ITSC-21 NWP Working Group Report

69 Attendees; 22 Recommendations; 24 Action Items

Fiona Smith (Bureau of Meteorology), Andrew Collard (NOAA/NCEP/EMC), Vincent Guidard (Météo-France), Cristina Lupu (ECMWF), Marco Matricardi (ECMWF), Kozo Okamoto (JMA), Bill Bell (Met Office), Reima Eresmaa (ECMWF), Fabien Carminati (Met Office), Indira Rani (NCMRWF, India), Bill Campbell (NRL), Haixia Liu (NOAA/NCEP/EMC), James Jung (CIMSS), Qifeng Lu (CMA/NSMC), Agnes Lim (CIMSS), Thomas August (EUMETSAT), Yanqiu Zhu (NOAA/NCEP/EMC), Ben Johnson (JCSDA), Katrin Lonitz (ECMWF), Sylvain Heilliette (ECCC), Chris Burrows (ECMWF), Ruth Taylor (Met Office), Stefano Migliorini (Met Office), Brett Candy (Met Office), Stu Newman (Met Office), Hyoung-Wook Chun (KIAPS), Olivier Coopmann (Météo-France), Christina Köpken-Watts (DWD), Kristen Bathmann (NOAA/NCEP/EMC), Eunhee Lee (KMA), Chawn Harlow (Met Office), Tom Auligné (JCSDA), Karen St. Germain (NOAA), Mitch Goldberg (NOAA), Chris Barnet (STC), Nadia Fourrié (Météo-France), Olaf Stiller (DWD), Hidehiko Murata (JMA), Jonathan Guerrette (UCAR), Francesca Vittorioso (CNRM), Bruna Barbosa Silveira (Météo-France), Emily Morgan (NRL), Robin Faulwetter (DWD), Zhipeng Xian (CAS), Ruoying Yin (CAS), Maziar Bani Shahabadi (ECCC), Christina Stumpf (DWD), Buddhi Prakash Janfid (NCMRWF, India), Magnus Lindskog (SMHI), Zheng Qi Wong (Met.no), Liam Gumley (CIMSS), Ricardo Todling (NASA/GMAO), Dmitry Gayfulin (Roshydromet), David Duncan (ECMWF), Jeon-Ho Kang (KIAPS), Erin Jones (NOAA/NESDIS), Silke May (DWD), David Tobin (CIMSS), In-Hyuk Kwon (KIAPS), Zied Sassi (CNRM), Ming Chen (NOAA/NESDIS), Joel Bedard (ECCC), Stéphane Laroche (ECCC), Bryan Karpowicz (NASA/GMAO), Dirceu Herdies (CPTEC), Maria Toporov (U. Köln), Marc Pondrom (DWD), Lawrence Flynn (NOAA/NESDIS), Mathieu Assery (Météo-France)

Standing Recommendations and Actions

Action DA/NWP-1 on ITSC Co-chairs: To bring relevant recommendations to the attention of CGMS.

Recommendation DA/NWP-1 to all relevant space agencies: The constellation of at least three orbits (early morning, morning, and afternoon), each with full sounding capabilities (IR and MW), should be maintained. The overpass times of operational satellites with sounding capability (IR and MW) should be coordinated between agencies to maximize coverage and include a satellite in early morning orbit.

Recommendation DA/NWP-2 to the Satellite Agencies: In support of maintaining a robust global satellite observing system, instrumentation to allow continued sounding of the temperature of the upper stratosphere and mesosphere (as for the SSMIS UAS channels) should be explored.

Recommendation DA/NWP-3 to the NWP Centres: : Work to assess the impact of the upper atmospheric sounding channels of SSMIS in NWP and determine the information content unique to those channels e.g. via data denial experiments

Standing Recommendations and Actions

Recommendation DA/NWP-4 to Space Agencies: New operational data dissemination infrastructure should be tested at an early stage (well before launch) with simulated data.

Recommendation DA/NWP-5 to Space Agencies: There should be open access to new satellite data for all NWP centres to help with calibration and validation.

Recommendation DA/NWP-6 space agencies: Satellite agencies should work with their primary user communities to assess the limitations in the exploitation of satellite data, and also engage with users less closely connected to their agencies

Recommendation DA/NWP-7 to funding bodies of NWP centres and space agencies: Consider, as part of the cost of satellite programs, providing computational and personnel resources targeted at operational NWP centres to optimise the public's return on investment from these expensive measurement systems.

Standing Recommendations and Actions

Action DA/NWP-2 on NWP WG members: Send any evidence of RFI to working group chairs for inclusion on the NWP WG RFI web page and forwarding to Jean Pla (jean.pla@cnes.fr) or Richard Kelley (richard.kelley@noaa.gov).

Action DA/NWP-3 on NWP WG chairs: Discuss with Stephen English (stephen.english@ecmwf.int) and Richard Kelley (barometer@verizon.net) where to collate information on RFI in NWP (e.g. DA/NWP-WG web page).

Action DA/NWP-4 on NWP WG members: If you have estimates of revised channel characteristics resulting from post-launch diagnostics, please email these to the radiative transfer working group chairs (Benjamin.T.Johnson@noaa.gov & Marco.Matricardi@ecmwf.int)

WG support to NWP community

Action DA/NWP-5 on NWP centres: Continue to provide information on instrument channels assimilated and their observation errors for inclusion on the NWP Working Group pages in advance of each conference.

Action DA/NWP-6 on Working Group Members: look at the working group website and make suggestions and corrections

Action DA/NWP-7 on Working Group Co-chairs: Review the current mailing list membership and migrate to a new platform (google groups).

Provision of BUFR data

Recommendation DA/NWP-8 to Data Providers: Agree standardized procedure for calculation of NEdT estimates for inclusion within BUFR for microwave data.

Action DA/NWP-8 on Working Group Chairs: Clarify with Banghua Yan regarding the status of provision of NEdT estimates in BUFR files for microwave data from NOAA/NESDIS.

Recommendation DA/NWP-9 to Data providers: Include azimuthal viewing and solar angles as appropriate in BUFR for present and future instruments. *(recurring recommendation)*

Recommendation DA/NWP-10 to Space Agencies and data providers: When designing new or modified BUFR formats, please circulate drafts to the NWP community via the NWP Working Group for feedback, prior to submission to WMO. *(recurring recommendation)*

CrIS switch to Full Spectral Resolution Data

Recommendation 11 to EUMETSAT: Communicate when NSR for S-NPP CrIS will be switched off and provide a parallel stream for a short time (a few weeks) to allow users to transition to the new dataset.

Action DA/NWP-9 on Working Group Co-Chairs: Ensure the April 1st 2020 date for the end of NESDIS distribution of S-NPP NSR CrIS data is communicated to the group.

PC Compression of Hyperspectral Data

Recommendation DA/NWP-12 to Data Providers: When using PC compression, noise normalisation should be performed using the full noise covariance matrix. *(recurring recommendation)*

Recommendation DA/NWP-13 to EUMETSAT: Proceed with work on the use of Hybrid PC compression and investigate practical application of this method, including the incorporation of granule-based vectors in BUFR. *(retained from last conference)*

Recommendation DA/NWP-14 to NWP Centres: All centres should use the IASI Hybrid PC-compressed dataset to ensure they are prepared for MTG-IRS. Users are requested to provide feedback to EUMETSAT on the use of these data.

Change management and the NWP Community

Recommendation DA/NWP-15 to Data Providers: If a change to data processing results in a change in brightness temperature of 0.1K or 20% of NEdT (whichever is smaller), this should be made clear in notifications to users. These notifications should be made no later than 8 weeks before the change and test data should be provided if possible. *(retained)*

Action DA/NWP-10 on WG co-chairs: Provide feedback to CGMS that significant changes to operational datastreams continue to be inadequately communicated to users.

Recommendation DA/NWP-16 to Data Providers: The overlap period where one satellite resource is replacing another should be chosen after consultation with the user community and should follow WMO guidelines.*(retained)*

VIIRS/AVHRR cluster information

Recommendation DA/NWP-17 to DBNet providers: Switch on the production of VIIRS cluster information for DBNet for IASI and CrIS.

Action DA/NWP-11 on Andrew Collard: Check with NESDIS-STAR on plans to implement the VIIRS cluster algorithm for global CrIS data dissemination.

Evaluation of current missions

Action DA/NWP-12 on Chris Burrows and Qifeng Lu: Seek expressions of interest on coordinating evaluation of GIIRS and HIRAS data once available to the NWP community. *(retained)*

Action DA/NWP-13 On WG Members: Share impact assessment results for FY-3E with the group and CMA as soon as possible after data becomes available.*(retained)*

Recommendation DA/NWP-18 to NWP Centres: Evaluate IKFS-2 data.

Recommendation DA/NWP-19 to Data Providers: In order to facilitate evaluation of new data by NWP centres, aim for distribution in near-real time.

Action DA/NWP-14 on Working Group Chairs: Coordinate collation of information on impact of Metop-C instruments in operational NWP, along with information regarding thinning algorithms and error correlations used and share the collated information with working group members.

Impact of DBNet Data

Recommendation DA/NWP-20 to NWP centres: Produce impact studies for DBNet and low latency data and present results at the Seventh WMO Workshop on the Impact of Various Observing Systems on NWP in Seoul in May 2020.

Action DA/NWP-15 on Mitch Goldberg: Forward existing studies on the impact of DBNet data to the Working Group.

Monitoring

Action DA/NWP-16 on Working Group Chairs: Circulate the NWP-SAF survey on user requirements for monitoring activities

Action DA/NWP-17 on Working Group Members: Complete NWP-SAF survey on user requirements for monitoring activities

Action DA/NWP-18 on Thomas Auligné: Contact Samantha Pullen (samantha.pullen@metoffice.gov.uk) to discuss circulation of FSOI intercomparison study.

Recommendation DA/NWP-21 to NWP-SAF: Share ECMWF instrument event records with the community, together with illustrative monitoring plots where appropriate.

Action DA/NWP-19 on Working Group Co-chairs: Add a link to ECMWF instrument event records to the Working Group web page when such a link is provided by the NWP-SAF.

NWP-SAF Cloud and Aerosol detection software

Action DA/NWP-20 on users of the NWPSAF Cloud and Aerosol Software: Provide feedback to Reima Eresmaa (Reima.Eresmaa@ecmwf.int) on requirements for future upgrades.

Instrument Requirements

Action DA/NWP-21 on Thomas August and Fiona Smith: Determine whether the IASI-NG End Users Requirements Document can be shared. If any questions remain, discuss at ISSWG how to help NOAA formulate a requirement on maximum inter-detector calibration differences.

Aqua AIRS end of life planning

Recommendation DA/NWP-22 to NASA and NESDIS: Continue to provide AIRS Aqua data in real-time to NWP centres for as long as calibration of the instrument is possible.

Plans for future NOAA Satellite Constellation

Action DA/NWP-22 on Karen St. Germain: Send to WG co-chairs the target performance and reference architecture for the Broad Area Announcement to industry for next-gen instrument proposals, including identified areas for potential trade-offs.

Action DA/NWP-23 on Working Group Chairs: Send out an email to the DA/NWP WG members containing supporting documentation from Karen St Germain inviting participation in a working group to make recommendations to NOAA on the proposals for next-generation satellites.

Action DA/NWP-24 on NWP Working Group Members: Respond to the request from Karen St Germain and DA/NWP WG co-chairs to join a working group to provide feedback to NOAA on proposals for next-generation satellites.