

**WORLD METEOROLOGICAL ORGANIZATION**

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**WMO IGDDS IMPLEMENTATION GROUP**

**2<sup>nd</sup> MEETING**

**GENEVA, SWITZERLAND**

**21 - 22 May 2008**

**FINAL REPORT**



## 1. INTRODUCTION AND REVIEW OF THE AGENDA

Jerome Lafeuille, Chief of the WMO Space-based Observing System Division, emphasized the importance of the IGDDS to WMO and welcomed the participants who came from Australia, China, EUMETSAT, Japan, Russian Federation, United States of America, and WMO (The list of participants is attached as Annex II ). It was agreed that he would serve as Chairman and Robert Husband would serve as Secretary of the meeting.

The Chair recalled the background to the IGDDS project and its main objective of enhancing access to satellite data and products. The role of the Implementation Group, in guiding the work to achieve this objective, was highlighted.

The participants adopted the agenda as provided as Annex I of this report.

The Chair also noted that, for efficiency, the status of previous actions will be discussed as part of the relevant agenda item, as indicated in the provisional agenda.

## 2. STATUS OF DVB-S DISSEMINATION INFRASTRUCTURE

### a) EUMETCast

Mike Williams (EUMETSAT) presented the status of EUMETCast, covering:

- What is it?
- Components;
- Delivery platform;
- Capacity (12 Mbps over Europe, 3 Mbps over Africa and 2 Mbps over Americas);
- Coverage of the European, African and American footprints;
- Users by operational service;
- Users per institution.

### b) FengYunCast

Jian Liu (CMA) then presented the status of FengYunCast, addressing:

- Coverage (Ku-band and C-band);
- Wider coverage for Asia-Pacific areas;
- Data exchange with EUMETCast;
- Dissemination schedule;
- Donation of 11 systems to Asia-Pacific countries;
- International user training.

In discussions, it was clarified that the FengYunCast dissemination schedule is not available on the WMO website.

The Chair asked about possible reciprocal dissemination between EUMETCast and FengYunCast. It was confirmed that this capability exists (with the option of using the RMDCN and overlapping footprints for the exchange of data). The data exchange capacity is around 500 Kbps.

It was clarified that the FengYunCast C-band dissemination capacity was around 6 Mbps.

### **Related outstanding actions**

Noting BoM's involvement as a pilot user and the training provided by CMA to international users in English, it was concluded that Action IGDDSS-IG-1.8 could be closed. In order to systematically capture the information arising out of the pilot user involvement, and to support information of potential users of FengYun Cast, the following actions were agreed.

**Action IGDDS-IG-2.1:** BoM to provide a report on their user experiences with FengYunCast and, if necessary, to request the datapack provided at the international training from CMA.

**Action IGDDS-IG-2.2:** CMA to provide WMO Space Programme Office with the information package provided at the international training in October 2007. Due date: end July 2008.

### **c) NOAA DVB-S Projects**

Paul Seymour (NOAA) presented the status of GEONETCast Americas, addressing:

- Coverage;
- Services (currently 2 Mbps capacity with options up to 10 Mbps, high availability specification);
- System architecture;
- Receiving station;
- Potential end-users (with a station being installed in INPE and another soon to be installed in CONAE);
- Data product information (and the availability of an integrated product navigator available on both GEONETCast Americas and EUMETCast);
- Sample of initial products;
- Formation of a regional coordination group to provide guidance on the dissemination schedule;
- Web-page coordinates.

In discussions it was clarified that there are currently three users and that the system is fully functional. It was also noted the system is primarily used for environmental data, and is not used as the main mechanism for the dissemination of meteorological satellite data.

It was clarified that the required antenna size was 2.4 metres.

In the context of IGDDS, the Chair enquired about the target users and if they included the meteorological community. It was clarified that the system was targeted at distributing environmental data for various GEO Societal Benefit Areas rather than level 1.5 meteorological satellite image data.

It was noted that EUMETCast Americas, which carries meteorological satellite image data, is planned to continue until 2010.

Technically, it would be possible to include satellite image data on GEONETCast Americas, if the bandwidth were to be increased. Any decision in this area will depend on the interest shown in the current system.

### **d) MITRA**

Dzhalil Akhtyamov (Roshydromet) presented the MITRA system, addressing:

- The main features of the MITRA system (use of DVB-S, C-band, four satellites with different footprints, coverage of the whole of Europe and parts of Asia, low-cost reception equipment, more than 200 users, .....);
- MITRA reception terminal hardware and software;
- Data receiving software;
- Data-flows of the MITRA system;
- Examples of image data;
- Products from the Planeta Research Centre;

- Standard data processing and presentation software;
- Optional data processing and presentation software;
- System robustness (overlapping satellites, Forward Error Correction, TCP/IP networks for the provision of guaranteed content delivery);
- Process for ensuring guaranteed content delivery using TCP/IP networks;
- Contacts (website links and companies).

In response to a question as to whether the same data was transmitted on all four satellites, it was clarified that three satellites transmit the same data and the fourth satellite (which has a larger capacity 1 Mbps compared to 256 kps on the other three satellites) transmits a larger set of data (which includes the data sets transmitted on the other three satellites).

It was confirmed that the MITRA data centre for GEONETCast would be in Moscow and, in response to a question from EUMETSAT, it was noted that it would be possible, in principle, to set up a MITRA station in Darmstadt.

During discussions it was clarified that the main users are meteorological centres and there are currently around 237 users. Access to the data can be controlled at the level of individual users.

#### **e) GEONETCast**

Paul Seymour (NOAA) presented the global status of GEONETCast, including:

- Coverage;
- Initial operational capability;
- Architecture;
- User and data provider engagement;
- Coordination with GEO ADC activities (including registration of system and services);
- Highlights (including forthcoming events).

In discussions, it was confirmed that the Product Navigator, that is disseminated via GEONETCast, works in exactly the same way as the nominal web-based version, provided the reception station is connected to the Internet. CMA has already agreed that this Product Navigator can be included in the FengYunCast dissemination (and its potential inclusion in MITRA transmissions is under discussion).

It was also noted that, for the Product Navigator disseminated via GEONETCast, archived products have been removed from the list.

### **3. CODE, FORMAT AND METADATA ISSUES**

Robert Husband (WMO Consultant) presented the paper entitled "Code, Format and Metadata Issues" which summarized the status of previous discussions in the Group. In these discussions emphasis was placed on the need for:

- Uniqueness of filename;
- Availability of an accompanying metadata file.

In the subsequent discussions David Thomas (WIS Project Manager) also emphasized the need for catalogues to comply with the relevant search interface standards.

#### **Related Outstanding Actions**

Following a review of the status of open actions from previous meetings, the following action dispositions were agreed:

Action IGDDS-IG-1.5: Closed - information has been distributed.

Action IGDDS-IG-1.6: Closed – the filename aspects were mostly covered during the RARS-IG-2 discussions (and part of this action could be fulfilled by substituting the AAPP filename with the EUMETCast filename). Concerning the metadata file component it was concluded that this part of the action remains to be completed and that the metadata could be harvested from the catalogues embedded in the product navigator. It was decided to raise a new action to address this aspect.

**Action IGDDS-IG-2.3:** EUMETSTAT to provide the results of harvesting metadata from the Product Navigator (involving setting up an interface to allow the remote query of the product navigator and the standardization of the catalogue information formats within the Product Navigator). Due date: IGDDS-IG-3.

There was a discussion on uniqueness of filename for GEONETCast Americas and it was concluded that, at least for the WMO user community, there should be uniqueness of filename.

Action IGDDS-IG-1.7: Closed.

#### **4. IDENTIFICATION OF REGIONAL DATA REQUIREMENTS**

The Chair reported that the detailed paper presented to the last meeting had been submitted to the Expert Team on Satellite Utilization and Products (ET-SUP) for review in September 2007; ET-SUP had broadly supported the document without changes, while underlining the importance of geostationary imagery over DVB-S broadcast services.

The Chair recalled the existing database observational requirements (available on-line via the WMO SP home page: <http://www.wmo.int/pages/prog/sat/Databases.html>). The Chair then gave a brief overview of the structure and contents of the database, including the mechanism to compare the requirements with capabilities. He emphasized that this database was intended to capture requirements for the evolution of the Global Observing System, in a long-term and global perspective. It was acknowledged that the scope of the IGDDS data requirements was different, aiming at shorter term and taking into account specific regional context.

The meeting discussed possible ways to progress in the definition of data requirements.

The use of the database of data exchange requirements maintained by NAEDEX was discussed and it was pointed out that APSDEU was developing an equivalent to this database.

It was suggested that use could be made of the Rapporteur on the Space Programme in each region to review the list contained in the document presented at IGDDS-IG-1 and make concrete proposals (particularly for Asia-Pacific, South America and Africa). This updated list could then be compared with the current FengYunCast, and EUMETCAST dissemination schedule and proposals could be made, if appropriate, for modifications to these schedules.

**Action IGDDS-IG-2.4:** WMO SP to contact Regional Rapporteurs for the WMO Space Programme and ask them to provide generic requirements for their regions (using the requirements document presented at IGDDS-IG-1 as a starting point) and requesting a response by the end of the year. Due date: end-June 2008.

Roshydromet explained that characterizing precisely the actual needs was a difficult process, but a list of users requirements should be completed by November 2008 for CIS countries. Since RA II was a very large region, the Rapporteur for RA II could thus focus his attention on the collection of requirements from the other countries within RA II.

EUMETSAT noted that the EUMETSAT User Forum in Africa, which takes place every two years, could be used for gathering requirements. CMA noted that requirements would have to be overlaid with the data policy implications. There could also be special national requirements which could be discussed bilaterally.

JMA pointed out that they provide their MTSAT data on the internet with the SATAID viewer and will continue this service. As part of this service, good communications are maintained with users for gathering requirements.

### **Related Outstanding Actions**

Action IGDDS-IG-1.3: Ongoing – at the 19<sup>th</sup> session of the CIS Intergovernmental Council on Meteorology (October 2007) Roshydromet presented information concerning the establishment of the WMO IGDDS and Roshydromet's participation in it. It was decided to request the Council Working Group on Telecommunications to prepare a regional IGDDS project including the regional requirements and a list of potential products for dissemination. The project will be prepared by this Working Group and presented at the next session of the Council in November 2008.

New due date: RARS-IG-3.

Action IGDDS-IG-1.4: IGDDS Implementation Group members participating in APSDEU and the North America and Europe Data Exchange meetings to report back to IGDDS-IG-2 on items of relevance to the establishment of regional requirements.

Status: Ongoing: to be reviewed again at IGDDS-IG-3.

Action IGDDS-IG-1.10: JMA, BoM and KMA to express their requirements for proposed additions to the FengYunCast dissemination schedule, to enhance the regional operational value, by end of September 2007, in order to allow a presentation and discussion at APSDEU8, with a view to obtaining a consolidated regional proposal from APSDEU8 (to be formally communicated to CMA following APSDEU8).

Status: Ongoing - the next APSDEU will take place in February 2009. New due dates were agreed as follows:

- End-July 2008 for the first part of the action (express requirements);
- Obtain response from APSDEU by February 2008.

Action IGDDS-IG-1.11: CMA to investigate the feasibility of adding the requested products to the FengYunCast dissemination schedule and to provide a timetable for their introduction by the end of 2007.

Status: This action cannot be completed until action IGDDS-IG-1.10 has been completed.

## **5. IGDDS STANDARDS**

Robert Husband introduced the draft "IGDDS Standards" document noting that:

- This document was created as a result of an action placed at a predecessor meeting to the first IGDDS Implementation Group meeting (see pre-existing action 3.4);

- Inspiration for the contents of the draft standards has principally come from the RARS Operator Standards and the IGDDS Implementation Plan;
- The standards are focussed on IGDDS DVB-S Broadcasts (and may not be fully applicable to purely GEONETCast broadcast systems);
- Some harmonization could be envisaged between these standards and the GEONETCast documentation that is in preparation (e.g. the GEONETCast functional description).

The main contents of the document were then summarized, including:

- Open issues;
- Architecture;
- Dissemination broadcasts, file formats, filenaming and metadata;
- User consultation and data requirements;
- Data reception terminals;
- Publication of service information;
- User support service;
- Maintenance.

In the ensuing discussions EUMETSAT felt that it was a very useful document and fulfilled a need. It was noted that it raised, but did not solve, the potential distinction between the IGDDS and GEONETCast, but it should be possible to converge the two approaches in the area of standards.

BoM raised a question about mechanisms to align operator activities with the standard. In response it was noted that this was expected to be clarified during the WIS governance discussions (as the IGDDS is part of the WIS) and the document defines what is required for an operator to be considered part of the IGDDS.

**Action IGDDS-IG-2.5:** WMO SP to update the IGDDS Standards Document (Title and Introduction) to make it clear that it applies to DVB-S systems. Due date: IGDDS-IG-3.

## 6. STATUS OF WIS DEVELOPMENT

David Thomas presented the WIS development status, including:

- Current situation – GTS;
- Virtual structure of WIS (NC, DCPC and GISC and communications network);
- WIS Vision;
- IGDDS within the WIS;
- Main activities since the last IGDDS-IG meeting (WIS project office formation, WIS Technical Specification development, Support to VGISC development, functional description of WIS, cooperation with EC-funded projects, potential involvement of WIS in WIGOS, user requirements..);
- Future planning/forthcoming events;
- Main focus of activities for the next year.

The Chair noted that it was important to recognize the operational contribution of IGDDS DVB-S broadcast services as DCPCs, and enquired about the DCPC designation process.

In response, David Thomas noted that part of the process would involve working with the relevant CBS Expert Teams who will assess the technological aspects. The WMO SP should ensure that the nominated systems fulfil a need, and make a proposal for consideration by the relevant entities. The Information should be ready before the next Executive Council, which means that the issues need to be sorted out by early next year.

## 7. IGDDS Implementation Plan Update

Robert Husband introduced the document "IGDDS Implementation Plan Update" and summarized its main purposes:

- a) To propose an approach for further developing the actions contained within the IGDDS Implementation Plan;
- b) To take note of the current status of the IGDDS Implementation Plan actions;
- c) Consider the priority actions defined at the first meeting of the IGDDS Implementation Group.

The Group went through the document section-by-section.

Section 2.1 (Goals and Deliverables): The section was agreed with the caveat that it was proposed that the paragraph dealing with cost-efficiency should be clarified to make it clear that it refers to global cost efficiency including the end-user viewpoint.

Section 2.2 (Additional Actions) - agreed with the addition of an action concerning planning to ensure sustainability

Section 2.3 (Categorization of Actions) - agreed.

Section 3 (Current Task Status) - it was noted that:

- Action 2.4 (inter-regional data exchange mechanisms) is ongoing, e.g. MODIS, Vegetation, MERIS);
- Action 3.1 (review existing/planned data access means) needs to be reactivated;
- Action 3.2 (determine nominal ADM footprint responsibilities) could be considered complete apart from the need to secure a long-term perspective over the Americas;
- Action 3.3 (risks analysis and identification of back-up solutions if relevant) under review and reflected in the first draft of the IGDDS Standards;
- Action 4.3 (quality of service targets) - mainly concerns availability;
- Action 5.4 (demonstration actions) could be considered complete – a lot has been done by EUMETSAT (e.g. 19 EUMETCast receivers in South America).

Section 4: the priority actions Identified at IGDDS-IG-1 were recalled:

- a) Establishing data requirements for each regional DVB-S service;
- b) Quasi-global dissemination coverage on a sustainable basis;
- c) Identification of suitable data exchange mechanisms for transferring data between regions;
- d) Provision of appropriate user support arrangements.

The group concluded that:

- a) and b) are still of high priority;
- c) and d) remain important but good progress has been made.

It was also noted that compliance with WIS standards and conventions is becoming an increasingly important action item.

Returning to the IGDDS Implementation Plan, the BoM felt that, although the document looks generally very good, there would be benefits from updating the document to make it feel more current:

- The section on global potential improvements needs an update – it feels old (e.g. old document references);



- Initial assets in 2006 needs to be updated – a statement of assets valid for 2008 is needed;
- Section 7 needs more words to reflect the new actions that have been agreed;
- The risk section needs to be updated (e.g. references to 2007);
- Section 12 of the implementation schedule looks to be too historical;
- In page 2.2 of the Implementation schedule there needs to be an explanation of the acronyms.

In discussions it was noted that any such update needs to ensure that an appropriate balance is struck between making sure the information is current and the ability to track progress with respect to the initial starting point for the project.

**Action IGDDS-IG-2.6:** WMO SP to update the IGDDS Implementation Plan to reflect the comments of the IGDDS Implementation Group. Due date: IGDDS-IG-3.

### **Review of Actions**

Following a review of the status of open actions from previous meetings, the following action dispositions were agreed:

Action IGDDS-IG-1.1: Completed;

## **8. NEXT STEPS, PRIORITY ACTIONS AND RECOMMENDATIONS**

The Implementation Group then reviewed all the actions raised during the meeting and assigned due dates (as reflected in this report). A consolidated list of actions is provided in Annex III.

## **9. CONCLUSIONS**

In closing the meeting, Jerome Lafeuille expressed his deep appreciation to all the participants for an extremely fruitful meeting, and for their continuing contributions to the implementation of the IGDDS.

As the next meeting of the RARS Implementation Group is planned for early March 2009, WMO will propose that the next meeting of the IGDDS Implementation Group is held back-to-back with this RARS Implementation Group meeting. So the next meeting of the IGDDS Implementation Group is expected to take place in early March 2009, tentatively in Geneva.

*(Note: At the time of finalizing this report, it was decided that the third IGDDS-IG and RARS-IG meetings will be held in Tokyo, Japan on 5 and 6 February 2009.)*

**IGDDS IMPLEMENTATION GROUP  
Second Meeting  
(Geneva, 21-22 May 2008)**

**PROVISIONAL AGENDA**

**Day 1: Wednesday 21 May 2008, afternoon (start: 14h00)**

- 1. Introduction and Review of the Agenda**
- 2. Status of DVB-S Dissemination Infrastructure**
  - a) **EUMETCast**
  - b) **FengYunCast** (Related Action IGDDS-IG-1.8)
  - c) **NOAA DVB-S Projects**
  - d) **MITRA**
  - e) **GEONETCast**

**Coffee-break**

- 3. Code, Format and Metadata Issues**  
(Related Actions: IGDDS-IG-1.5, IGDDS-IG-1.6, IGDDS-IG-1.7)

*Day 2: Thursday 22 May 2008 (Start: 9h00)*

- 4. Identification of Regional Data Requirements**
  - Report from Roshydromet (Related Action IGDDS-IG-1.3)
  - Report from ASPDEU Members (Related Actions IGDDS-IG-1.4, IGDDS-IG-1.10, IGDDS-IG-1.11 )
- 5. IGDDS Standards**  
(Pre-existing related Action 3.4.)

*Coffee-break*

- 6. Status of WIS Development**

**Lunch break**

- 7. IGDDS Implementation Plan Update**  
(Related Actions: IGDDS-IG-1.1, IGDDS-IG-1.2)
- 8. Next Steps, Priority Actions and Recommendations**
- 9. Conclusions**

**IGDDS IMPLEMENTATION GROUP  
Second Meeting  
(Geneva, 21-22 May 2008)**

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**LIST OF ACTIONS**

- Action IGDDS-IG-2.1:** BoM to provide a report on their user experiences with FengYunCast and, if necessary, to request the datapack provided at the international training from CMA
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