

SECOND MEETING
AvRDP Scientific Steering Committee

HKO, Hong Kong, China

22-23 July 2016

Original: ENGLISH

This report summarizes the issues discussed and reports presented during the second meeting of the Aviation Research and Development Project (AvRDP) held at the Hong Kong Observatory from 22-23 July 2016

The meeting commenced at 14h30 Friday 22 July and closed at 18h Saturday 23 July.



(L-R) Peter Li, Barbara Brown, Yuki Kato, Erik Becker, George Isaac, Jean-Marc Moisselin, Nanette Lomarda, CM Shun, Zhenlin Chen, Larisa Nikitina, Yap Kar Lin, Herbert Puempel, Fengyun Wang, Rajendra Kumar Jenamani, Baode Chen, Sharon Lau



1. Welcome & Introductions

Mr CM Shun, Director of the Hong Kong Observatory, opened the meeting and welcomed all the attendees.

Present were:

AvRDP Scientific Steering Committee

Representatives of the 5 Participating Airports:

Jean-Marc MOISSELIN	(MF/CDG)	representing Jean-Louis Brenguier
Erik BECKER	(SAWS/JNB)	
Fengyun WANG	(CAAC/rep SHA)	
Sharon LAU	(HKO/rep HKG)	
Janti REID (telecon)	(EC/rep YYZ & YFB)	

Other SSC members:

Peter LI	(HKO/Chair AvRDP SSC)
Cecilia MINER (telecon)	(NOAA/rep NextGEN)
Paul JOE (telecon)	(EC/rep WGNMR)
Barbara BROWN	(NCAR/rep JWGFVR)
Baode CHEN	(SMS/CMA)

Other Participants:

Zhenlin CHEN	(China Meteorological Administration)
Rajendra Kumar JENAMANI	(India Meteorological Department)

Larisa NIKITINA	(Roshydromet)
Herbert PUEMPEL	(AustroControl)
Kar Lin YAP	(Met Services of Singapore)
Yuki KATO	(Japan Meteorological Agency)

Regrets:

Peter M. CHADWICK (CAD, HK) (provided notes by e-mail)

SSC member to participate in Phase II:

Dennis HART (Eurocontrol)

Peter LI (HKO) chaired the meeting and Nanette LOMARDA (WWRP/WMO) provided WMO secretariat support.

2. Adoption of the Meeting Agenda and Working Arrangements

The agenda (Annex 1) was reviewed and approved and working arrangements discussed.

3. General Introduction of Participants

Soon as everyone had settled, Peter Li led a round of introductions and welcomed the participation of all non-SSC members to this meeting.

3. Minutes of the Kick-off meeting and Actions

The minutes from the Kick-off meeting (Shanghai, 24-25 June Nov 2015) was circulated shortly before the meeting. Members reviewed the Minutes and Actions Items. Ongoing actions were discussed within the Agenda.

- The minutes from the 2015 kick-off meeting are available online at the AvRDP website
- Sharon Lau commented that there is a need to connect more closely with ATM and also more work on verification connected to impacts

4. Overview of WWRP and AvRDP

Nanette Lomarda (Sr Scientific Officer/WMO) presented a brief overview of the activities (current and recent past) of the World Weather Research Programme and the AvRDP, one of WWRP's on-going Research and Development Projects.

5. AvRDP Status Report

Peter Li (Chairperson, AvRDP SSC) provided a status report of the project highlighting on the following aspects:

6. Progress Reports and Plans of Participating Airports

- a. HKG (Sharon Lau)
 - Completed IOP1 in 2015 and running on IOP2 for 2016 summary
 - A lot of airport MET observations and forecasts, radar-based nowcasting, high resolution NWP, blended nowcast, AMDAR, ADS-B, airport capacity data, air traffic data were collected.

- Starting to enter Phase II – MET/ATM integration study
 - IOP1 and IOP2 data uploaded onto AvRDP data server for sharing.
- b. JNB (Erik Becker)
- Radar-based nowcasting system COM-SWIRLS implemented
 - EUMETSAT SAF/NWC nowcasting products available
 - Case studies being collected
- c. YYZ/YFB (Janti Reid-via telecon)
- IOP1 for YYZ completed
 - Nowcasting systems running and evaluated
 - Data to ready to be uploaded onto AvRDP server
 - New Airport MET observation platforms being set up at YFB for IOP1 towards winter of 16/17
- d. CDG (Jean-Marc Moisselin)
- Utilize ARPEGE and Arome
 - Lots of new observations being collected, including more frequent METARs
 - SESAR: 4DWxCube (a virtual repository of shared consistent aeronautical meteorological information, produced by multiple MET Service Providers and made available to ATM stakeholders via its SWIM compliant MET-GATE (the European Meteorological information portal for aviation))
 - 2PIR method – convective extrapolation method and fusion with Arome
 - Data to be uploaded onto AvRDP data server
- e. SHA (Fengyun Wang)
- 2 airports – SHA and PVG
 - Thunderstorms in summer are the main hazard; Low vis in Nov-Dec
- f. SHA (Baode Chen)
- Running mesoscale model and data assimilation system,
 - Focused on looking at different “users” starting with MET forecasts, moving toward users/ATM

7. Other Presentations

- a. Update on NextGen (via conference call: Cecilia Miner)
- JPDO (FAA’s modernization/consolidation project) closed
 - NextGEN in NWS is now known as “Science Application and Integration”; also a digital services branch has been implemented
 - Louis Uccellini (NWS director): One event, one forecast => reduce redundancy, multiple products predicting the same thing
 - CCFP – NWS’s main strategic weather-based planning tool – has morphed into CAWS
 - CCFP still exists but is totally model-driven
 - NWS, Airline mets, other airline staff and FAA are involved in putting out CAWS
 - GSD (NOAA) doing main verification
 - ATM use evaluation more appropriately done by MITRE (Cecilia)
- b. Update on the Single European Sky ATM Research – SESAR (Herbert Puempel)
- Europe’s aviation advancement capability
- c. JMA Aviation Initiative CARATS – Narita (Yuki Kato)

- Briefing on observations and capabilities at Tokyo Narita
- d. Air Traffic Management – Expectation and Requirements (Peter Chadwick) – input sent by e-mail
- 0-6 nowcast near terminal is very important both for long haul and short haul flights
 - MET-ATM collaboration and integration showed good benefits
 - HKFIR and neighbouring airports conducting exchange of capacity notification information to demonstrate the benefits in the network
- e. Verification for Aviation Requirements (Barbara Brown)
- Many verification metrics available but need to be tailored for meeting aviation challenges

8. Discussions

- a. Progress of Phase I
- Share IOP results on Data Service
 - Contact (pcheung@hko.gov.hk) for the certificate
 - What data can be shared
 - Purpose of the verification metric – continuous monitoring of progress
 - Some meteorological products are too theoretical (need further study)
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- b. Next Steps (Phase I and II)
- Which airports are ready for Phase II
 - Deliverables: current ATM impact product list, ATM expectations/requirements
 - Verification: observation deficiency/quality/reliability
 - Uncertainty Estimation: cost behind
 - Minimum Forecast Accuracy (minima) – horizon/product dependent
 - Phase II and the Inter-commission Aviation Research Project
- c. Review of the AvRDP Science Plan and modification, if any
- Need for a tactical safety tool
 - Questions on the 2017 Scientific Event
 - Venue
 - Dates
 - Guidance to be provided by SSC to Presidents of WMO's Technical Commissions (CAS/CAeM/CBS) in preparing the Roadmap to be discussed at the PTC meeting in 2017
 - Project Ambitions
 - Project Goals
 - Timeline
 - Planned, high-level Project activities
 - Extension of Phase I to 2018
 - Possible participation of additional airports (Russia-summer 2017, India, Argentina, Singapore, Japan, Chile)
- d. AvRDP website (<https://avrdp.hko.gov.hk/>) and data exchange matters
- Manual available on web

- Contact (pcheung@hko.gov.hk) for the certificate for data uploading
- e. Briefing by Chairperson on recently concluded AvRDP Training Workshop
- 22 trainees out of 26 applicants and 5 lecturers attended the 3 day training workshop
 - Nowcasting science, meososcale models, satellite based nowcasting and hand-on training on running radar-based nowcasting systems were delivered
 - Favourable comments received from the trainees
 - Comments received from participants included the following:
 - Lectures on weather systems which are relevant to participants and closer to ATM operations
 - Clearer selection criteria of trainees
 - Lectures needed on benefit of MET info/services on ATM
 - Next workshop is planned to be held in conjunction with Scientific Conference in 2017
- f. Upgrade of AvRDP to a WMO Inter-commission (CAS/CAeM/CBS) Aviation Research Project
- EC-68 (June 2016):
 - had endorsed the upgrade of AvRDP to a WMO Inter-commission Research Project which greatly expands the scope of the project;
 - requested the presidents of the CAS, CAeM and CBS, to prepare a coordinated roadmap for the extended aviation meteorology research and development project, in support of future operational solutions for Air Traffic Management (ATM), for consideration by the PTC-2017; and
 - endorsed the proposal for organizing in 2017 a WMO scientific event (conference or symposium or workshop) with broad participation of research, operations and user communities, with the objective to identify needs and plan the research activities during the ASBU Block 1 and Block 2 (2018-2028).
 - Planned establishment of a Trust Fund for the Project by 2017
- f. Encourage Engagement of Research Community
- PPP
 - Use the large scale Scientific Conference in 2017 to engage industry and academic
- g. Suggested Changes in the Membership of SSC
- Invite Herbert Puempel to be a member of the SSC
 - Representatives from the additional airports (Russia, India, Japan, Singapore) (for confirmation of their Permanent Representatives with WMO)

9. Summary of Discussion

Peter Li provided a recapitulation of the discussions and highlighted the following:

- The change from an RDP to an Inter-commission Research Project now to include the Commission for Basic Systems will greatly expand the scope of the project and would need a re-working of the current implementation plan
- Verification suggestions for the project are urgently needed, first focus will be
- on convective weather
- Possible participation of additional airports (Russia-summer 2017, India, Argentina, Singapore, Japan, Chile)

10. Next Meeting

The next meeting is planned before the 2017 Scientific event which will also be in conjunction with a 2nd AvRDP Training Workshop.

11. Closing

Nanette Lomarda closed the meeting at 18h. Participants were thanked for attending this meeting and for their active participation and Dr CM Shun, Director, HKO and his staff (Dr Sharon Lau and Dr Peter Li), for their gracious hospitality and for the excellent meeting arrangements.