**Workplan of the Expert Team on Developments in In-Situ Technologies (2014-2018)**(Version: as approved by CIMO-MG-13 in Dec. 2014, with minor updates on 09 June 2017)

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| **No.** | **Task description** | **Person responsible** | **Action** | **Deliverable** | **Deadline for deliv.** | **Status****[%]** | **Comments** |
| 1. | **Performance of new in situ technologies:a) Upper Air****b) Surface T, P, RH****c) Wind****e) Precip****f) AWS (including low cost AWS)****h) Clouds, Vis, Pwx****i) Trace Gas Measurement****j) Solar radiation, k) individual lightning sensors.** | **a) Dubovetsky****b) DiPasquale****c) Hietanen****e) Warne****f) de Podesta,** Warne**h) Wauben****i) Warne****j) N/A****k) Warne** | 1. Monitor and review performance of new in situ surface and upper-air technologies and measurement techniques
2. Identify and report significant developments and trends
 | 1. Report on findings
2. Recommended updates to CIMO Guide
3. Documentation on guidance for the use of Low Cost AWS.
 | 06/201606/2017 | On-oing | CIMO-16 §4.19Guo to link with ET-A1 on impacts of siting class, rather than include it hereRe j), liaise with relevant ET tackling these topics. |
| 2. | **Review outputs of assigned Lead Centres****(Lindenberg, Chupungnyeong)**  | **Dubovetsky**Di Pasquale | 1. Inclusion of guidance material in IOM reports
2. Update CIMO Guide as required to take into account technological developments
 | 1 Documentation on guidance material 2. Recommended updates to CIMO Guide | 06/201606/2017 | On-going | Task Leaders are in contact with the Lead Centres and gathering relevant information. (Mar 16) |
| 3. | **Investigate and provide guidance concerning design and installation of, a) instruments and b)measurement infrastructure , to sustain measurements in extreme weather conditions, such as in polar and alpine regions** | **a) Warne,** Miller,Guo **(Instruments)****b) Miller,** Nomura**,** Guo **(Infrastructure)** | 1. Identify and review existing guidance material and develop new material on the optimal use of methods to measure severe hydrometeorological events and conditions.
 | 1.1 Update list of existing documents1.2 Draft report on severe conditions1.3 New text for CIMO Guide on hardening methodologies | 1.1 09/20161.2 09/20161.3 06/2017 | 60 %-- | CIMO-16 Doc. 4, §4.14, 4.26, 7(3).8, 7(4).4Progress on 3b slowed due to the lose of Peter Lejbjuk proposed delay in first deliverable to Sept 16Note: include guidance developed in collaboration with EC-PORS.Collaborate with Uni Wisconsin expert(s) |
| 4. | **Polar Observations** | **N/A** | 1. Assist GCW in defining best practices for snow measurement, based on outcomes of SPICE.
2. Identify sensors and systems suitable for Polar and Alpine operation.
 | 1. Provide guidance document to GCW.
2. Possible IOM Report or other document
 | 12/201612/2016 | On-hold | Liaison with SPICE Project TeamNew liaison with SPICE required |
| 5. | **Review development of new radiation reference instruments**  | **N/A** | No action required this intersessional period. This task dealt with by TT-RadRef | Nil | N/A | N/A | ET-MR&ACM-2, para 7.2.2CIMO-16 §4.15Dealt with by TT-RadRef. |
| 6. | **Automatic cloud type and amount observations** | **Wauben**, Guo, De PodestaDi Pasquale | 1. Review automatic cloud observation practices and instrumentation.
2. Identify the measurands
3. Investigate the prospects for establishing traceability of such observations to recognized standards.
 | 1a Guidance on best practices1b Update of CIMO Guide chapter2 Guidance document or IOM Report3 Report on the scope for establishing traceability for these observations  | 1a. 06/20161b 06/20172 06/20173 12/2017 | 30%--- | CIMO MG-11 |
| 7. | **Instrument performance monitoring** | **Warne**De Podesta,Guo,Hietanen,Ariffudin | 1. Undertake analysis of performance of sensors in the field and impacts.
2. Review draft national practices with review to wider review.
3. Develop a framework on instrument performance monitoring, including what to monitor and how.
 | 1. Instrument performance monitoring framework.2. Draft national trial survey3. Update of CIMO Guide | 1. 06/2016
2. 09/2016

3. 06/20174. 09/2016 | 20%- | CIMO-16, §4.13, §6.27Note: focused on instrument performance metadata (e.g., battery voltage)Link with ET-A1 Task 4and with ET-B1 |
| 8. | **Use of environmentally friendly radiosondes** | **Dubovetsky**NomuraWarneHietanen | 1. Propose WMO position on the use of environmentally friendly radiosondes
2. Collaborate with other international organizations (CEN, HMEI) if and as relevant in development/ review of related standards
 | 1. Report including recommendation to be submitted for approval to CIMO-MG
2. Development of joint standard
 | 1a. 06/20171b. 09/20172. As needed | 30%- | CIMO-XV, §5.9Where possible use existing guidelines (national, HMEI member) |
| 10. | **Soil Moisture** | **Warne****Wauben** | 1. Review national practices
 | 1. Information document
2. Discussion paper on traceability of soil moisture measurement
3. CIMO Guide update (if appropriate)
 | 1. 06/20172. 09/20173. 12/2017 | 25%- | Liaise with CHy, CAgM |
| 11 | **Economical AWS measurements**  | **Warne****Ariffudin** | 1. Review alternative technologies
 | 1. Guidance documentation for Members on economical alternatives to traditional AWS
2. CIMO Guide update
 | 1. 09/2017
2. 12/2017
 | 50% | Consider TAHMO project,Farmers raingauges,etcInclude low-cost all-in-one AWS |

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