DIRECT BROADCAST NETWORK (DBNet) COORDINATION GROUP

STATUS OF ACTIONS (as of 6 July 2016)

Actions	***Status***
1. DMC (Chile) to enable remote assistance from CONAE to upgrade AAPP version in Santiago. (Gloria Pujol to contact CONAE and DMC)	**Action completed** Through the remote assistance from CONAE, the Santiago Station (ETS) is running the same AAPP 7.10 version as Cordoba and Marambio Stations Status update: At ETC, ETS and EBM, AAPP 7.12 is running. ETC programs specific for Metop-B are installed: rt-stps 5.6, metopizer 3.50, and OPS-LRS_v7u2 ETC has the capability to process ATMS and CriS, but nowadays is not operational because it is not completely implemented for DBNet.
2. To coordinate with CLS-Argos, CONAE, SMN (Argentina) and DMC (Chile) to investigate the possibility to install AAPP in Isla de Pascua with remote administration by CONAE, or to extract and transmit the level 0 ATOVS data for remote processing. (Gloria Pujol, Jérôme Lafeuille)	**Action partly completed** Gloria was informed by Ricardo Alcafuz (DMC, Chile) that the station is installed and is operational in Isla de Pascua. However the products are processed locally to L1b for use by CLS and sent directly to CLS by FTP. Data are not accessible by DMC for operational

	purpose at present. **The action to extract data for use by DMC and by DBNet is still open.** To be followed up in contacting Gonzalo Esteban Silva Gonzalez and/or CLS. **WMO to make CLS-Argos contact available to Gloria (to be confirmed)**
Asia Pacific RARS component	
3. Météo-France to correct the date/time stamp on RARS bulletins from Papeete as indicated by the JMA monitoring (Pascal Brunel and JMA)	**Action closed.** Done on 2015-10-06, according to NWPSAF monitoring.
4. The DBNET Coordination Group encourages Météo-France to upgrade the Papeete station to relay SNPP data (at least ATMS, and possibly CrIS if it can be accommodated in the telecommunication bandwidth) in addition to ATOVS, since SNPP is NOAA's primary operational pm satellite.	**In progress.** SNPP data processing (software and hardware). Processing system provided to Papeete; some telecomm issues to be resolved; plan to provide SNPP and IASI data in 2016. ATMS and CrIS will be locally processed. Action is taken to prepare ATMS dissemination on DBNet (Feb/Mar 2016). Another action is being planned for CrIS dissemination on DBNet. Upgrade of station done, local processing possible, no data transmission yet possible, need permission of MF to use link between Papeete and Toulouse; probably be resolved this year

5. IMD, NWPSAF, BOM and JMA to investigate the root cause of abnormal delays observed on data from New Delhi.	**Action on stand-by:** New Delhi data are not transmitted since 2015-04-22. The timeliness should be closely monitored when this service will resume.
6. IMD, SAFNWP, BOM and JMA to investigate the status of Chennai and Guwahati data transfers.	**Action: IMD to take corrective measures.** The NWPSAF monitoring is receiving Chennai Metop-A, but with 30-60 min delay and many duplicate bulletins. (Guwahati is not yet included.) Problem of data duplication from Chennai has been resolved on 3 Nov 2015; Chennai only receiving NOAA-18 and Metop-A; follow up with A Mitra JMA: Chennai data available
7. IMD is encouraged to participate in APSDEU-NAEDEX and inform this group of the possibility to distribute INSAT-3D sounding data.	**Open**. (APSDEU-NAEDEX was renamed GODEX-NWP) IMD did not participate in Nov 2015 meeting; Next GODEX-NWP meeting planned for May 2017 in Lannion (France)
8. CMA is encouraged to share on the GTS, in a format consistent with global data in BUFR, the FY-3 sounding data from Beijing, Guangzhou, Urumqi which are concentrated in Beijing.	**To be further considered by CMA** CMA indicated that Metop and NOAA data are received in DB, but FY-3 A,B,C data are integrated with the data dump at these stations, therefore it is not easy to extract local FY-3 data to

	support DBNet. This may be reconsidered with FY-3D.
9. The status of FY-3 VASS data coding and formatting to be reviewed by NWP SAF	**Action: CMA to notify the BUFR sequence.** NWP SAF has reviewed the status. It is awaiting formal notification of the BUFR sequence to WMO, who will allocate a sequence number. This should ideally be done by CMA. For now, a descriptor list is being used, in AAPP and in the data sent via EUMETCast.
Cross-cutting matters	
10. EUMETSAT to streamline the procedure for making the IASI configuration files available.	**Action open (EUMETSAT)** The NWP SAF is preparing a new web site, and it is likely that config files will be put on the web site rather than the current ftp site. The requirement to streamline the supply of these files from EUMETSAT remains.
11. The DBNET CG requests the CGMS satellite operators to ensure the early availability of L0/L1 processing packages for upcoming satellite systems, including FY-3D/E, JPSS, METOP-SG, at least for all instruments that are relevant for DBNET. In particular, CMA is invited to provide processing package for MWRI.	**CLOSED.** CMA indicated they were considering to provide a MWRI L1 processor package Addressed in Best Practices endorsed at CGMS-44; CMA confirmed availability of executable
12. All station operators should update the TLE at least	**To be addressed with**

once per day – knowing that significant changes can appear after a satellite manoeuvre. NWPSAF should address this point more precisely in AAPP documentation, with sufficient details on the information sources to be relied upon.	**CGMS WG I** **Open action for NWPSAF:** This is captured in the Draft Guide but needs to be reflected in AAPP documentation. Addressed in Best Practices endorsed at CGMS-44; some work in progress by CGMS WG I
13. The importance of frequent update of precise orbital elements should be brought to the attention of CGMS satellite operators, in particular upon orbit manoeuvres.	**To be addressed by CGMS WG I** Addressed in Best Practices endorsed at CGMS-44; some work in progress by CGMS WG I
14. Station operators are encouraged to give higher priority to NOAA-18 than NOAA-15 in reception scheduling.	This is captured in the Annex-C to the draft Guide **To be confirmed by ITSC** **BOM, JMA, ROSHYDROMET confirm this**
Transition to DBNet	
15. NWPSAF (Nigel Atkinson) to further investigate the apparent discrepancy between the BUFR implementation required by NCEP and the AAPP BUFR formats for CrIS and IASI, with a view to achieve full interoperability within the DBNET community.	**Action done, but needs further discussion at ITSC-20.** - For CrIS there is no discrepancy. Transition to full spectral resolution will need careful handling. - For IASI, 2 issues were we found: (i) the BUFR sequence used by NCEP is non-standard, (ii) the channel selection used by NCEP contains channels that are not in the current EUMETSAT

	500-channel selection. Nigel and Liam to investigate further
16. The DBNET Coordination Group notes that GNSS-RO requires precise orbit determination, which is not available in real time, therefore GNSS-RO is not currently considered as candidate for a future DBNET Service.	Accordingly, GNSS-RO are not listed among the candidate services in the draft Guide The potential usefulness of GNSS-RO for space weather applications should however be noted; this was confirmed at the SWTT meeting prior to CGMS-44, and low-latency access to such data should be investigated; raise this at IROWG workshop
17. All DBNET products should be registered in WIS (directly with a GISC or through a DCPC) and in Vol.C1 as mentioned in the draft Guide. The BoM (Anthony Rea, as AP RARS coordinator), will share its experience of registering RARS products in WIS, in order to assist interested DBNET contributors. Guidance to update the Metadata and keywords will be given by the CGMS Task Team on Discovery Metadata at CGMS-43 (May 2015), which should help describe all DBNET products in a consistent way in WIS.	This requirement is captured in the draft Guide. Discuss at Sep 2016 meeting of DBNet Group; investigate with GISCs (BOM to follow up)
18. The DBNET Coordination Group should work with APSDEU-NAEDEX (next meeting in Montreal in Oct. 2015) to jointly formulate a request for data exchange through the WIS, specifying: o List of NWP centers requesting to receive the data (possible evolution with time) o Data originating centers, i.e. DBNET operators (though this end of the chain is probably not the most critical) o Typical file sizes o When and how often the data need to be exchanged (assuming a certain satellite configuration) o Timeliness requirement (as recorded in the	**Action: GODEX-NWP** Was addressed at the meeting, through a WMO presentation given by Mikael. Action was taken to capture the DBNet specs and the information on the NWP usage of the DBNet products in the GODEX-NWP requirements list for IR/MW sounding,

DBNET high-level specification).	Hyperspectral IR, Scatterometry and µwave Imaging. GODEX-NWP req list currently not specific enough to derive data requests and estimate data flows; Mikael to contact GODEX-NWP task team chair to refine these requirements; Monitor progress with GODEX-NWP, then follow up with WIS
19. A simulation tool was developed by Jérôme Lafeuille (WMO) after RARS-IG6. It evaluates the variation of the data flow generated by a DBNET network over a 24 hour cycle. Since the data exchange needs will evolve along the years, the request should include a multiyear evolution.	A multi-year simulation was provided, using an updated version of this tool. (**Results were shown at ITSC-20**) The tool can be used to support optimization and planning of data transfer capabilities. **Action: to refine data transfer needs for consideration by WIS consolidate with #18 as a single Action**
CGMS question on X-Band transmission polarization	

20. The CGMS-WG I requested feedback from the DBNET community about the possible use of LHCP polarization instead of RHCP polarization for some X-Band Direct Broadcast services. …. Assuming that every other FY-3 spacecraft as of FY-3E is launched at an early morning ECT, the early morning satellites would thus have LHCP while all afternoon satellites would have RHCP. If they used the same polarization, interference among these two series could have occurred at high latitude (80°) only in case of simultaneous overpass. With two different polarizations, the group noted that users would normally not be able to receive all satellites on the same antenna, unless the polarization is made configurable on their receiving system. This issue would be critical with FY-3E , which is planned to transmit all data in X-Band only, tentatively in LHCP.	This finding was reported to CGMS WG I **Should be further discussed at CGMS-44** **Discussion to be continued in CGMS WG I**
21. In order to evaluate the impact on the user side, all station operators should be asked to indicate the type of receiving station they are operating and should investigate the feasibility of adapting their station to make the polarization configurable (LHCP/RHCP) to be able to acquire future FY-3 Direct Broadcast. Feedback should be consolidated by WMO, on behalf of the DBNET Coordination Group and reported to CGMS-43 WG I. The RARS regional/subregional coordinators should send enquiries before end of March, requesting answers by mid-April, copied to WMO.	No comprehensive return yet from EARS, Hidehiko, Anthony/Denis, Gloria, Sergio, Liam Survey should be triggered again by WMO, based on earlier enquiry Cordoba station has capability to acquire future FY-3 Direct Broadcast with both polarisations (LHCP/RHCP) Combined capability of X/L band and L/RHCP renders antenna feed large and expensive (BOM) Contact all DBNet station operators regarding their plans for making the receiving systems configurable for dual polarization Continue discussion in CGMS WG I

22. As a rule, satellite operators should provide details on DB services several years in advance of new systems, including for instance frequency, polarization, encoding, G/T requirements, conformance with CCSDS.	Captured in the Best Practices approved by CGMS-44; specific issues to be addressed at DBNet-CG-2 meeting (Metop-SG, for example) **To be addressed by CGMS-44 WG-I**
Processing Software issues	
23. All Station operators are encouraged to provide feedback to processing software providers, including e.g. on suggestions to facilitate upgrades.	To be discussed at DBNet CG meeting
24. The DBNET Coordination Group recommended: (1) to survey the DBNET operators to find out what version of AAPP, CSPP, FY3PP they are using, whether they have expertise to upgrade/install AAPP, CSPP, or FY3PP , what computer hardware (CPUs, RAM, Hard drive), operating system, and network connection and bandwidth they have.	WMO to Re-iterate survey WMO to send message to DBNet-ops on this and Action #21
25. Based on the output from the DBNET operator survey, some or all of the following items could be pursued by the software providers: (i) Provide minimum recommended specifications for computer hardware and network in order to run AAPP, CSPP, and FY3PP; (ii) Create detailed instructions on how to install and run processing software stacks for NOAA ATOVS, Metop ATOVS, IASI, CrIS/ATMS, VASS, this would include best practices for TLEs, calibration lookup table updates, etc.; (iii) Create automated installation and verification scripts for AAPP and OPS-LRS; (iv) Provide an automated light-weight processing system for AAPP, CSPP, or FY3PP.	Agenda item at next DBNet CG meeting
26. Furthermore the DBNET Coordination Group recommended to investigate ways to make it possible for DBNET operators to contribute sounder data to the network without needing to run local processing: (i) Provide a mechanism where station operators can notify a regional coordinating node that Level 0 data is available; (ii) Provide a mechanism to allow push or	**Action: DBNet-CG** NOAA network is using

pull of the Level 0 data (perhaps in compressed format) to the regional node; (iii) Regional node can process the data to Level 1 and BUFR and distribute it normally via GTS/WIS/Rebroadcast/Internet; (iv) Provide the regional or global data back to the station operator (if needed).	this technique Discuss at meeting whether this approach is desirable / feasible in other regions
Draft Guide to /DBNet	
27. The breakout group on Acquisition/Processing will further elaborate the "Acquisition" part including some consideration of frequency protection of the receiving sites. (Anders Soerensen, Liam Gumley, Pascal Brunel, Nigel Atkinson)	**Action: DBNet-CG** The frequency protection issue should be addressed in a future update of the Guide. BOM to report on experience at meeting
28. The sections on formatting and dissemination will be further reviewed by WMO (Mikael Rattenborg, Jérôme Lafeuille, and WIS branch)	**Action closed** Section 4.4. and related annexes were re-drafted.
29. A revised draft Guide to DBNet will be circulated for review to the participants who will send their comments by June. A complete draft Guide to DBNet should be introduced at ITSC-20 in a Poster.	**Action closed** A complete draft was circulated on 2015-09-09. A revised version (2015-10-06) was presented to APSDEU-NAEDEX 8now GODEX-NWP) and circulated to the ITWG list on 2015-10-16. A number of smaller changes were proposed by **ITSC-20,** will be included in final draft Finalize Guide by 22 Sep 2016