**NAEDEX-23**

**Open Action Items**

**Update 24 October 2012**

**Actions from Previous Meetings**

**Actions from 19th Meeting, May 2006**

***Actions related to European requirements***

E.1.10 NPP data

NWP centres expressed a strong requirement for early access to simulated and real NPP data for technical check-out of processing chain, data formats etc. NESDIS to pursue the availability of simulated data sets.

# NOAA has a standing request to the IPO for early access to NPPx DRs. Action: NESDIS

Action may be affected by funding. NESDIS to update group on early availability of data sets, CrIS & ATMS in particular.

The IPO is continuing to work with DOD and the DoS to achieve clearance for all external users to have routine access to sample/simulated data. In the interim, sample data sets of CrIS and ATMS EDRs will be provided in a DVD as requested. Other data on the DVD include VIIRS, CrIS, and ATMS SDRs.

May 2011 Update – NPP instrument science documents including data formats and Algorithm Theoretical Basis Documents can be accessed from URL: <http://jointmission.gsfc.nasa.gov/project/science-documents.html>. NESDIS does not currently have the network resources in place to provide routine access to NPP data sets. Additional sample data sets are planning to become available.

Action: NESDIS will provide EUMETSAT a DVD of most up-to-date sample/simulated data available including BUFR formatted data. (POC: John Paquette)

NPP is in orbit and data are being distributed.

**CLOSED AT THIS MEETING (23-10-2012)**

E.4.4 Tropical cyclone data

There is a strong requirement for this data from the user community. Data in tabular or BUFR format are available from all centres except from New Delhi. NOAA-TOC to raise issue at WMO and clarify the generation of tabular or BUFR bulletins issued by New Delhi.

TOC is continuing to pursue this action, the data is in New Delhi but has not been distributed.

#### Action: NWS-CIO

New Delhi (DEMS) confirmed they are producing the data and providing limited distribution in accordance with regional Tropical Cyclone Operations Plans. Discussed with RA-1, RA-V and specifically RSMC Nadi regarding extra-regional requirements for this data. Discussions at RA-V SG-ISS, RTHs Melbourne, Wellington, Tokyo, Washington to collectively press DEMS for the data.

Two issues: 1) transmitting the data outside of their scope to the global community – data TBD 2) status of converting data to BUFR is unknown. New Delhi has indicated the data would be available in time for this tropical season; however, nothing seen at this time.

Action: NWS-CIO to pursue this issue with DEMS further to determine routing and data formats.

ECMWF happy with BUFR product from Met Office.

**CLOSED AT THIS MEETING (23-10-2012)**

**Actions from 20th Meeting, May 2007**

E.1.4.3 SSMIS

NRL/Met Office to explore operational implementation of improved pre-processing. Expected towards the end of 2007.

Action: NRL/Met Office

METO: A unified pre-processor has been developed jointly by NRL-Met Office. The unified pre-processor (UPP) uses the reflector emission corrections, averaging and remapping developed as part of the NWPSAF-Met Office pre-processor, and the gain corrections developed and implemented by Northrup-Grumann/NRL. The initial implementation of the UPP has given positive impacts in the US Navy global NOGAPS model. UPP datasets (in BUFR format) should be available shortly (before March 2008) for testing at other NWP centres.

UPP is operational at NRL and datasets available to other centers. Data sent to NESDIS and via Washington-Exeter link to METO. File format same as previous SSMIS. Approx 300 Mb/day

NAEDEX22: ECMWF to distribute documentation on UPP dataset format.

Obselete action. Data is in BUFR and being used at METO/ECMWF.

**CLOSED AT THIS MEETING (23-10-2012)**

E.x MODIS imagery data

EUMETSAT to explore with NESDIS the provision of a subset of MODIS imagery data from NESDIS to EUMETSAT for re-transmission via EUMETCast.

**Action: EUMETSAT, NESDIS**

EUMETSAT to implement the processing and make data available. This is partially complete, data is being distributed. EUMETSAT needs associated navigation data.

Status: EUMETSAT has had problems with this since the data source at NASA was shut down which resulted in lack of data at NOAA. EUMETSAT found a workaround through NASA; however, a timeliness issue has resulted including a change in the format. The navigation data was obtained.

NESDIS is providing MODIS data on an experimental site; however, the system load is in question.

Action: NESDIS will pursue this issue with NASA on behalf of EUMETSAT.

EUMETCast MODIS data is available. Navigation data no longer sent as not needed by users.

**CLOSED AT THIS MEETING (23-10-2012)**

E.4.8 N. American ozone soundings on GTS

To pursue delivery and release of surface-based total column and profile ozone data to the European NWP centres and MSC.

Action: NWS-CIO

TOC is not currently receiving U.S. ozone soundings in message format and does not have contact information yet. Will continue to try and obtain sources for soundings. NOAA to survey research community for possible sources of data.

Fred consulted with GAW Secretariat at WMO, data needed for verification. Two data sources via the internet for this data: 1) [www.esrl.noaa.gov/gmd/ozwv/ozsondes/](http://www.esrl.noaa.gov/gmd/ozwv/ozsondes/) , 2) [www.woudc.org/data\_e.html](http://www.woudc.org/data_e.html)

TOC is working to get this data available in near real-time via the GTS.

Access is available with ascents once per week. This is now resolved.

**CLOSED AT THIS MEETING (23-10-2012)**

N.x Soil moisture and temperature observations

EU centres to clarify data type and availability

**Action: NOAA & European NWP centres**

German network may be available, need to confirm.

DWD has a soil temperature network and can be made available; however, they require a formal requirement letter. The letter should be addressed to the PR individual.

Meteo-France. SMOSMANIA data are not available in real time. 20 stations in the south of France. There is an ESA website that shows these data in non-near real time. The best contact is the International Soil Moisture network, which is a collaboration between Technical University of Vienna and ESA. <http://www.ipf.tuwien.ac.at/insitu/>

**CLOSED AT THIS MEETING (23-10-2012)**

N.x Surface energy/water flux- observations

EU centres to clarify data availability. NCEP to clarify request.

Action: NCEP, European NWP centres

NCEP: From Ken Mitchell (NCEP) – We are asking for real-time observations from European ground-based surface flux observing stations.  Such stations typically observe the four components of the surface radiation flux (surface downward shortwave, sfc upward shortwave, sfc downward long-wave, sfc upward long-wave) and surface latent heat flux, surface sensible heat flux, surface ground heat flux and surface CO2 flux.  Such surface flux measuring stations can sometimes also provide observations of soil moisture profiles, soil temperature profiles, and snow depth and precipitation, but near-surface met such as 10-meter winds, and 2-m air temperature and air humidity and surface pressure.

**Action: European NWP centres**

Some data already distributed in SYNOP. Need clarification on what data is available and possibility for exchange. ECMWF indicates they have some of this data (Germany, Czech Republic, Slovenia, UK).

Action: ECMWF to identify where the products are coming from and the headers. NWS-CIO will then verify distribution of the data.

ECMWF will do this later at this meeting 23/10/2012 after which this action can be closed.

**CLOSED PENDING RECEIPT (23-10-2012).**

**N.x Snow depth data across Europe**

New Action: ECMWF to identify where the products are coming from and the headers. NWS-CIO will then verify distribution of the data.

ECMWF have brought the headers to this meeting so they will circulate these on email.

the list of countries they provide snow depth reports in bufr to ECMWF via GTS is

DENMARK, ROMANIA, NETHERLANDS, SWEDEN already reported BULGARIA and NORWAY will start the current season.

Telecom headers are

ISDX(62,63)

ISMD62

ISND62

**CLOSED AT THIS MEETING (23-10-2012).**

M.x IASI PCA scores

The derivation and distribution of IASI PCA scores is currently foreseen as a EUMETSAT Metop-A Day-2 activity. The NWP centres have a well defined interest in this data and support the EUMETSAT planned activities. WMO encourages distribution via GTS. EUMETSAT to provide visibility to the implementation plan.

**Action: EUMETSAT**

Council discussed, hope for approval by delegates. Distribution could possibly begin next year. Approved, implementation in progress. Data may be available by February 2010

Data is currently available on EUMETCAST. Action: Simon will check on GTS availability.

EUMETSAT confirm that the data are available on the GTS.

**CLOSED AT THIS MEETING (23-10-2012)**

**Actions from 21st Meeting, September 2008**

SeaWinds Oceansat-II

The Scatterometer on Oceansat-2 was launched on September 23, 2009; the operational phase estimated to start 9 months post-launch. Global scatterometer data at Level 1B, 2A, and 2B to be provided by ISRO, orbit by orbit, for operational use within 180 minutes of collection on the spacecraft for the duration of the mission. NESDIS investigating use of Fairbanks and Wallops earth stations for improve data timeliness. EUMETSAT is discussing the use of Svalbard with ISRO.

The Scatterometer on GCOM-W2 is scheduled to be launched 2016 by JAXA.

May 2011 Update: Svalbard will be used to downlink the Oceansat-2 OSCAT data. Current plans are for the level 0 data to be relayed from Svalbard to ISRO for processing to level 1b, 2a, and 2b. Processed data will then be relayed to EUMETSAT, Darmstadt, Germany. Using an existing link between EUMETSAT and NESDIS ESPC, NESDIS is currently investigating the availability of resources to process and distribute the OSCAT products. Data cannot be received via Fairbanks and Wallops.

Update on 23 October 2012: ECMWF are happy with the data they receive.

EUMETSAT considers this done since the data will be operational in 2 days. The data are in EUMETCast already. The winds will also be on the GTS. It remains unclear as to which provider will produce the GTS OSCAT winds. NCEP is using OSCAT data in the model. Hurricane Centre receives data OK.

**CLOSED AT THIS MEETING (23-10-2012)**

**Actions from 22nd Meeting, 9-11 December 2009**

**NAEDEX\_22\_6.0**: CMC to keep NAEDEX updated on progress with the PCW mission.

**ACTION: CMC, WMO, ALL**

Action on all to consider advocacy for PCW.

Action on WMO to express the interest of this group at the forthcoming IGEOLAB meeting. Note that an international user and science team for PCW is being formed, the chair is Louis Garand.

WMO did express interest. Users will need to continue to push for PCW mission.

ACTION: CMC/Mike to provide details on opportunity for participation on international user and science team.

Update on progress from MSC. PCW is built into WMO planning now.

**CLOSED AT THIS MEETING (23-10-2012)**

**Actions from 23rd Meeting, 2-6 May 2011**

**NAEDEX\_1.1.4 AVHRR Polar Winds** – NESDIS to investigate to the timeliness of this data.

**ACTION: NESDIS**

Needs to be checked. There are now polar winds from EUMETSAT.

Met Office have confirmed that timeliness is OK.

**CLOSED AT THIS MEETING (23-10-2012)**

**NAEDEX\_1.6.3** - NESDIS to investigate if combined TERRA-AQUA MODIS AMVs are available on the GTS.

**ACTION: NESDIS**

Science issues prevent this being implemented until 2013.

**STILL OPEN AT THIS MEETING (23-10-2012)**

**NAEDEX\_1.6.4 AURA: MLS and OMI** – NESDIS to investigate if MLS temperature and moisture and OMI NO2 can be added to the data set via the GTS.

**ACTION: NESDIS**

Formal requirements are being gathered. NWS need to provide request for NESDIS to implement.

**STILL OPEN AT THIS MEETING (23-10-2012).**

**NAEDEX\_1.6.7 MODIS Level 1B & High Resolution Navigation Data**– NESDIS to investigate the timeliness of the data received via NASA. (applies to 1.6.8 as well)

**ACTION: NESDIS**

NASA supply data directly to EUMETSAT.

**CLOSED AT THIS MEETING (23-10-2012).**

**NAEDEX\_1.7 Windsat/CORIOLIS** - NESDIS and NWS to investigate on timeliness of this data.

**ACTION: NESDIS and NWS/CIO**

NCEP would like brightness temperature for WindSat data. ECMWF have BTs it so it is available. ECMWF and METO note timeliness could be improved especially for 12Z cycle. About 50% is received in less than 2hrs (monthly average).

**CLOSED AT THIS MEETING (23-10-2012).**

**NAEDEX\_1.10 NPP Data** – General Action to define the channel selection for CRiS data via the GTS RARS and Global. Discussion will take place at the ITSC meeting with coordination with NOAA prior to the meeting.

**ACTION: ALL CENTERS**

**CLOSED AT THIS MEETING (23-10-2012)**

**NAEDEX\_4.3 MDCRS data (AMDAR etc)** – NWS/CIO will coordinate with proper individuals to improve the notification process. The further emphasize the need for this notification process, all Centers need to communicate their official requirements on their use of the data.

**ACTION: NWS/CIO & All CENTERS**

**ECMWF want to have notifications that will explain sudden changes to AMDAR observation numbers. NWS gateway issues lots of messages. AMDAR information is at:**

* **Available through MADIS:**
  + [**http://madis.noaa.gov/**](http://madis.noaa.gov/)
* **Available through GSD Web Page:**
  + [**http://amdar.noaa.gov/java/**](http://amdar.noaa.gov/java/)
* **Additional Information:**
  + **GSD:**

[**http://amdar.noaa.gov/**](http://amdar.noaa.gov/)

* + **WMO AMDAR Program:** [**http://www.wmo.int/amdar/AMDARResources.html**](http://www.wmo.int/amdar/AMDARResources.html)

**From WMO**

"I  have recently set up a Global AMDAR Data Monitoring Email list, which would be used for

matters of the type that you are indicating below. It would be appropriate for all NWP centres to be subscribed to this list. AMDAR Monitoring centres will be providing monthly reports via this email address and it will be used for notification of programme changes. The email address is: [wmo-aircraft-observations-data-monitoring@wmo.int](mailto:wmo-aircraft-observations-data-monitoring@wmo.int)

The online forum associated with this Google Group email is at: <https://groups.google.com/a/wmo.int/forum/#!forum/wmo-aircraft-observations-data-monitoring>

Apart from that, the best source of information is the WMO AMDAR website at: <http://www.wmo.int/amdar/> and, particularly, the data statistics page at: <http://www.wmo.int/amdar/AMDARStatistics.html>

Ideally, I think it would be best if NWP centres could provide a single email alias (which could have more than one email address associated with it, e.g. amdar\_data\_mon@ecmwf ) for subscribing to the data monitoring forum - that way, they have control over who receives it and they can make changes to it without me having to make changes to the forum email list."

**STILL OPEN AT THIS MEETING (23-10-2012).**

**NAEDEX\_4.5 Snow Cover Analysis** – NESDIS will provide documentation available for the S. Hemisphere products.

**ACTION: NESDIS**

NESDIS WILL OBTAIN A POINT OF CONTACT TO PROVIDE DETAILS OF PROCESSING AND PRODUCT ALGORITHMS. THIS WILL HAPPEN WITHIN 2 WEEKS.

**CLOSED AT THIS MEETING PENDING INFORMATION FROM NESDIS (23-10-2012)**

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**NAEDEX\_4.9 All Buoy Data** – NWS/CIO to provide status on putting data in BUFR with all Meta data.

**ACTION: NWS/CIO**

NWS report that there is no update at this time.

**STILL OPEN AT THIS MEETING (23-10-2012).**

**NAEDEX\_4\_10 Ground-based GPS** – NWS/CIO to contact NOAA/ESRL on format of data and provide most optimal access for availability.

**ACTION: NWS/CIO**

Met Office report that work is ongoing at NOAA ESRL to put whole US network into BUFR but BUFR is still not WMO compliant.

**CLOSED AT THIS MEETING (23-10-2012). NOTE THAT THERE IS A NEW ACTION BELOW.**

**NAEDEX\_2011\_01** – European Requirements Document – All Centers need to update the Table at the end of the document to include correct priorities.

**ACTION: ALL NAEDEX CENTERS**

**CLOSED AT THIS MEETING (23-10-2012)**

**NAEDEX\_2011\_NA\_1.1.2** – NWS to clarify requirement for the ATOVS RARS data.

**ACTION: NWS/NCEP**

More work needed to investigate this.

**STILL OPEN AT THIS MEETING (23-10-2012).**

**NAEDEX\_2011\_NA\_1.2.9 –** NWS/CIO & EUMETSAT investigate the timeliness of this space weather data from SEM-2.

**ACTION: NWS/CIO and EUMETSAT**

Needs further investigation to understand this action.

**STILL OPEN AT THIS MEETING (23-10-2012).**

**NAEDEX\_2011\_NA1.4 GPS RO** – NCEP (Jim Yoe) will investigate the availability of SAC-D/ROSA data.

**ACTION: NWS/NCEP**

Some more investigation needed.

**CLOSED AT THIS MEETING (23-10-2012). NOTE THAT THERE IS A NEW ACTION BELOW.**

**NAEDEX\_2011\_NA1.5 Soil Moisture and Ocean Salinity** – MSC has an issue with the data volume with this instrument. Meteo-France will take action to investigate.

**ACTION: METEO-FRANCE**

Meteo-France report that SMOS NRT Lite product to be disseminated on EUMETCast.

Canada receive Lite product by FTP. The product is also soon to be available on GTS.

**CLOSED AT THIS MEETING (23-10-2012)**

**NAEDEX\_2011\_NA\_1.8 SARAL** – NCEP will need to make a request to NESDIS to receive this data.

**ACTION: NWS/NCEP**

SARAL not launched until December 2012.

**STILL OPEN AT THIS MEETING (23-10-2012).**

**NAEDEX\_2011\_NA\_1.9 METOP-B** – EUMETSAT confirm the direct broadcast continuation from METOP-A after launch of METOP-B.

**ACTION: EUMETSAT**

EUMETSAT confirm continuation.

**CLOSED AT THIS MEETING (23-10-2012)**

**NAEDEX\_2011\_NA\_General1.0** - Action: All Centers to provide to Jerome the links to their satellite product pages.

**ACTION: NWS/CIO, MSC, ALL Centers**

Action is on satellite product providers.

WMO have done a lot but not on a product-by-product basis since this would duplicate WIS!

NWS. Intention is to collect links to providers product pages so that users have a single reference point from which they can navigate to all products (a catalogue of catalogues).

<<INSERT LINK>>

**STILL OPEN AT THIS MEETING (23-10-2012).**

**NAEDEX\_2011\_NA\_3.1.2 & 3.2.2 & 3.5.1**– NWS/CIO to find out information regarding EUMETNET-ASAP, AWS, and OPERA

**ACTION: NWS/CIO**

Meteo-France report that OPERA will be available on OpenWIS portal.

Michelle confirms that ASAP data are assimilated.

There is a continuing need to put AWS mesonet data on the GTS.

**CLOSED AT THIS MEETING (23-10-2012).**

**NAEDEX\_2011\_NA\_4.1.1 – ECWMF Model –** NCEP to coordinate with ECMWF on resolution and model requirements/requests.

**ACTION: NCEP**

**CLOSED AT THIS MEETING (23-10-2012)**

**NAEDEX\_2011\_NA\_4.1.2 – UK Met Office Model** – NCEP to coordinate with UKMO on obtaining EPS fields.

**ACTION: NCEP**

**CLOSED AT THIS MEETING (23-10-2012).**

**NAEDEX\_2011\_NA\_4.1.3 – DWD Model** – NCEP to coordinate with DWD on obtaining headers for data on GTS.

**ACTION: NCEP**

DWD have put data on GTS. DWD can provide a contact point if they need help.

**CLOSED AT THIS MEETING (23-10-2012).**

**NAEDEX\_2011\_NA\_4.1.4 – METEO-FRANCE** – NCEP to coordinate with METEO-FRANCE on obtaining headers for data on GTS.

**ACTION: NCEP**

**CLOSED AT THIS MEETING (23-10-2012).**

**NAEDEX\_2011\_NA\_4.3** – NCEP and ECWMF to coordinate on clarifying derivation of Altimeter settings from surface pressure data in METAR data. Probably station heights or other META data are not correct

**ACTION: NCEP and ECMWF**

Weather.noaa.gov file path /data/nsd\_cccc.txt

**The data is also available on CD.**

**CLOSED AT THIS MEETING (23-10-2012)**

**Actions from 24th Meeting held 22-26 October 2012.**

**European Requirements**

**NAEDEX\_2012\_EU\_1.5.3** N. Atkinson to circulate link to MLS server which provides delayed data. **ACTION: Met Office**

Aura MLS data in NRT are available from ftp directories linked from <http://earthdata.nasa.gov/lance/data-products/airs-mls>. You need an account for LANCE to get the data, see <https://urs.eosdis.nasa.gov/?AppVar=LANCE>.

At the Met Office we archive the products ML2O3\_NRT.002 (ozone) and ML2T\_NRT.002 (temperature) and use them for validation. Water vapour is also available via ML2H2O\_NRT.003. The files are pulled by Message Switching.

The timeliness varies between about 1 hour and 2.5 hours, depending on whether the 15-minute granule is at the beginning or end of the orbital dump. The format is hdf5. Example listing from <ftp://discnrt1.gesdisc.eosdis.nasa.gov/data/Aura_NRT/ML2T_NRT.002/Recent/>

**CLOSED AT THIS MEETING (23-10-2012)**

**NAEDEX\_2012\_EU\_1.7** WMO to ask IROWG co-chairs to investigate real time access to ROSA on SAC-D, Oceansat-2 and GPSROS on Megha Tropique and IGOR on Tandem-X.

**ACTION:WMO**

**NAEDEX\_2012\_EU\_1.7** NESDIS/NWS to investigate improving the timeliness of C-NOFS data.

**ACTION:NESDIS**

**NAEDEX\_2012\_EU\_1.9** Clarify what S-NPP data will be available on RARS.

All centers to confirm their requirements for RARS S-NPP data to WMO.

**ACTION:WMO/ALL NWP CENTERS**

**NAEDEX\_2012\_EU\_3.1** NESDIS to update group when hourly GOES AMVs will become operational.

**ACTION:NESDIS**

**NAEDEX\_2012\_EU\_4.2** Met Office & Meteo-France to use FSO tool to show impacts for US and new Canadian profilers.

**ACTION: Met Office/Meteo-France**

**NAEDEX\_2012\_EU\_4.7** All Centres to investigate putting in situ soil temperature and moisture observations on the GTS.

**ACTION: All Centres**

**NAEDEX\_2012\_EU\_4.10** Met Office to follow up BUFR format issues of US ground based GPS with NOAA/ESRL.

Met Office has provided software to NOAA to do the BUFR encoding correctly. NOAA don’t have resources until FY 2013 to implement.

**ACTION: Met Office/NOAA-ESRL**

**NAEDEX\_2012\_EU\_5.3** All centers to consider their requirements for FY3 IRAS data in accordance with the requirements table priorities.

**ACTION: ALL CENTERS**

**NAEDEX\_2012\_EU\_5.7** EUMETSAT to continue to investigate real time access to AMSR-2 data

**ACTION: EUMETSAT**

**NAEDEX\_2012\_EU\_5.9** EUMETSAT to continue to pursue access to HY-2 data

**ACTION: EUMETSAT**

**N. American Requirements**

**NAEDEX\_2012\_NA\_3.2.6**  To investigate if N. Sea oil rig observations are available.

**ACTION: Met Office**

**NAEDEX\_2012\_NA\_3.4.2**  To monitor AMDAR/ETAIR panel discussions and report.

**ACTION: NWS**

**NAEDEX\_2012\_NA\_3.4.4** To add MODE-S aircraft data to requirements documents.

**ACTION: ECMWF, MSC, ABoM**

**General Actions**

**NAEDEX\_2012\_GENERAL** ECMWF to include link to WMO OSCAR site in requirements document.

**ACTION:ECMWF**

**NAEDEX\_2012\_GENERAL** KMA to clarify access to COMS AMVs and CSRs

**ACTION: KMA**

**NAEDEX\_2012\_GENERAL** NWP centers to encourage research satellites agencies to provide their NRT data on a best effort basis.

**ACTION: NWP Centers**

**NAEDEX\_2012\_GENERAL** Continue to pursue access to Electro-L N1 data

**ACTION: EUMETSAT**

Points for information (Michelle will add email addresses for POCs)

I.1 POC at Met Office

Roger Saunders

VAD winds: Myles Turp (Myles.Turp@metoffice.gov.uk)

Further information can be found at: <http://www.metoffice.gov.uk/research/interproj/cwinde/wradar/index.html>

[http://www.metoffice.gov.uk/research/interproj/cwinde/index.html](http://www.metoffice.com/research/interproj/cwinde/index.html)

ATOVS: Nigel Atkinson

TELECOMS: Chris Little

I.2 POC at NOAA/NESDIS

NESDIS Office of Satellite and Product Operations: Thomas Renkevens, John Paquette, Hanjun Ding, Vince Tabor

NOAA-NESDIS Office of International and Interagency Affairs: Michelle Hertzfeld

I.3 POC at NOAA/NWS/NCEP

Michelle Mainelli

Sea-ice analysis: Robert Grumbine

SST analysis: William Gemmill replace with Hendrik Tolman ???

MDCRS: Bradley Ballish

I.4 POC at ECMWF

Erik Andersson,

Satellite data: STEPHEN ENGLISH new addition.

Gridded products: Dragan Jokic

Observation data formats: Ioannis Mallas

I.5 POC at NOAA/NWS CIO

Fred Branski

I.6 POC at NOAA/NWS OPS

TBD

I.7 POC at EUMETSAT

Kenneth Holmlund,

Simon Elliott

I.8 POC at MSC

Gilles Verner,

Mike Manore

Gridded outputs and formats: Yves Pelletier

I.9 POC at Meteo France

Jean-Francois Mahfouf

~~Bruno Lacroix,~~

Herve Roquet

I.10 POC at WMO

Jerome Lafeuille

Add Stephan Bojinski.

I.11 POC at DWD

Alexander Cress

Robin Faulwetter