Status report of SCOPE-CM #10: AMV/CSR

Meteorological Satellite Center (MSC)

Japan Meteorological Agency (JMA)

Objective

- The major objective of this project is to provide Atmospheric Motion Vectors (AMV), Clear Sky Radiances (CSR) and All Sky Radiances (ASR) for the use in global and potentially regional Numerical Weather Prediction (NWP) model-based reanalysis.

- Furthermore, AMV data provided on regular grids may also be utilized in the analysis of dynamical systems in relation to water vapour transport or monsoon studies.

(e.g. SCM-04: Utility of Satellite derived winds for Monsoon and Cyclone studies over Indian region)

Toward goal of SCM-10: AMV/CSR

The major points to work on to reach the goal of this project are:

- Analysis of differences in AMV, CSR and ASR product definition, algorithms and processing chains for instruments in geostationary and polar orbit;
- Development of a plan for a more coherent product suite for all instruments;
- Enhancement of AMV algorithms with a quantitative uncertainty estimate;
- Establishment of a validation framework for AMVs by agreeing on a metric, certain quality analysed non-satellite observations and by utilising means from reanalysis centres;
- Enhancement of the documentation towards a coherent description of the products

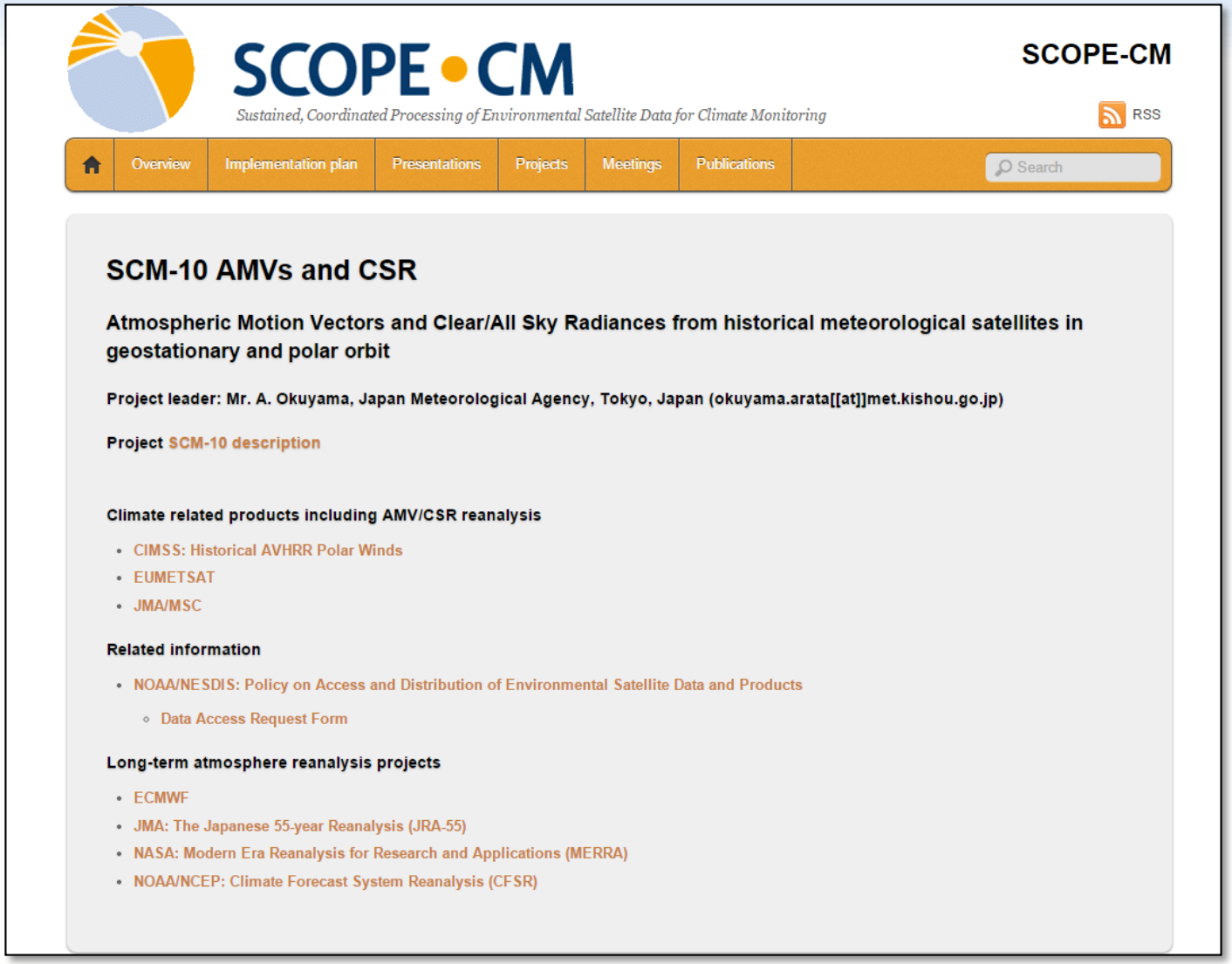
Duration of the project and schedule
(5 years from 1 Jan 2014)

– Review on the use of AMV and CSR in past reanalysis; – Analyze requirement for future reanalysis; – Analyze the differences in AMV product definition, algorithms and processing chains and develop a plan for a globally coherent product; – Perform feasibility analysis of GOES AMV processing with respect to satellite observation schedule and forward analysis result to reanalysis centres – Encourage other space agencies operating geostationary /polar orbital instruments to join the project; – Open a project portal site	2014	All All JMA, EUM, NOAA NOAA JMA, EUM JMA
– Build common validation framework following agreed metric involving radiosonde observations and tools provided by reanalysis centres; – Perform processing of geostationary products;	2015	EUM, JMA, NOAA EUM, JMA, NOAA
– Perform processing of polar orbit data; – Perform processing of geostationary products (continue); – Validate products from geostationary satellites; – Analyze feedback on early phase products from reanalysis centers	2016	EUM EUM, JMA, NOAA All
– Update the documentation of all products in coherent style; – Validate products from polar orbiting satellites;	2017	EUM , JMA, NOAA
– Analyze feedback on products from reanalysis centres and other applications and develop a plan for SCOPE-CM phase 3	2018	All

Summary in 2014

– Review on the use of AMV and CSR in past reanalysis;	All	✓ It was reported in IWWG-12 by Toshiyuki KURINO (presented by Kazuki Shimoji)
– Analyze requirement for future reanalysis;	All	---
– Analyze the differences in AMV product definition, algorithms and processing chains and develop a plan for a globally coherent product;	JMA,EUM, NOAA,	✓ In 2013, a workshop including EUMETSAT and CIMSS was held at ECMWF. The differences between the EUMETSAT and CIMSS algorithms were analyzed.
– Perform feasibility analysis of GOES AMV processing with respect to satellite observation schedule and forward analysis result to reanalysis centres	NOAA	✓ It was reported in IWWG-12. Hourly AMV datasets have been re-processed for GOES East/West from 1995 to 2013.
– Encourage other space agencies operating geostationary /polar orbital instruments to join the project;	JMA, EUM	---
– Open a project portal site	JMA	✓ A simple site is open on the SCM-10 Web page in Oct. 2014.

Project Portal Site



Related projects

- SCM-06 (IOGEO)
  - SCM-10 would seek close interaction with SCM-06: Inter-calibration of imager observations from time-series of geostationary satellites (IOGEO) through the experience from Global Space-based Inter-calibration System (GSICS) for reprocessing AMVs and CSRs/ASRs long term records.
- GSICS
  - GSICS provides bias corrections through the inter-calibration of satellite sensors with respect to selected references that can be applied to generate reprocessed CSR and ASR products as Fundamental Climate Data Records (FCDRs) and related Thematic Climate Data Records (TCDRs).
- IWWG
  - The project would seek close interaction with the CGMS International Winds Working Group (IWWG) to benefit from ongoing comparison activities that might need to be enhanced to cover the temporal dimension of the AMVs long term records.
- Reanalysis communities
  - The project would exchange information with reanalysis communities on their calculation plans and the quality. The best forum identified for discussion of data issues is the WCRP Data Advisory Council.

Thank you for your attention.