WORLD METEOROLOGICAL ORGANIZATION

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COMMISSION FOR BASIC SYSTEMS
OPEN PROGRAMME AREA GROUP ON INTEGRATED OBSERVING SYSTEMS

INTER-PROGRAMME EXPERT TEAM ON SATELLITE UTILIZATION AND PRODUCTS

ITEM: 7.1

THIRD SESSION

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SCOPE-NOWCASTING: GLOBAL QUANTITATIVE PRECIPITATION ESTIMATES (PILOT PROJECT 3)

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Summary and Purpose of Document

The SCOPE-Nowcasting precipitation project concluded the implementation and tests and is ready to be used by the global community. There are some potential new implementations that can be developed for a new version, but the actual product need to have more feedbacks from the users to prove the concept. The product has being used by some countries in a regular mode. Decisions about the future of this project and the operational implementation is necessary.

ACTION PROPOSED

The third session is invited to:

(a) Discuss if any other action is necessary or the project could be concluded;
(b) Discuss the mechanisms to make the SCOPE project award by the global users;

DISCUSSION

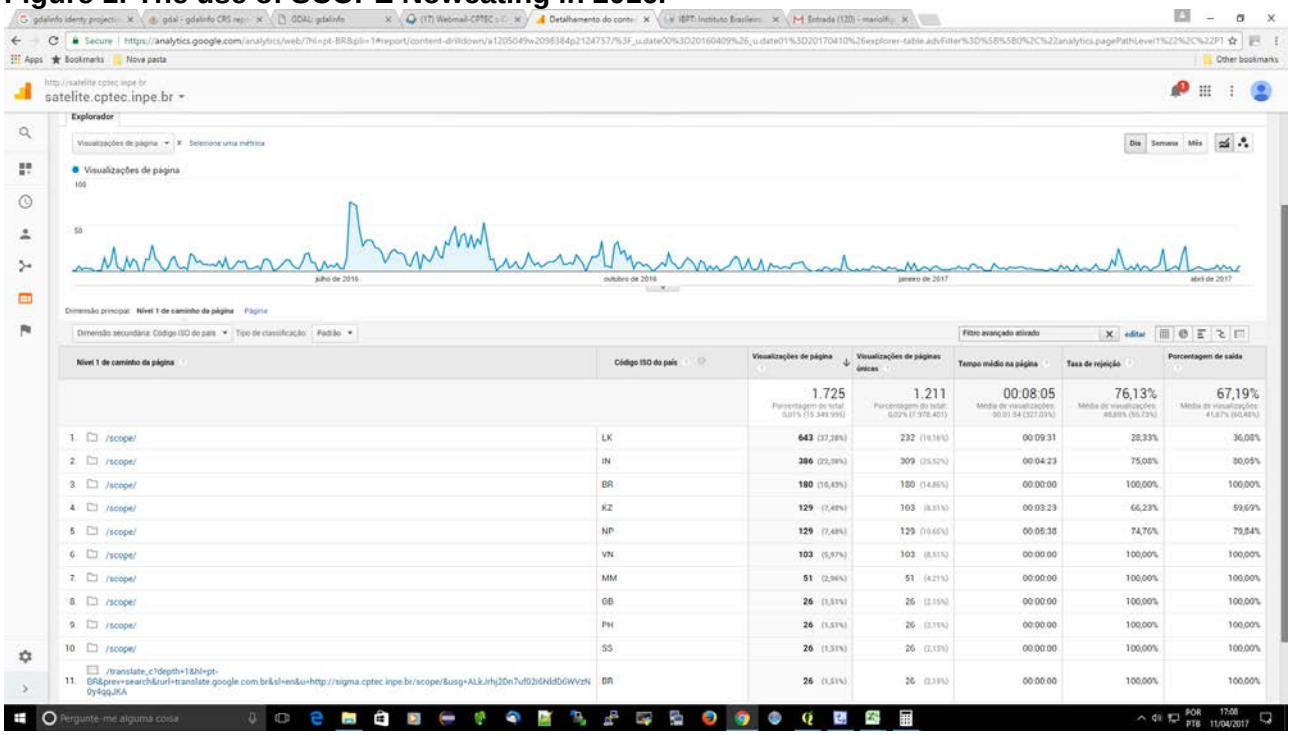
1. Introduction

This pilot project is based on the WMO Space Program effort to build a Sustained, Co-Ordinated Processing of Environmental Satellite Data for Nowcasting (SCOPE-Nowcasting) initiative to demonstrate continuous and sustained provision of consistent, well-characterized satellite products for nowcasting and severe weather risk reduction. This document provides the characteristics of a rainfall nowcasting pilot project for global application in real time through an open access web based system. This system provides up to three days rainfall accumulation and near real time one hour rainfall accumulation and the extrapolation for the next three hours. The system is based in a Geographical Information system that allow the users to zoom in out in a specified region, add different layers and follow the rainfall structures. The system is considered ready for operation after one-year tests. Some actions is expected as an official letter from WMO to INPE for the implementation in operational suite and the planned activities for the future. The general characteristics, technical details, basic products, and web service, were already introduced in the IPET-SUP-2

2. The use of the SCOPE-SIGMA nowcasting

Figure 1 shows the use of Scope-Sigma nowcasting in 2016. There were 1725 visualizations and about five access per day, however, sometimes the access can reach more than 50 access per day. Of course, it depends on the weather situation. Sri Lanka, India, Brazil, Kazakhstan, Nepal and Vietnam were the most important users.

Figure 1: The use of SCOPE Nowcating in 2016.



3. Potential Upgrade of the SCOPE-Sigma nowcasting

A global precipitation datasets has being implemented operationally to provide more precise rainfall data and shorter data latency. The former TRMM dataset was replaced by the IMERG dataset that is the new GPM generation. Others dataset can be upgraded to improve product quality and latency, in addition, the SCOPE-SIGMA can be implemented in an operation suite in near future. However, some steps are necessary before these new implementation, as WMO product advertisement, feedback from the users and the demonstration the real interest to make this product larger used, This points need to be discussed and definition and action should be taken, before news efforts be done on the product

upgraded.

4. The Integrated Multi-satellitE Retrievals for GPM (IMERG) -real time version- product

This dataset is the unified U.S. algorithm that provides the Day-1 multi-satellite precipitation product for the U.S. GPM team. The precipitation estimates from the various precipitation-relevant satellite passive microwave (PMW) sensors comprising the GPM constellation are computed using the 2014 version of the Goddard Profiling Algorithm (GPROF2014), then gridded, intercalibrated to the GPM Combined Instrument product, and combined into half-hourly 0.1°x0.1° fields. These are provided to both the Climate Prediction Center (CPC) Morphing-Kalman Filter (CMORPH-KF) Lagrangian time interpolation scheme and the Precipitation Estimation from Remotely Sensed Information using Artificial Neural Networks – Cloud Classification System (PERSIANN-CCS) re-calibration scheme. In parallel, CPC assembles the zenith-angle-corrected, intercalibrated “even-odd” geo-IR fields and forward them to PPS for use in the CMORPH-KF Lagrangian time interpolation scheme and the PERSIANN-CCS computation routines. The PERSIANN-CCS estimates are computed (supported by an asynchronous re-calibration cycle) and sent to the CMORPH-KF Lagrangian time interpolation scheme. The CMORPH-KF Lagrangian time interpolation (supported by an asynchronous KF weights updating cycle) uses the PMW and IR estimates to create half-hourly estimates. The IMERG system is run twice in near-real time. Specific information about this dataset can be accessed thought the following URL: http://pmm.nasa.gov/sites/default/files/document_files/IMERG_ATBD_V4.4.pdf