**Workplan of the Expert Team on Operational Remote-Sensing Technologies (2014-2018)**CIMO-16, 5.2

(ET-ORS deals with **all aspects** of wind profilers, weather radars and lightning detection systems)

(Version: as approved by CIMO-MG-13 in Dec. 2014)

| **No.** | **Task description** | **Person responsible** | **Action** | **Deliverable** | **Deadline for deliv.** | **Status**  **[%]** | **Comments** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | **Radar wind profiler operations, including:**  **a) profiler selection b) siting considerations**  **c) networking considerations**  **d) integration with other systems**  **e) data quality control**  **f) uncertainty and traceability of output data**  **g) Sustainability and resource requirements.** | **Lehmann**  Boers  Kane | 1. Review available national and international documentation on the operational use of radar wind profilers, including as that available from Testbeds. 2. Based on the existing information, prepare guidance material (IOM report) on all aspects of the operation of radar wind profilers 3. Update the CIMO Guide information on radar wind profilers | 2.a) Draft IOM report on the operations of wind profilers  2.b) Finalise IOM Report  3.a) Draft Update of CIMO Guide (possibly new chapter). | 1.) 02/2015  2.a) 12/2015  2.b) 12/2016  3.a) 12/2017 |  | CIMO-16 §5.12, 5.13  Liaise with CBS ET-SBO  Note information contained in IOM Report No 110 and <http://www.wmo.int/pages/prog/www/OSY/Meetings/ET-SBRSO_ET-RSO-2011/DocPlan/5.1(1)_Profiler_Regional_National_Status.pdf>  See presentations from TECO 2014 on profiler selection (Scott McLaughlin) and from MMC 2014 (Alexander Haefele) on traceability |
| **2.** | **New and emerging radar wind profiler technologies** | **Ice**  Lehmann | 1. Review current developments in radar wind profiler technology. | 1) Report on new and emerging wind profiler technologies, if appropriate. | As available |  | Contact manufacturers through HMEI Rep. (Vaisala, Detect Inc., ATRAD, Degreane, Scintec,…) |
| **3.** | **Dual polarization weather radar** | **Ice**  Kong  Tsukamoto  Urban  Sireci | 1. Collect information on the current status of use of dual polarization radars (principles, QC, QPF applications, use, costs, benefits of dual polarization technology, C-band vs. X-band).  2. Prepare guidance material for members. | 2a) Draft IOM report on the use of dual polarization radars.  2b) Finalise IOM report  2c) New CIMO Guide section on the use of dual polarization radars | 1. Ongoing  2a) 12/2015  2b) 12/2016  2c) 12/2017 |  | Refer to CIMO-16, §5.6  <http://www.wmo.int/pages/prog/www/OSY/Meetings/ET-SBRSO_ET-RSO-2011/DocPlan/3.3.1_Development_of_Polarization_Technology.pdf>  http://www.wmo.int/pages/prog/www/OSY/Meetings/ET-SBRSO\_ET-RSO-2011/DocPlan/INF.3.3.1\_Dual\_polarization\_Meteo\_France.pdf |
| **4.** | **Operational calibration of weather radars** | **Pei Chong**  Ice | 1. Research on cross calibration technology and automatic correction methods in weather radar networks. 2. Research on operational calibration method for dual polarization weather radar, especially online calibration and compensation of differential reflectivity, which indicates consistency in horizontal and vertical channels. | 1) Document on the research results of cross calibration technology in weather radar networks.  2) Document on the research results of operational calibration methods for dual polarization weather radar. | 1.) 12/2016  2.)  12/2017 |  | Contributions from domestic radar producers in China  CIMO-16, §5.9 |
| **5.** | **Operation of weather radars in mountainous regions.** | **Kong**  Sireci  Kane  Pei Chong  Ice  Tsukamoto  Waniha | 1. Gather information from different countries on strategies employed 2. Synthesize information obtained into general guidance material | 2a)  Information document (possibly IOM report) on operation of radars in mountainous regions.  2b)  New section for CIMO Guide chapter on weather radars, if warranted. | 1. 06/2015  2a. 12/2015  2b. 12/2016 (if req) |  | Note <http://www.wmo.int/pages/prog/www/OSY/Meetings/ET-SBRSO_ET-RSO-2011/DocPlan/3.4.2_Radar_at_high_altitude_sites-20111128.pdf>  CIMO-16, §5.7  CIMO guide contribution TBD  Consult with Urs Gehrmann (invited expert, Meteoswiss) |
| **6.** | **Weather radar data and metadata exchange** | **Sireci**  Kane  Rich  Urban | 1. Contribute CIMO input to the CBS ET-SBO Task Team on Radar Data Exchange 2. Work closely with Turkish Meteorological Service in the design and implementation of the second version of the weather radar metadatabase | 1) Input to CBS ET-SBO Task Team  2) Liaison with TMS on requirements for radar metadata, as required | 1. As req  2. As req |  | CIMO-16, §5.3  Exchange of products (reflectivity, radial Doppler, derived VVP Winds):  data exchange studies, collect info about different formats BUFR, HDF5, ODIN  CIMO developed radar metadata database, now handled by CBS ET-SBO  CIMO input to CBS required  Support task for ET-ORS, on request |
| **7.** | **Evolution of weather radar technologies: New developments, resource requirements, spectrum allocation constraints.** | **Pei Chong**  Ice | 1. Review current developments in weather radar technology: (e.g. solid state transmitters, phased array antennas, low cost X-band radars, use of radio spectrum and RFI issues, health and safety etc.) | 1) Report on new and emerging weather radar technologies, if appropriate. | 12/2017 |  | Contact manufacturers through HMEI Rep. with regard to aspects mentioned.  Contact with B.3 “Theme leader on Radio-Frequency Protection”.  CIMO-16 §5.10, 5.11 |
| **8.** | **Collaborative adaptive observation mode of weather radars** | **Pei Chong**  Ice | 1. Research on collaborative adaptive observation mode of weather radars, focusing on temporal and spatial synchronization, as well as echo consistency /product comparability in radar networks. | 1) Document on research results of collaborative adaptive observation mode of weather radars. | 12/2016 |  | CIMO-16, §5.8 |
| **9.** | **Intercomparisons of weather radar algorithms and products (Radar Quality Control and Quantitive Precipitation Intercomparison (RQQI))** | **Kane**  Leijnse | 1. Monitor progress with the intercomparison  2. Publish results of the analysis | 2.1) IOM report on the results of the intercomparison  2.2) Update CIMO Guide Chapter on weather radar | 2.1) 12/2016  2.2) Dec 2017 |  | CIMO-16, §5.5  Invited experts on an opportunity basis: Paul Joe, project leader RQQI, and Daniel Michelson, BALTRAD, communication through WMO Secretariat  Activity depending on RQQI activity, monitoring task for ET-ORS |
| **10.** | **Lightning detection systems** | **Hettrick**  Pei Chong | 1. Assemble existing information and propose improvements to current methods of assessing the detection efficiency and location accuracy of lightning detection networks 2. Review the use of lightning data in integrated observations products. | 1a) Report on current status of lightning detection systems  1b) Update CIMO Guide  2) Report on use of lightning data in integrated obs products  . | 12/2016  6/2017  6/2017 |  | (Leftover from previous task team)  Note existing guidance doc from FMI. Search for additional literature / reports  Contact HMEI and ask for contacts/input |
| **11.** | **Lightning detection systems: Testbed and Intercomparisons** | **Pei Chong**  All | 1.Assist CMA, on request, regarding the development of a CMA testbed for lightning detection systems  2. Examine the feasibility of a CMA intercomparison of lightning detection systems and provide advice to CMA, if requested, to assist in planning such an intercomparison | Guidance documents  1) regarding the establishment of a new CIMO testbed  2) regarding the planning of an intercomparison experiment | 1 as req.  2 as req. |  | CMA expects to submit a proposal late in 2015. |
| **12.** | **Integration of observations from different rainfall observation systems** | **Urban**  Kane  Ice | 1. Evaluate issues related to integrating precipitation observations from weather radars, satellites and rain gauges  2. Propose standardized techniques for data integration | 1-2. Guidance document on integration of rainfall observations from different systems.   1. Draft 2. Final document | a) 07/2015  b)  07/2016 |  | CIMO-16, §4.9, 4.10, 5.8  Note: in collaboration with ET-OIST  Draft based on experience at MeteoFrance and within Europe |
| **13.** | **Access to publications on wind profilers, radars and lightning detection systems** | **Lehmann**  All  Secretariat | 1. Identify national and other publications on wind profilers, weather radars and lightning detection systems  2. Provide internet access to those publications from the WMO webpages | 1. List of publications  2. Webpage providing access to those publications | ASAP |  | CIMO MG-11  CIMO-16, §5.2  Continuous task. |
| **14** | **Outcomes of Exploratory Workshop** | **Lehmann** | Follow-up on outcomes of exploratory workshop | TBA | TBA |  |  |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_