Filename: ITSC-16_NWP_WG_action_items_to_be_reported_at_ITSC17.doc
Last update: 12 April 2010

2.3 THE USE OF TOVS/ATOVS IN DATA ASSIMILATION/ NUMERICAL WEATHER PREDICTION (DA/NWP)

New NWP WG WEB SITE with WIKI capability:
https://groups.ssec.wisc.edu/groups/itwg/nwp

Working Group members: G. Deblonde (Co-Chair), J. Derber (Co-Chair),T. Auligne, N. Baker, B. Bell, N. Bormann, S. Boukabara, B. Candy, C. Côté, P. Dong, S. English, L. Fiedler, B. Harris, R. Hess, F. Hilton, M-J. Kim, B. Krzeminski, J. Le Marshall, S. Macpherson, T. Montmerle, R. Montroty, K. Okamato, C. Pierangelo, R. Randriamampianina, A. Sharma, H. Sun, M. Uddstrom, G. Weymouth, B. Yan

Action DA/NWP-1

When DMSP F17 data and also when UPP version 3 becomes available, Nancy Baker will notify users via the ITWG_NWP mailing list.

- SSMIS F-17 UPP V2.1 data (in BUFR format) became available at FNMOC in spring 2009 and started to flow to NESDIS.
- On 13 January 2010, Nancy Baker relayed a message to the ITWG_NWP mailing list informing them that at the request of SSMIS UPP users, the SSMIS UPP data is now being sent in un-averaged form (since 12 August 2009). To our knowledge, NESDIS did not send out information about this change to data users.
- There is no UPP version 3. Version 2 was updated to provide un-averaged values.

Recommendation DA/NWP-1 to all satellite agencies

Operational NWP centers should be part of the early cal/val operation for future missions and should receive near real time data before final quality of the data has been established.

See Action DA/NWP-2

Action DA/NWP-2

In order to set up a list of international partners for cal/val of NPP/NPOESS instruments, members of the NWP WG will communicate their interest to the NWP WG Co-Chairs. The Co-Chairs will send this list to Karen Saint-Germain within the next week because in two weeks there is a peer review cal/val committee meeting. It should be noted that additions to the list at a later time are possible.

- NWP WG co-chair sent out email to NWP WG mailing list (15 May 2008) to find out who may be interested.
- Three NWP organizations expressed an interest in participating in the NPP/NPOESS cal/val process (mostly val). They are ECMWF (Niels Bormann), Met Office (Steve English), and NCEP (John Derber).

- On 23 April 2009 NWP WG co-chair requested update from K. ST-Germain and in particular information was sought on following topics:

- Request Update on status of the Cal/Val international partners for NPP/NPOESS
- Find out whether new members can still be added.
- Find out whether there is a formal Cal/Val plan which includes the international NWP community

- *Reply:*
  - Not much activity yet because of ITAR issues and need to resolve proprietary markings on key documents that describe CrIS SDR (including spectral descriptions).
  - Finally succeeded (last week unmarked documents were boarded and they are now going through the public release process). Should be able to send these out in a few weeks to our international partners.
  - It is not too late to add to the team.
  - There is a formal plan, which has gone through several reviews, has one more to go, and will be rolled out to the community in June/July.
  - Updates are planned though.

- Co-chair again contacted Karen ST-Germain in Dec 2009 but got no reply.

Action DA/NWP-3

Sid Boukabara to coordinate NPP/NPOESS data formats and information exchange (BUFR file content, line shapes, APCs, etc…) with ITWG WG.

- 15 Dec 2009: Following message with information obtained from Sid Boukabara was sent to ITWG NWP WG mailing list (with copy to Walter Wolf).

  Dear ITWG NWP working group members,

  This message is being sent to you in response to action item 3 of the last ITWG NWP WG meeting (Brazil).

  For the BUFR data for the NPP and NPOESS sensors, here is the status:

  - There is a fully funded project (by NOAA/OSD) that is underway to make these radiances from the NPP and NPOESS sensors, in BUFR format, available to the scientific community. The project is going to run under the NPOESS Data Exploitation (NDE) project. So it will be accessible to the civilian community at large.
  - The main person in charge of this converter tool is Walter Wolf (Walter.Wolf@noaa.gov). The best way to get more information is by contacting Walter directly.
  - Since the converter project just had its Critical Design Review (CDR) a couple weeks ago, I don't think there is a web site yet.
  - Some of the BUFR tables are already in place.
  - This conversion in BUFR format will cover the CrIS, ATMS, OMPS and VIIRS data. It is not going to cover MIS at this point, but MIS is not planned to fly on NPP and on NPOESS it is scheduled to start flying on C2 (around 2016).

Best regards,

John Derber and Godelieve Deblonde, co-chairs of the ITWG NWP Working Group.

Recommendation DA/NWP-2 to EUMETSAT and NESDIS

Delivery time is critical for NWP centers to enable the data to be used for nowcasting and short-range forecasts. Delays in ground-processing of observations prohibit the fulfillment of the strict data delivery requirements. The routing of data through the Svalbard station has been very beneficial for NOAA-18 and METOP. The WG recommends that EUMETSAT and NESDIS explore the possibility of sending the other still operating NOAA satellites (i.e., NOAA-15, 16, 17) through the Svalbard ground station. It is recognized that this is not trivial and may be costly and that the outcome may depend on a cost/benefit analysis.

Subject: Re: POES Constellation Meeting Action Item

Response to recommendation from Tom Schott:

Background:

Since 1990's NOAA has been in negotiations with EUMETSAT on how the Integrated Joint Polar System (IJPS) ground segment will operate.

The EUMETSAT Svalbard ground station and downstream communications and processing were designed to take blind orbits from one POES satellite starting w/NOAA-18 and switching to NOAA-19 when it became operational.

As discussed in the POES constellation meeting, the EUMETSAT design has limits. If one adds a second POES satellite (i.e., N18 blinds after N19 becomes operational), EUMETSAT is willing to examine adding some passes from a second satellite on a best level of effort basis. The IJPS agreement did not include any requirements for receipt of NOAA-15, NOAA-16 or NOAA-17 at Svalbard. Asking EUMETSAT to do these older satellites is not within current agreements or within their design.

There have been some discussions about using other Svalbard assets (e.g., NPOESS ground assets).
NPOESS ground assets might be available for tracking one POES satellites' blind orbits.
However, there are some technical challenges to make this happen. We have not heard about anyone working the NPOESS ground asset solution for well over a year. May have been dropped.

If NWS (National Weather Service) feels this is an issue for NESDIS to address, then you could submit an SPSRB (Satellite Product and Review Board) user request.

Recommendation DA/NWP-3 to WMO

Continue to support fast delivery initiatives (RARS), extending where possible. However, the working group believes that the system should continue to be low-cost.

Extension of RARS towards complete global coverage is encouraged until the point is reached where further improvements are no longer cost effective.

Not Done

Recommendation DA/NWP-4 to EUMETSAT and IPO

The short operational delivery time of NPOESS data to NWP centers is an extremely attractive component of the system design. The Safety Net (NPOESS ground receiving system) is expected to be online with NPOESS satellite C2 in 2016. While the NPOESS delivery will be greatly improved, the METOP delivery will be substantially slower. The working group recommends the satellite agencies make every effort to improve the operational delivery of the METOP data. This includes the possibility of the Antarctic ground station, and the possibility for post-METOP-C satellites using the Safety Net ground system.

Not Done

Recommendation DA/NWP-5 to EUMETSAT

EUMETSAT is considering the distribution of PCAs (up to 300-400 PCAs) over EUMETCast instead of the full set of channels to save bandwidth. However, some selected users may still be able to receive the full channel information. The NWP WG recommends that both the new data formats and the full set of channels be distributed for a six month testing period. A final decision on the way forward should be made after the evaluation of the testing.

See action DA/NWP-4

Action DA/NWP-4

European NWP WG members to discuss Recommendation DA/NWP-5 with their EUMETSAT OPS WG representatives.

Text prepared on 11 Dec 2009 in response to AI 4

- At a meeting of the EUMETSAT Operations Working Group (Ops WG), it was reported that the EUMETSAT proposal is to disseminate IASI radiances as PCA (Principal Component Analyses) scores plus selected channels and that no increase in bandwidth will be needed under this scenario.
- EUMETSAT accepts that they should further investigate lossless compression of full IASI spectra and they will inform National Meteorological Services what the cost (if any) of increased bandwidth resulting from this approach would be.
- In parallel, EUMETSAT has initiated a study on future dissemination mechanisms, prompted by the clear indication that only a few EUMETSAT Member States are interested in full resolution hyperspectral sounder data.

Recommendation DA/NWP-6 to NWP WG members

At the ITSC-15, it was recommended that a 15 IASI channel data set be used for near real time intercomparisons between different NWP centers. However, it was later noticed that only a few of the chosen 15 channels were included in either the

EUMETSAT GTS data set (~300 channels) or the NESDIS (~600) data set. The working group reiterates the desirability of the intercomparison exercise.

See action DA/NWP-5

Action DA/NWP-5

Fiona Hilton to select a new set (< 20) of IASI channels for intercomparison purposes. Fiona to give instructions on basic breakdown (e.g., clear, land, etc...) of profile types and the statistical variables (e.g., mean, standard deviation, histograms, diffusion diagram…) presented. It would be best if common formats were used but this is considered to be of lower priority. Links to the results will be put on the ITWG web site.

1)
New list, all of these channels are available via EUMETCast, GTS and the NOAA-NESDIS 616 channel set.
Channels have been chosen to span the spectrum, and also the atmosphere so that the majority is useful for NWP as well as instrument analysis.

The channels are:
51 - 657.50 cm-1
92 - 667.75 cm-1
212 - 697.75 cm-1
246 - 706.25 cm-1
345 - 731.00 cm-1
347 - 731.50 cm-1
350 - 732.25 cm-1
381 - 740.00 cm-1
1509 - 1022.00 cm-1
1884 - 1115.75 cm-1
2239 - 1204.5 cm-1
2889 - 1367.00 cm-1
3029 - 1402.00 cm-1
3053 - 1408.00 cm-1
3582 - 1540.25 cm-1
5405 - 1996.00 cm-1
6985 - 2391.00 cm-1
6997 - 2394.00 cm-1

Recommendation on information that should be provided:

- Obs-First Guess both before and after bias correction
- Mean and Standard Deviation and Number of observations

- Statistics for Sea+Clear+Night observations
- Timeseries of the monitoring channels displaying clearly the mean and standard deviation is a great help.
- Provide map of statistics is very useful too.

Example of monitoring at ECMWF and Met Office:

http://www.metoffice.gov.uk/research/nwp/satellite/infrared/sounders/iasi/
http://www.ecmwf.int/products/forecasts/d/charts/monitoring/satellite/hsris/iasi/

2)
Also, see monitoring web page on NWP WG web site:
https://groups.ssec.wisc.edu/groups/itwg/nwp/monitoring
This page has been updated.

Action DA/NWP-6

Lars Fiedler (EUMETSAT) to put their IASI monitoring on their external web site.

24 mars 2010
We plan to go live with the IASI monitoring results on the web next week.
I will provide the link to the web site as part of my presentation at the ITSC-17.

Recommendation DA/NWP-7 to satellite agencies and WMO

The geostationary orbit is ideal for observing the rapidly changing components of the atmospheric and surface fields. The WG recommends the use of this orbit with high spectral resolution IR and/or microwave sounder/imager instruments. Ideally if both are possible the microwave and IR instruments should observe the same portion of the atmosphere at the same time.

Not Done

Recommendation DA/NWP-8 to satellite agencies

The working group feels that the amount of information about current and future satellite systems and advanced notification of changes could be improved. Better communication is necessary for planning, preparation, and execution by the NWP community.

See action DA/NWP-7

Action DA/NWP -7

NWP WG members to locate relevant satellite agency URLs and contact points where information can be found. The information will be obtained from space agencies through NWP WG members listed below.
Members to send URLs and contact points to Co-Chairs who will then put them on the ITWG web site. Chairs will then communicate with space agency contacts so that the ITWG_NWP mailing list can be added to their mailing list.

Action DA/NWP-7a

Fiona Hilton (UK MO) responsible for obtaining the information for EUMETSAT.

The EUMETSAT messaging service website is here:
http://oiswww.eumetsat.org/UNS/webapps/dataHome.do
There is a contact link on the page for anyone who would like to register to receive the messages by email.

Action DA/NWP-7b

Peiming Dong (CAMS) responsible for obtaining the information for CMA.

The relevant satellite agency URLs is http://www.nsmc.cma.gov.cn/.

Action DA/NWP-7c

Clemence Pierangelo (CNES) responsible for obtaining the information from CNES (www.smsc.cnes.fr).

URL for CNES missions relevant to meteorology :
http://smsc.cnes.fr/Fr/atmosphere.htm
For the contacts, they can be found on the webpage of each mission
megha-tropiques : http://smsc.cnes.fr/MEGHAT/GP_contacts.htm
IASI : http://smsc.cnes.fr/IASI/GP_contacts.htm
PARASOL http://smsc.cnes.fr/PARASOL/GP_contacts.htm
etc.

Action DA/NWP-7d

Kozo Okamoto (JMA) responsible for obtaining the information from JAXA and JMA.

The contact persons and websites for JAXA and JMA are

Tamotsu IGARASHI (Dr.)
igarashi.tamotsu@jaxa.jp
http://www.eorc.jaxa.jp/en/index.html

Hiromi OWADA (Ms.)
howada@met.kishou.go.jp
http://www.jma.go.jp/jma/jma-eng/satellite/index.html

Action DA/NWP-7e

Min-Jeong Kim (NESDIS JCSDA) responsible for obtaining the information from KMA.

URL: http://web.kma.go.kr/eng/abo/abo_03_04.jsp
PoC: Dr. Jae-Gwang Won
PoC email: wonjg@kma.go.kr

Action DA/NWP-7f

Alexander Uspensky (SRC Planeta) responsible for obtaining the information from ROSCOSMOS and ROSHYDROMET.

No reply

Action DA/NWP-7g

Godelieve Deblonde (EC) responsible for obtaining the information from the CSA.

http://www.asc-csa.gc.ca/eng/satellites/default.asp

Contact: Thomas.Piekutowski@asc-csa.gc.ca

Action DA/NWP-7h

John Derber (NCEP) responsible for obtaining the information from NESDIS.

NESDIS Satellite Product End to End Documentation System (SPEEDS): enables people to see operational and demonstration products available from NOAA and provides links to some of these products. POC (Point of Contact): Tom Schott

http://www.ngdc.noaa.gov/speeds/

NESDIS OSDPD (Office of Satellite Data Processing and Distribution) Operational Products: contains links to many of the operational products available from NESDIS OSDPD
http://www.osdpd.noaa.gov/ml/index.html

Webmaster is Nancy Merckle: Nancy.Merckle@noaa.gov
Branch Chief of Products Implementation Branch is Antonio Irving
Antonio.Irving@noaa.gov
24x7 Help Desk is ESPCoperations ESPCoperations@noaa.gov
User Services Group (those that work to make the connections between users, data, products, issues, etc...) are Thomas Renkevens and Brian Hughes
Brian.Hughes@noaa.gov

NESDIS OSO's (Office of Satellite Operations) Satellite Status: satellite ground ops keeps updates on satellite and sensors status (e.g., sensor overall status, anomalies, etc.)
POES: http://www.oso.noaa.gov/poesstatus/ POC Chris Wheeler
GOES: http://www.oso.noaa.gov/goesstatus/ POC Renee Smith-Dearring

Action DA/NWP-7i

Karen Saint-Germain (IPO) responsible for obtaining the information from NPP/NPOESS.

Not asked

Action DA/NWP-7j

Nancy Baker (US Navy NRL) responsible for obtaining the information from DMSP.

DMSP Point of Contact: Steve Swadley. steve.swadley@nrlmry.navy.mil.

Action DA/NWP-7k

Dirceu Herdies (INPE/CPTEC) responsible for obtaining the information from INPE.

Carlos Frederico de Angelis (CPTEC/INPE) - angelis@cptec.inpe.br INPE

http://satelite.cptec.inpe.br/home/index_ing.jsp

Volunteers are still needed for India (Not asked), NASA (Not asked), and RARS.

RARS WMO WEB PAGE:
http://www.wmo.int/pages/prog/sat/RARS.html
RARS Contact points:
http://www.wmo.int/pages/prog/sat/RARS_contacts_and_links.html

**The information gathered under AI 7 was put on the ITWG NWP WG web site at:
https://groups.ssec.wisc.edu/groups/itwg/nwp/space-agency-contacts-and-web-sites-of-interest-to-nwp

- As the list of contacts is incomplete, an email requesting that the space agencies use the NWP WG mailing list to broadcast news was not sent.

- However, all links from AI have been put on NWP WG web site: https://groups.ssec.wisc.edu/groups/itwg/nwp/space-agency-contacts-and-web-sites-of-interest-to-nwp

Action DA/NWP –8

Fiona Hilton to gather together information regarding what level of information messaging (METOP) is required by NWP centers and forward this information to EUMETSAT.

Fiona sent email to NWP WG 9 July 2008

If you receive MetOp data from EUMETSAT directly, you should already be aware of the EUMETSAT UNS:
http://oiswww.eumetsat.org/UNS/webapps/dataHome.do

On this page and via the associated mailing list, messages are available to warn of planned and unexpected data outages from the geostationary satellites, Metop and the individual instruments on the satellites.

- These messages tend to be much automated. They do provide, in a timely manner, notification of data outage or instrument shut-down but they do not give any indication of why this has occurred.
- Partly in response to user requests, they do now give an indication of the likely duration of any data outage. One problem with the messages, from my point of view, is that you get many messages informing of two minute gaps in data which require the majority of messages to be filtered out, and increasing the likelihood you will miss the important ones.

Fiona proposes that what would be of more use to the NWP community would be:
1) A UNS message about a data outage or missing data is only generated if the outage is longer than four hours
2) When an instrument, or satellite shut down has occurred, the UNS message should carry any available information about the cause of the outage, along with the estimated duration of the outage. If EUMETSAT has no idea what the problem is, or do not know how long the data outage will last, a statement should be issued to explain that.

Later (Dec 14, 2009):

Fiona only got feedback from one person on DL
Fiona sent a request to EUMETSAT. Reply:

- EUMETSAT is currently in the process of revamping the UNS so hopefully will take account of the requests we have made.
- EUMETSAT is reviewing the entire EUMETSAT webpage.
- IASI monitoring plots should also be made available

***Note: This Eumetsat web site is posted on the ITWG NWP WG web site at: https://groups.ssec.wisc.edu/groups/itwg/nwp/space-agency-contacts-and-web-sites-of-interest-to-nwp

Recommendation DA/NWP-9 to ITWG CIMSS web site webmaster

It is recommended that WIKI capability be set up on the ITWG CIMSS web site (under the supervision of the Co-Chairs).

Wiki web site (plone) has been set up (the old site was translated to new one with help from Leanne Avila). For now, only co-chairs of ITWG NWP WG can make changes. See: https://groups.ssec.wisc.edu/groups/itwg/nwp.
The web site was also updated by co-chair G. Deblonde.

Action DA/NWP-9

NWP WG chairs to provide survey template (start with what Tony McNally has used so far) to be put on ITWG WIKI page and allow updating as operational systems change. NWP WG chairs remind NWP centers to update the table through ITWG_NWP mailing list every six months and before next ITSC meeting.

Somewhat shortened version of T. McNally's questionnaire was sent out to ITWG mailing list (not NWP WG list which is much shorter).
Results of questionnaire and questionnaire itself may be fount at:
https://groups.ssec.wisc.edu/groups/itwg/nwp/itsc-atovs-nwp-survey-results.

The NWP WG web site is now a WIKI web site but only NWP WG co-chairs have password (that allows making changes).

Action DA/NWP-10

All members of the ITWG NWP working group to examine mailing list for missing relevant e-mail addresses. WG Co-Chairs to maintain and update the email list.

DONE in May 2008 and Dec 2009

Action DA/NWP-11

NWP WG Co-Chairs to ask developers of software packages to announce new software releases on ITWG NWP mailing list. Specifically, the following software packages have been identified: CRTM, RTTOV, IPOPP, AAPP, and NWP SAF news.

List of points of contacts:

CRTM: Paul van Delst - Paul.Vandelst@noaa.gov
RTTOV: Roger Saunders - roger.saunders@metoffice.gov.uk
IPOPP: Kelvin Brentzel - Kelvin.W.Brentzel@nasa.gov
AAPP: Nigel Atkinson - nigel.atkinson@metoffice.gov.uk
NWP SAF: Bryan Conway - bryan.conway@metoffice.gov.uk

Done except did not hear from IPOPP.

Action DA/NWP-12

NWP WG Co-Chairs to review the status of the actions and recommendations at regular intervals and email a status report to WG members and ITWG Co-Chairs via the ITWG_NWP mailing list.

ITWG co-chairs were informed

Action DA/NWP-13

NWP WG Co-Chairs to solicit ideas through NWP WG mailing list for WG topics prior to ITSC-17.

Sent email to ITWG_NWP mailing list on 15 Dec 2009 to solicit ideas and again on March 17, 2010. No response at all.

Action DA/NWP-14

The NWP WG will set up an email distribution list for those interested in regional satellite DA and the list will be sent to the ITWG_NWP mailing list.

It was decided that the same mailing was going to be used as the ITWG NWP mailing list to reduce email traffic as many of the people would have belonged to both groups in anycase. We made sure that people from the subgroup interested in regional satellite data assimilation were added to the ITWG NWP mailing list.

Action DA/NWP-15

Brett Candy and Roger Randriamampianina will work together to design single observation experiments in a global and regional model setting and the results will be accessible though the ITWG web site.

Brett and Roger agreed on a case and location to perform the single ob experiment. This was carried out by Roger (Met.no), myself and Per (SMHI). Roger visited earlier in the year and they got the results in a similar form. They intend to present the results at ITSC in the form of a poster.

Action DA/NWP-16

As recommendations 2, 3, 4, and 7 (see above) do not have associated action items, the working group co-chairs will bring these to the attention of the relevant bodies.

Not Done for recommendations 3, 4, and 7.