GSICS DATA MANAGEMENT ACHIEVEMENTS 2007/2008

In response to CGMS action/recommendation R35.02

During 2007/08, EUMETSAT has participated in GSICS Data Management working group meetings where it was tasked to take a lead in the design and implementation of the Data Management server to support the GSICS Research working group in their inter-calibration comparisons. This also included the definition of the data formats needed to package the comparable data sets up from different satellites in such a form that it can be used by all GSICS partners, encapsulate only the data needed for the comparisons and compact enough for transfer over the internet.

This paper presents the status of these developments giving the milestones achieved and those achievable by the end of 2008.

GSICS data management achievements 2007/2008

1   INTRODUCTION

In accordance with the implementation plan of the Global Space-Based Inter-Calibration System (GSICS) resulting from the proposal to CGMS-33 EUMETSAT has participated in a number of meetings to discuss the needs and activities. This paper describes those activities specific to the management of the data needed to support the routine comparisons between pairs of collocated observations from instruments with similar characteristics to inter-calibrate them. To put this paper into context, it should be read with the GSICS scientific achievements 2007/2008 paper listed in the Reference section.

2   OVERVIEW OF THE DEVELOPMENTS

EUMETSAT has taken the lead in the development of the following to support GSICS;

Definition of the formats to encapsulate the data set for the comparison.

Design and implementation of a data management server where comparable data sets can be uploaded and downloaded by GSICS partners.

Format Definition

It was agreed in the working group for data management (GDWG) that the format used for encapsulating comparable data sets shall be the NetCDF[1] format. The following EUMETSAT data sets have NetCDF formats implemented for them to support GSICS.

Meteosat First Generation Satellites, MTP15, MVIRI instrument.
Meteosat Second Generation Satellites, MSG15, SEVIRI instrument.
EUMETSAT Polar Systems - Metop, IASI 1C, IASI instrument.

These formats exist in validation form and have been used by the scientists of the GSICS research working group to produce the 2007/2008 results. An official version of these formats will be available for ordering data from the EUMETSAT Archive, once they have been validated. The validation process is currently in discussion amongst the GSICS partners.

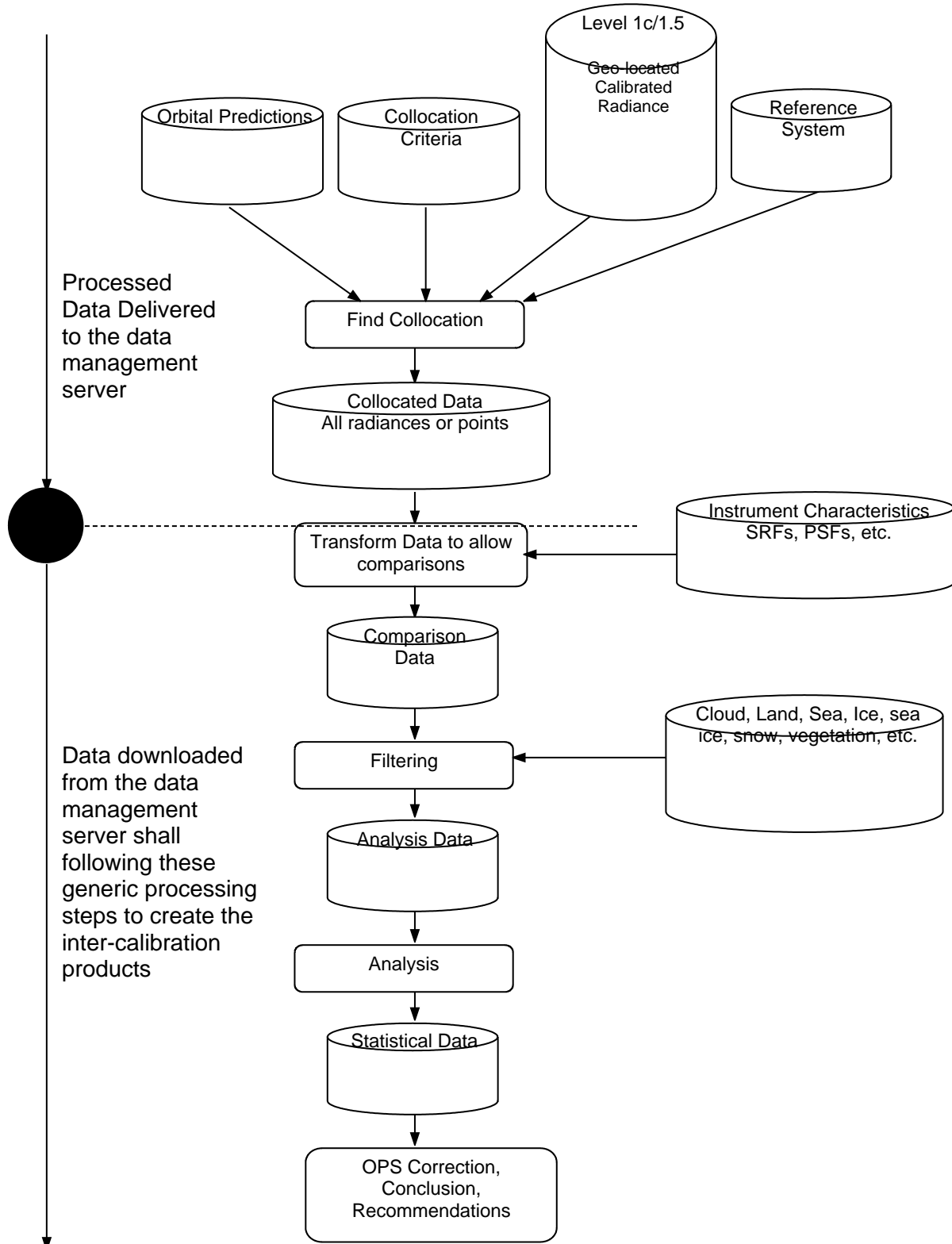Data Management Server Design and Implementation

The first draft design of the data collaboration server is completed. This design is required to be reviewed by the users of the server as well as the EUMETSAT

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[1] At the time of design and implementation, the NetCDF 4 specification was not officially released and a java api is not available for it. Therefore the NetCDF 3 apis were used. These will be ported to NetCDF 4 in the future.

Maintenance and Engineering System Authority for all EUMETSAT developments. Its implementation is scheduled to begin in the last quarter of 2008.

3   Data Processing Chain

Once the data management server is operational, the following data processing chain is envisaged for the generation of inter-calibration products.

Processed Data Delivered to the data management server

Level 1c/1.5

Geo-located Calibrated Radiance

Orbital Predictions

Collocation Criteria

Reference System

Find Collocation

Collocated Data
All radiances or points

Instrument Characteristics
SRFs, PSFs, etc.

Transform Data to allow comparisons

Comparison Data

Cloud, Land, Sea, Ice, sea ice, snow, vegetation, etc.

Data downloaded from the data management server shall following these generic processing steps to create the inter-calibration products

Filtering

Analysis Data

Analysis

Statistical Data

OPS Correction, Conclusion, Recommendations

4   Official GSICS Website: gsics.wmo.int

An additional achievement that is worth mentioning here, but is not strictly part of the data management tasks, is the registration of the name for the official GSICS Website. The WMO has kindly offered to configure their DNS server to redirect the URL gsics.wmo.int to a server hosting the GSICS main/generic/portal pages.   The development of this server is a future activity as it requires discussion and coordination of its contents amongst the partners.

5   CONCLUSIONS

Developments to support the data management of the GSICS project are on track. An operational system is expected to be ready by the end of 2008. This system will be presented in the next GSICS meeting scheduled for the first quarter of 2009. Feedback will be taken here with the view to improving and evolving the system with the aim to creating the server template for the partners to host their own data management server.

6   REFERENCES

GSICS scientific achievements 2007/2008, CGMS-36 EUM-WP-20, Agenda Item II/2, 2008.