

CGMS-48 VIRTUAL PLENARY SESSION ON 25-26 AUGUST 2020

GUIDELINES FOR THE THEMATIC SESSION ON HYPERSPECTRAL INFRARED SOUNDING (ITEM 4.2)

The thematic session on hyperspectral infrared sounding (HSIR) is scheduled on 25 August 2020 at UTC 12:20.

Session facilitator: Kenneth Holmlund, EUMETSAT.

SESSION OBJECTIVE:

- To review how CGMS agencies respond and plan to respond to the CGMS baseline that takes into consideration the requirements of the WMO Vision 2040 with regard to hyperspectral infrared sounding observations and the deployment of additional HSIR GEO satellites;
- To review recent results from hyperspectral infrared sounding applications (NWP and beyond);
- To exchange views on the relative importance on different spectral bands in support of planning for future GEO HSIR missions, short wave and long wave;
- To discuss the importance of the spectral gap in some instruments;
- To discuss the impact on downstream applications; and
- To discuss new applications besides NWP using HSIR observations, e.g. atmospheric chemistry, air quality (including emission detection), greenhouse gases, and 3D wind fields.

4.0 Setting the scene - Scope of HSIR for CGMS incl. WIGOS 2040

K. Holmlund (verbal introduction) [5']

Hyperspectral infrared sounding instruments have become a crucial part of the global observing system over the last decade and a half. Numerous meteorological satellite organisations operate instruments, and will in the future continue to operate such instruments, in both the polar orbit (CMA, EUMETSAT, NOAA, Roshydromet) and in the geostationary orbit (CMA, EUMETSAT). Even though the key driver for hyperspectral infrared sounding data is in support of global NWP, their importance for nowcasting, atmospheric chemistry, air quality (including emission detection), greenhouse gases, and 3D wind fields have also been demonstrated.

The purpose of this session will be to review how CGMS agencies plan to respond to the requirements of the CGMS baseline that takes into consideration the WMO Vision 2040 with regard to hyperspectral infrared sounding observations and to review recent results from hyperspectral infrared sounding applications.

There will be key note presentations addressing the WIGOS 2040 requirements, the impact of hyperspectral infrared sounding on NWP and regional modelling, and the international CAL/VAL coordination efforts.

Following these presentations, CGMS agencies will be invited to present:

- Their actual hyperspectral infrared sounding capabilities;

- Their future hyperspectral infrared sounding plans; and
- Hyperspectral infrared sounding applications areas covered by the agency.

4.1 Users' perspective: Hyperspectral infrared sounding - Needs and requirements

- **Impact of HSIR on NWP (T. McNally, ECMWF) [15']**

The WIGOS 2040 requirements and the impact of hyperspectral infrared sounding on NWP, short range studies, nowcasting, the international CAL/VAL coordination efforts, and the global impact of a third orbit.

- **Impact of HSIR on regional modelling (H. Lin, NOAA) [10']**
- **Impact study on Korean Integrated Model (NWP) of proposed hyperspectral infrared sounder on GK2A follow-on satellite (D. Kim, KMA) [10']**
- **Impacts of potential usage of hyperspectral IR sounders on Himawari-8/9 follow-on satellites; and OSSE results for hyperspectral infrared sounder (K. Bessho/M. Takahashi, JMA) [10']**
- **OSSE results for GEO hyperspectral infrared sounding (J. McCorkel, NASA) [10']**

4.2 CGMS space agency response (status, plans, orbits, campaigns, data exchange, applications) (CAL/VAL aspects will be addressed within the framework of WGII)

(Please use .ppt template provided)

- **CMA progress in hyper-spectral sounding (Q. Guo/C. Qi) [10']**
- **EUMETSAT plans and applications (D. Coppens) [10']**
- **Use of IKFS-2 hyperspectral infrared sounder and Roshydromet plans concerning WMO Vision 2040; and Russian FTIR spectrometers for meteorological satellites: Flight experience and further development (A. Rublev/D. Kozlov) [10']**
- **IASI/IASI NG experience and development of science and scientific applications for NWP, climate and air quality (C. Deniel) [10']**

[CNES will present its IASI/IASI NG experience through its technological aspect and also with the promotion for the development of science and applications for NWP, climate and air quality with the scientific community]

- **High resolution infrared spectroscopy (J. Kaye) [10']**

[NASA does not fly meteorologically-oriented hyperspectral infrared sounders but are likely developing relevant technology involving high resolution infrared spectroscopy]

4.3 Wrap-up and conclusions [30']

The Coordination Group for Meteorological Satellites



CGMS-48 plenary session, 25 - 26 August 2020, Virtual/WebEx

Coordination of CGMS agencies' response to the requirements of the WMO Vision 2040 with regard to hyperspectral infrared sounding observations and the deployment of additional HSIR GEO satellites.

List of pocs identified in 2019:

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AGENDA

<https://www.cgms-info.org/agendas/agendas/CGMS-48>

WORKING PAPERS/PRESENTATIONS

Meeting information including the submission of working papers and presentations are available on the CGMS website (<https://www.cgms-info.org/agendas/Guides.aspx>).

MEETING INTERVENTION GUIDELINES

Meeting intervention guidelines will be provided under separate cover in due course.

DEADLINES

- Working Paper title changes if any to the CGMS Secretariat - **24 July 2020**
- Provision of Working Papers to the CGMS Secretariat - **3 August 2020**
- Provision of presentations to the CGMS Secretariat - **12 August 2020**
- Meeting registration - **14 August 2020**

QUESTIONS

If you have any questions regarding the meeting, please do not hesitate to contact the CGMS Secretariat at cgmssec@eumetsat.int directly.