



ICWG Key Recommendations to CGMS

Presented to CGMS-50 Plenary Session, Agenda Item 4.7

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ICWG Summary

- The ICWG held a virtual intersessional meeting in September 2021. The meeting was hosted by EUMETSAT. ICWG plans for another intersessional meeting in 2022 and an in-person meeting in 2023.
- The ICWG continues to be organised with 4 semi-permanent sub-working groups (Algorithms, Assessments, Weather Applications and Climate Applications).
- Intercomparisons of cloud products remain an important activity of ICWG. The ICWG maintains a library of Golden Days that includes SEVIRI, HIMAWARI-8 and now GOES-16.
- New ICWG web site: <https://www.icare.univ-lille1.fr/hosted-content/crew/index.php/Welcome>

CREW 1 2007 - 25 ppl



ICWG-2 2019 - 75 ppl

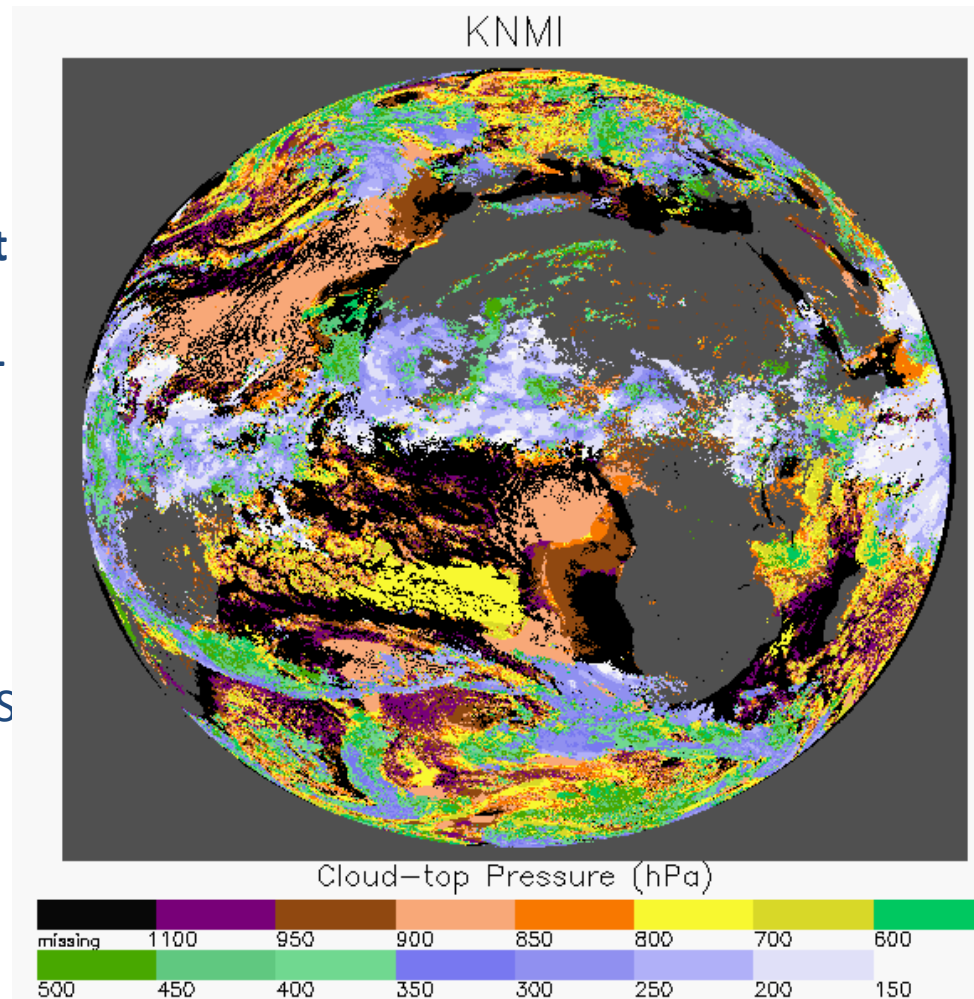


STATUS OF THE PREVIOUS CGMS RECOMMENDATIONS

HLPP 4.2.5: Develop best practices for evaluation and validation of cloud properties.

- We suggest that this recommendation be modified to read: **Assess the cloud properties generated from the geostationary and polar orbiting imagers and pursue best practices that lead to improved consistency and accuracy across the globe and the georing.**
- This action shows the heritage to the former Cloud Retrieval Evaluation Workshops (CREW).
- The ICWG is collaborating with the IWWG on analyzing the data from GOES-16 on October 20, 2019.
- Funding from space agencies is critical and appreciated for these analyses.

CTP values from agencies for same SEVIRI Image

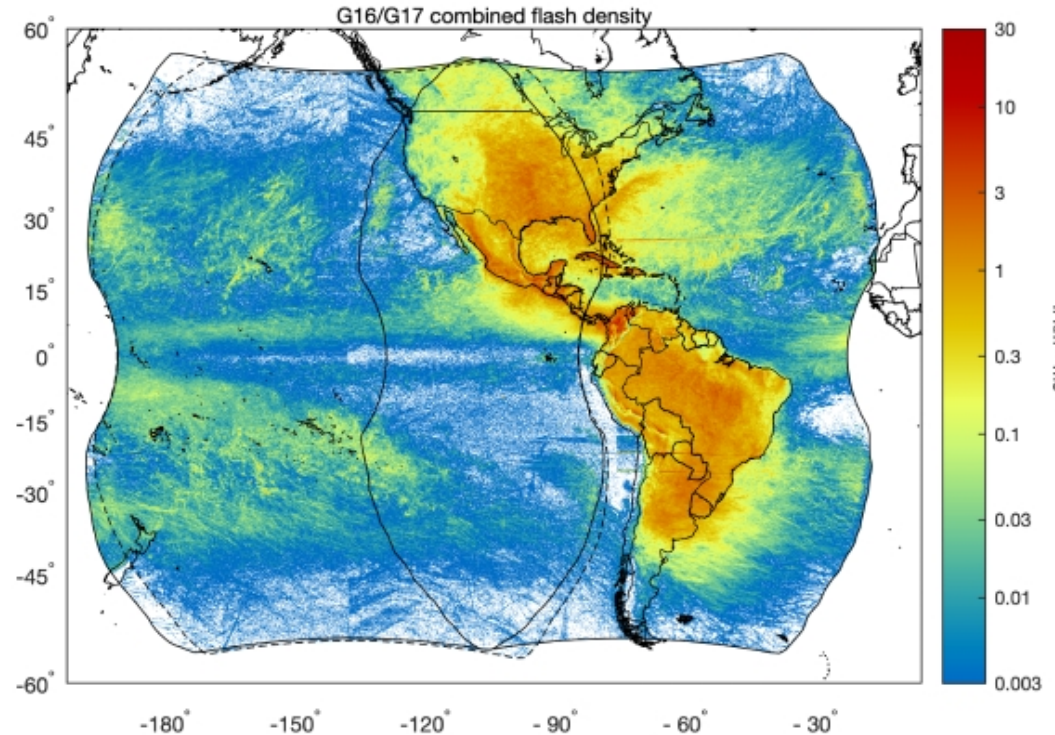


STATUS OF THE PREVIOUS CGMS RECOMMENDATIONS

A47.16: ICWG to organise a dedicated session (0.5-1 day) on lightning observations from space (calval, algos, applications and products)

Decided to merge this topical group with the severe weather topical group.

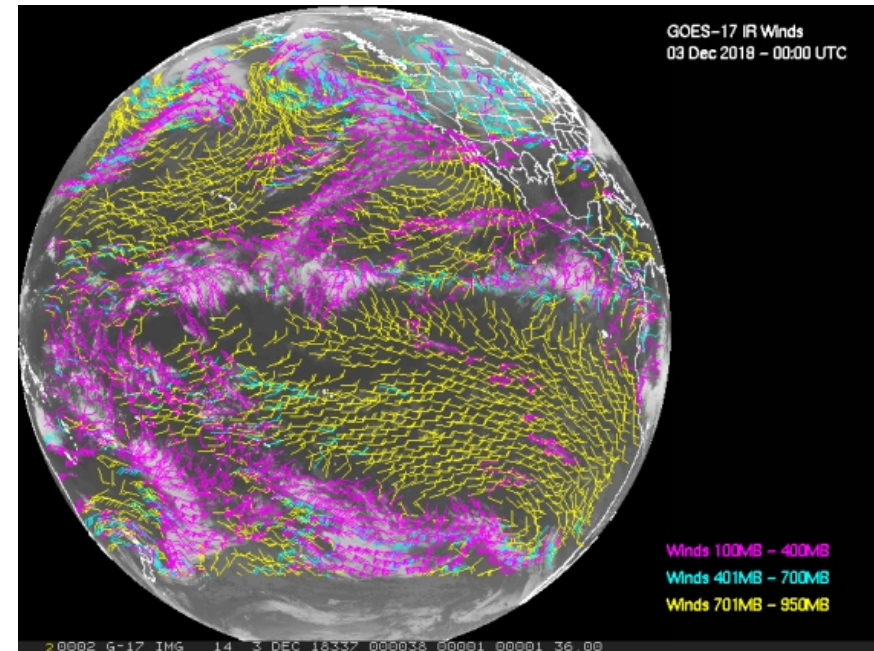
- Led by Scott Rudlosky (NOAA) and Jochen Grandell (EUMETSAT).
- Scott Rudlosky showed examples of the rapid progress in development of new GLM applications.
- Jochen Grandell and Sven-Erik Enno from EUMETSAT then introduced the status and the technical details of the MTG Lightning Imager
- The design is quite different from the GLM instrument. Most noteworthy is that measurements will sub-divide the MSG disk into four sectors.



STATUS OF PREVIOUS CGMS RECOMMENDATIONS

R47.04: ICWG and IWWG: ICWG to work with IWWG on the golden days observations to provide cloud height uncertainty for AMV applications

- Most operational Atmospheric Motion Vectors (AMVs) derived from VIS/IR imagers use cloud height estimates from cloud product algorithms.
- Cloud height performance is key driver of the AMV accuracy and its impact to NWP.
- In recognition of this interdependence, the IWWG and ICWG have formed a joint group to address the optimization of the cloud heights for the AMV application.
- ICWG and IWWG seek participation from all AMV + Cloud Height generators.
- ICWG and IWWG now share analysis of the same Golden Day data sets.



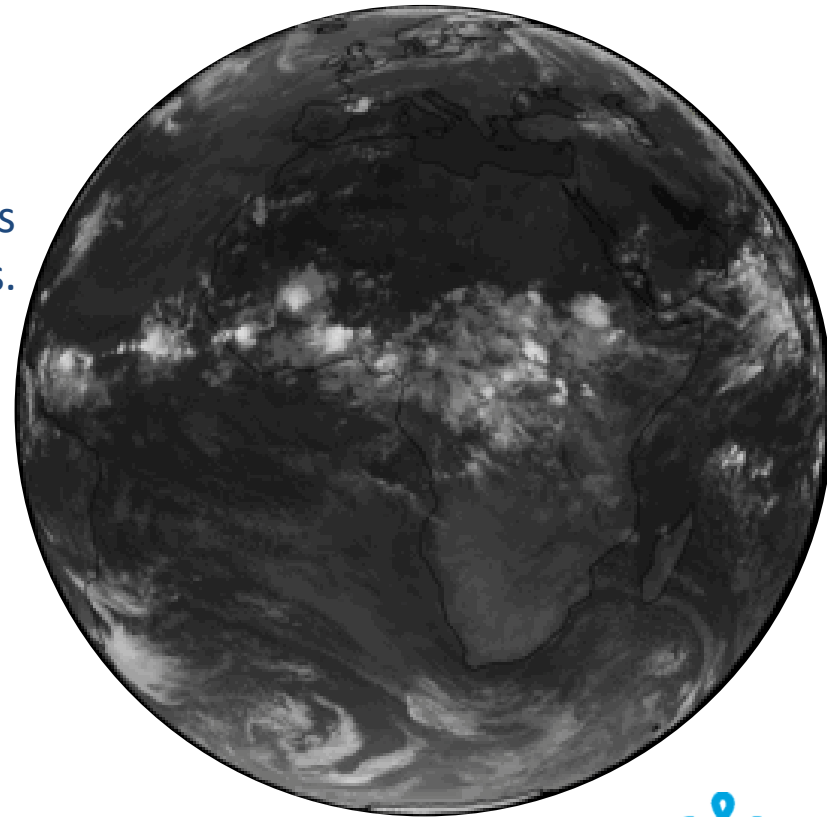
GOES-17 AMVs from 11 micron (J. Daniels, NOAA)

NEW CGMS RECOMMENDATIONS

Space Agencies participate as desired in the formulation and testing of the ISCCP-NG L1g and testing of L2 Cloud Products

- ISCCP-NG is a pilot project from WCRP/GEWEX to make a next generation of the International Cloud Climatology Project (ISCCP).
- Motivation is to exploit the vast new capabilities of the current and future geostationary imagers.
- A team from CIMSS, NESDIS, DWD and JMA have developed a gridded Level-1 (L1g) that combined all GEO data into a standard GEO-RING.
- Sample data and code are at cimss.ssec.wisc.edu/isccp-ng
- ISCCP-NG welcomes more involvement from other space agencies.

Example L1g RGB Imagery
Martin Stengel, DWD

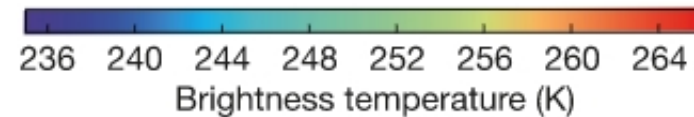
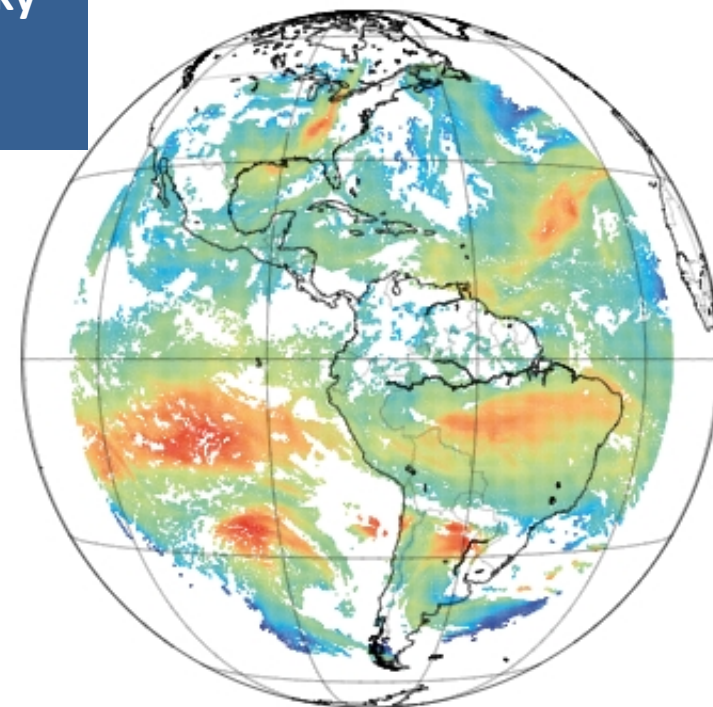


NEW CGMS RECOMMENDATIONS

ICWG invites users and generators of the Clear and All-sky Radiance Products to coordinate with ICWG to compare and improve product quality.

- Space agencies create an All-Sky Radiance (ASR) for NWP data assimilation. Clear-Sky is included.
- ASR uses cloud detection and height products from space agencies.
- ASR is used by all NWP centers since 2018.
- ASR format follows conventions from EUMETSAT.
- ICWG recommends that the cloud products used in ASR generation be compared and best practises developed for this application.
- ICWG will coordinate with ITWG.

GOES-16 CSR from Chris Burrows, ECMWF



GOES-16 water vapour channel data. Clear-sky radiances as measured by the 7.0 μm water vapour channel of GOES-16 at 00:00 UTC on 26 July 2018.

ICWG management and plans for ICWG-3

- The next official ICWG workshop, ICWG-3, should have taken place this year (2022). Although it would be theoretically possible to hold the workshop in 2022, the surge in post-pandemic meetings has made this problematic.
- Our approach is to hold another intersessional meeting in the summer of 2022 and plan for an in-person ICWG-3 in 2023. Our target venue remains EUMETSAT headquarters in Darmstadt.
- There is also a need to install new co-chairs of ICWG at ICWG-3. Both current co-chairs will resign at that time. We have two candidates: Kerry Meyer(NASA) and Martin Stengel (DWD). Andrew Heidinger is also volunteering to become the new ICWG rapporteur. We would like to finalize these changes.
- New site: <https://www.icare.univ-lille1.fr/hosted-content/crew/index.php/Welcome>

Backup Material

Summary of Other Previous CGMS Recommendations

- Dr Michael Pavolonis of NOAA is the lead of SCOPE-Nowcasting and will serve as a **liaison between SCOPE-Nowcasting and the ICWG** Topical Group on Severe Weather.
- CGMS members to **consider introducing multi-sensor (satellite and ground-based measurements) applications for convective nowcasting** when developing/updating product requirements.
- ICWG to work with IWWG on the golden days observations to provide **cloud height uncertainty for AMV applications**.
- IWWG chose October 20, 2019 as its Golden Day and the ICWG is analyzing the CTP data from the space agencies. A presentation will be made at the AMS Meeting in Madison, WI in August 2022.
- CGMS agencies to **continue operating conically-scanning passive MW sensors** in an early afternoon orbit as well as in a dusk/dawn orbit in order to maintain this unique long-term time series. Progress was made in the interaction of the ICWG

OTHER NEW RECOMMENDATIONS FOR CONSIDERATION BY CGMS

- The topical group on Cloud Modelling should offer its services to the Height/Winds Inter-comparison activity, especially regarding the multi-layer scene performance.
- Climate Data producers should adopt a uniform data description (e.g., in the form of standardized fact sheets) to create a better overview of existing cloud climate data records. It was also recommended for this topical group to focus on one common study area in advance of each individual ICWG event.
- Stereo cloud height producers should be invited to contribute to the activities of the topical group of Height/Winds.