programme and across WMO (with WWRP and GAW in particular). The longer-term structure and mechanisms of the coordinating body overseeing seamless data and data management within WCRP should fit within the new science and implementation plan and can benefit from existing WDAC structures. To ensure current workflow, continuous memberships and coordination of current task teams and activities more information on the near-term future of WDAC would be beneficial.

- Information on (and access to) datasets via inventory for all WCRP key research? Important step towards seamless approach. Can provide direct input for gap analyses. However, this would need to be adequately resourced in terms of staff time.

- Better transfer of knowledge/experiences of/in data management across WCRP entities
- Establish a strong link to space agency bodies to exchange WCRP needs and space agency plans (involve GCOS and others to communicate requirements to space agencies)
- Data management strategies should include observations, reanalyses and model simulations seamlessly (close collaboration with modelling group)
- Strengthen coordination of reanalyses, in particular around Earth system reanalysis (TIRA white paper)
- Promote a broader Earth System approach to observations with GCOS
- Include data assimilation (OSEs/OSSEs in coordination with WWRP/DAOS/PDEF and WGNE)
- Include data science and data mining as we face huge and steadily growing amount of data (connect with AI/IT communities more closely)
- Interfacing/integrating (research) data infrastructure with their operational equivalent (WIS, C3S/CDS) is a necessary condition to the R-O goal