

FACT SHEET ON GSICS/CGMS

In response to CGMS action/recommendation: None

This working paper informs CGMS about a fact sheet created by EUMETSAT on CGMS's contribution to climate monitoring - GSICS.

Observations from space contribute with unique information for decision making related to understanding, mitigation and adaptation to climate change, and hence CGMS Members are obvious contributors.

As a result of the growing importance of the impact of climate change on CGMS, EUMETSAT has prepared a fact sheet "Global Space-based Inter-Calibration System – a CGMS Contribution to climate monitoring". The text has been prepared by EUMETSAT in coordination with the GSICS Expert Panel Chairs.

Copies for distribution are available on request from EUMETSAT.

CGMS Members are invited to:

- take note of the fact sheet
- request printed copies from EUMETSAT (anne.taube@eumetsat.int)
- distribute it at appropriate venues

Action/Recommendation proposed: None

Fact sheet on GSICS/CGMS

1 INTRODUCTION

This working paper informs CGMS about a fact sheet created by EUMETSAT on CGMS's contribution to climate monitoring - GSICS.

2 PURPOSE AND SCOPE

Climate change is on the global agenda. This is evident since some time but also from recent discussions held at the WCC-3 in Geneva in September 2009. Furthermore, it has been recognised by the UNFCCC and it is expected to be embedded in the issues addressed at the COP-15 in Copenhagen in December 2009.

Observations from space contribute with unique information for decision making related to understanding, mitigation and adaptation to climate change, and hence CGMS Members are obvious contributors.

As a result EUMETSAT prepared a fact sheet "Global Space-based Inter-Calibration System – a CGMS contribution to climate monitoring". The text has been prepared by EUMETSAT in coordination with the GSICS Expert Panel Chairs.

The purpose of the fact sheet is to provide information on and promotion of CGMS contribution to climate monitoring. It is intended to be distributed at various venues, meetings etc. The fact sheet will be distributed at CEOS Plenary in November 2009.

CGMS Members can receive printed copies for further distribution by sending a request to EUMETSAT (anne.taube@eumetsat.int).

3 LAYOUT

This shows the layout of the fact sheet. The fact sheet itself with legible text is available in a separate pdf file.

Global Space-based Inter-Calibration System

A CGMS contribution to climate monitoring



Climate change is one of the greatest challenges facing mankind in the 21st century. Observations from space provide unique information which is essential for understanding, mitigating and adapting to climate change. This has been recognized by the United Nations Framework Convention on Climate Change (UNFCCC) and its subsidiary bodies.

The Coordination Group for Meteorological Satellites (CGMS) also makes contributions toward climate monitoring through initiatives such as the Global Space-based Inter-Calibration System (GSICS).

GSICS

GSICS is an international collaborative effort to coordinate and harmonize data from operational weather satellites to improve climate monitoring and weather forecasting. Initiatives were started in 1990 and were formalized at the 30th CGMS meeting in 2005. GSICS aims at ensuring consistent calibration and inter-calibration of operational meteorological satellite instruments to improve the use of space-based global observations for weather, climate and environmental applications. This is done through operational inter-calibration of the space component of the World Meteorological Organization's (WMO) World Weather Watch, Global Observing System (GOS) and Global Earth Observing System of Systems (GEOSS) for societal benefits.

GSICS is a new international programme to ensure the comparability of satellite measurements taken at different times and locations by different instruments operated by various satellite agencies. Sponsored by WMO and CGMS, it will inter-calibrate the instruments of the international constellation of operational low Earth orbiting and geostationary environmental satellites and tie these to common reference standards. The inter-comparability of the observations will result in more accurate measurements for assimilation in Numerical Weather Prediction models, construction of consistent long-term climate records providing the basis for improved climate analysis and climate prediction, and progress towards achieving the societal goals of GEOSS.

The French space agency Centre National d'Études Spatiales, China Meteorological Administration, EUMETSAT, Japan Meteorological Agency, Korea Meteorological Administration, the US National Aeronautics and Space Administration, National Institute of Standards and Technology, and National Oceanic and Atmospheric Administration currently participate in the programme.



OPERATIONAL OBJECTIVES OF GSICS

The current operational objectives of GSICS are:

- to ensure instruments meet specifications, procedures meet requirements to international system of units (SI) standards, and on-orbit satellite instrument observations are well calibrated by carefully analyzing instrument performance, satellite inter-calibration, and validation with reference sites;
- to improve the use of space-based global observations for weather, climate and environmental applications through inter-calibration of the space component of WMO GOS and GEOSS; and
- to enable the creation of stable long-term climate data records.

BENEFITS

The improved calibration and inter-calibration of operational satellite sensors resulting from GSICS is designed to lead to more accurate sensor observations and instruments-to-instrument measurement inter-comparability. Satellite will be realized in applications of satellite data to weather prediction, assessing global climate change, testing climate model predictions, and in achieving the societal goals of GEOSS.

WMO plans to use GSICS results in the Sustained Coordinated Processing of Environmental Satellite Data for Climate Monitoring (SCOPE-CM) initiative. Its objective is the continuous and sustained provision of high-quality Essential Climate Variables satellite products on a global scale, specified in the Global Climate Observing System Implementation plan.

Three priorities have been identified:

- development of a GSICS virtual library;
- on-orbit inter-calibration and verification of operational satellite observations; and
- development of satellite instrument calibration science and standards.

Furthermore, GSICS will cooperate with the user community to integrate the calibration results into weather and climate operations and research, and assess the impacts of improved observations.

FUTURE

Future plans include establishing closer ties with users including the climate and Numerical Weather Prediction (NWP) communities. A first end-to-end demonstration of improvements due to GSICS has been started and it plans to realize inter-calibrated instrument records and work with the climate community to generate climate data records, and with the NWP centres to evaluate the impact of improved satellite calibration on weather forecasts.

The GSICS programme will provide stable, inter-calibrated, unbiased satellite observations that will improve weather prediction, lead to early detection of climate change, permit testing of climate model predictions, and help GEOSS to achieve its societal goals.

For further information on GSICS, please visit the following website:
<http://www.cnr.it/nao/nao/gms/gms37/37thmeeting/CGMS37.htm>
<http://www.uno.int/nao/gms/gms37/37thmeeting/CGMS37.htm>





Layout of the fact sheet, front and back.

4 CONCLUSION

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