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| **World Meteorological Organization**  **Commission for Instruments and Methods of Observation**  **Joint Session of the Expert Team on Operational In Situ Technologies (ET-OIST) and the Expert Team on Developments in In Situ Technologies (ET-DIST)** Geneva, Switzerland, 21-23 June 2017 | **CIMO/ET-A1-A2/Doc. 2.2** |
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# Report of the chairperson of the expert team - developments in in situ technologies (ET-DIST)

**Overview**

The ET – DIST has made good progress on most areas assigned to the team. As chairperson this has been a challenging and rewarding period, challenging mostly because of the very steep learning curve I've been on and rewarding because of the dedicated and committed people in this team. I would like to start the meeting by thanking each and every one of the people here, those who have been working hard from their base and couldn't make it to this meeting and those who have been a part of the group and for one reason or another and had to leave. Each one has made a very special contribution and I look forward to the next six months when we'll be able to round off a number of these tasks and hopefully have their hard work and wisdom shared more widely.

There have been a few challenges, not least my inexperience, with some people being unable to continue on the team, and others having to take some leaves of absence. In particular I'd like to thank Peter Lejbjuk from Environment Canada who was a formidable contributor in the couple of years of the team, particularly in Task 5.4 on Guidelines for Instruments and Infrastructure for Extreme Weather. He has been most ably replaced on the team by Ian Miller from Campbell Scientific.

In recent months there's been some reallocations tasks to better align with team members skills and workloads. This has reignited energy in a number of areas, but as a result a couple of these will not be reported on at this meeting. It had been hoped would have preliminary reports but the material was not mature enough. It is however expected sufficient progress will be made over the coming weeks and months have something available for the September October submission to the CIMO guide.

**Key focuses**

Key focuses of the team up to now have been as follows.

Item 2.1 Guidelines on economical alternatives alternative AWS (Warne)

This paper outlines a method of using the specifications of manufacturers to allow comparison of AWS including consideration of siting, traceability, manufacture quality and other critical metrology factors to contribute to the judgement. It also proposes a tool that could be used by other organisations to expand on the database for information.

Item 6 Environmentally Friendly Radiosondes (Dubovetskiy / Hietanen / Warne)

This paper provides an update on the status of manufacturers progress towards an "environmentally friendly radiosondes" it also considers briefly alternatives to radiosondes. The is accompanying papers from a major manufacturer outlining their views on their progress. There is also an update on some work being undertaken in Australia on looking at the impact of radiosondes.

Item 7.1 Performance of New In Situ Technologies Upper Air Observations (Dubovetskiy)

This paper is a thorough review of the state of upper air in situ technologies.

Item 5.3 Framework for instrument performance monitoring (Warne)

There are two papers related to this work. The first looks at some work undertaken in Australia looking at the long-term performance of equipment in the field and how this impacts both calibration processes and client data usage. The second is the first cut of the analysis of a trial survey on how performance monitoring is undertaken in different jurisdictions. The trial is undertaken to see what information can be useful before committing to a larger WMO wide survey.

Item5.4 Guidelines for instruments and measurement infrastructure in extreme environment (Guo & Warne)

There are two papers related to this work being presented. The first is a detailed exploration of the various environmental extremes that infrastructure and instruments are subject to and the steps that might be taken to mitigate any negative outcomes. The second paper is a rework of this information into were risk-based tool.

The other major activity of the team has been to keep a watching brief on a range of measurement technologies some of these will be reported on at this meeting. As mentioned before there has been a reassignment of people in this area and as a result not all areas are ready for reporting. The areas that will report are as follows:-

Item 7.2 Surface observations - temperature, pressure and RH (Dipasquale)

Item 7.5 Cloud, visibility and present weather (Wauben)

Item 7.7 Local lightning detection (Hietanen)

Item 7.8 Soil moisture (Warne)