Final Agenda for the EUMeTrain MTG Event Week – 8-12 December 2025

	Monday (8 DEC)	Tuesday (9 DEC)	Wednesday (10 DEC)	Thursday (11 DEC)	Friday (12 DEC)
Morning 10-11 UTC		**MTG data access & visualization** - *Natasa Strelec Mahovic (EUMETSAT)*	**GIIRS Applications for Weather Nowcasting and Forecasting** - *Jun Li (National Satellite Meteorological Center, CMA)*	**Detection of fog and low clouds** - *Djordje Gencic (EUMETSAT)*	**Satellite ocean colour: what does colour really tell us about our seas?** - *Hayley Evers King (EUMETSAT)*
		MTG-S/IRS - *Xavier Calbet (AEMET/NWC SAF)*	**Atmospheric Composition** - *Pierre Coheur (ULB)*	**Turbulence & waves** - *Ivan Smiljanic (EUMETSAT)*	**What does MTG bring to SST monitoring** - *Gwenaël LE BRAS (Meteo-France)*
Afternoon 13-14 UTC *(Note: first day starts with the afternoon block at 12 UTC)*	**Different start time: 12 UTC** **General introduction to MTG-S (IRS and UVN)** - *Stephan Bojinski (EUMETSAT)*	**Shadows in FCI imagery** - *Ivan Smiljanic (EUMETSAT)*	**Towards operational all-sky assimilation of MTG-S1 IRS data** - *Suzana Panezic (DHMZ)*	**ESSL MTG-S** - *Pieter Gröenemeijer (ESSL)*	
	Different start time: 12:30 UTC **IRS L2 (EUMETSAT)** - *Stephan Stapelberg (EUMETSAT)*	**Assimilation of MTG data by ECMWF** - *Chris Burrows (ECMWF)*	**Possible ways to visualize IRS L2 data** - *Zsofia Kocsis (HungaroMet)*	**Detection of snow, ice & supercooled water clouds** - *Roxane Desire (Meteo-France)*	

MTG-I – FCI ***MTG-S (IRS & UVN)*** ***MTG data assimilation*** ***Ocean color & SST***

Abstracts

Chris Burrows (ECMWF): ***Assimilation of MTG data by ECMWF***

Three instruments on the MTG platforms are of key interest to numerical weather prediction (NWP) centres; FCI, LI and IRS. For FCI, infrared radiances are already being assimilated operationally at ECMWF, and work is underway to test the assimilation of visible reflectances. Also, atmospheric motion vectors (AMVs) from FCI are being used to provide wind information. Cutting edge advancements have been made to prepare the ECMWF system to assimilate lightning data from FCI, though this is not yet activated operationally. Preparations are also being made in readiness for the distribution of data from IRS, which will provide high vertical resolution as well as rapid temporal sampling. This presentation will provide a high-level overview of these activities.

Djordje Gencic (EUMETSAT): ***Detection of fog and low clouds***

This presentation focuses on the detection of fog and low clouds with the Flexible Combined Imager (FCI) on Meteosat Third Generation. It highlights the significant advancements over SEVIRI — particularly the improvements in spatial, temporal, spectral, and radiometric resolution — that greatly enhance the ability to identify, monitor, and characterize fog and low cloud dynamics.

Gwenaël LE BRAS (Meteo France): ***What does MTG bring to Sea Surface Temperature monitoring***

The MTG-I1 launch introduced the Flexible Combined Imager (FCI), boosting spatial and temporal resolution for Sea Surface Temperature (SST) retrievals. OSI SAF focused first on maintaining service continuity by developing a new Level 3 product matching current MSG resolutions. Higher input resolution from FCI enhances product quality, especially through improved cloud masking. Research is also underway to create a new high-resolution SST product leveraging FCI's advanced capabilities. The MTG-S1 recent launch will further expand SST coverage, with the processing of the new InfraRed Sounder (IRS) data.

Hayley Evers King (EUMETSAT) - ***Satellite ocean colour: what does colour really tell us about our seas?***

Satellite-based measurements of ocean colour quantify the visible light reflected from the ocean surface. These data represent the interactions between light from the sun and the various constituents that can be present in our ocean waters. As such, this signal can be 'decoded' by a range of techniques to provide information on these constituents. This presents an evolving array of societally relevant applications, from fisheries and aquaculture management, to water quality warnings, and climate reporting. This presentation will cover some fundamentals of ocean colour theory, current missions and products, and examples of this data in use.

Ivan Smiljanic (EUMETSAT):
Shadows in FCI Imagery
When light travels through the atmosphere it can interact with it or with the features in it, leaving shadows that can be taken as clues and signatures on that interaction. From that, experts can read about different properties of various features that interacted with light, giving out the shape, height, distribution, optical thickness and even the dynamics of the features. In this session you will hear how advanced resolution of FCI reveals many new shadows, previously not well (or not at all) observed with SEVIRI imager, and you will learn how these shadows can assist experts and operational meteorologists in their daily work.

Turbulence and Waves
Turbulence and waves in the atmosphere, like in other fluids, are signatures of usually dynamically strong processes that cause these disturbances. Also, they can be very dangerous on their own and can propagate to different parts of the atmosphere. Waves and turbulence behave differently in different fluids, and are seen differently with different spectral channels, thus not always easy to identify through satellite data. In this short lecture we will show you how these regular and irregular atmospheric motions are after all captured by advanced FCI instrument, and how that makes our everyday lives safer.

Jun Li (National Satellite Meteorological Center, China Meteorological Administration): ***GIIRS Applications for Weather Nowcasting and Forecasting***
Progress has been made on the applications of high-temporal-resolution GIIRS observations. These include but are not limited to deriving three-dimensional (3D) wind fields for nowcasting and NWP assimilation, trending atmospheric instability for warning in pre-convective environments, and monitoring diurnal variation of atmospheric composition. This presentation provides a summary on the current applications of GIIRS, discusses the data processing challenges, and provides perspectives on future development.

Nataša Strelec Mahović (EUMETSAT): ***MTG data access & visualization***
EUMETSAT provides access to meteorological satellite data through a suite of platforms designed to support operational forecasting, research and developments and climate monitoring. Users can receive near real-time data from all of the EUMETSAT's satellite missions via the EUMETCast Europe, EUMETCast Africa and EUMETCast Terrestrial broadcast systems, use EUMETSAT Data Store to download near real-time and historical data via a web user interface (Web-UI) and/or Application Programming Interface (API), and the data not found in the Data Store, users can download from the EUMETSAT Data Centre (long-term archive) using the data centre ordering client. Visualization tools, ie the EUMETView online map viewer and ADAGUC for NWCSAF products visualization, enable exploration of multispectral imagery and derived products. The presentation will give an overview of EUMETSAT data access and visualization tools.

Roxane Desire (Meteo France): ***Detection of snow, ice & supercooled water clouds***
With the operational deployment of MTG, there are now various methods available for detecting snow on the ground. RGB products, in particular, provide high-contrast images that help distinguish snow on the ground from the underlying surface, low clouds, or ice clouds. We will also explore some important nuances to consider. Finally, still in the context of winter-related issues, we will discuss how these same RGB products can be used to detect supercooled water clouds, which can be responsible for ground ice formation or aircraft icing.

Stephan Bojinski (EUMETSAT): General introduction to MTG-S (IRS and UVN)
An overview of Meteosat Third Generation (MTG) and the InfraRed Sounding mission is provided. The MTG-S satellite was launched on 1 July 2025 with an InfraRed Sounder (IRS) on board, passively measuring upwelling radiance in 1953 channels from geostationary orbit, every 30 min over Europe, and less frequently over other areas of the Earth disc. Valuable retrievals of humidity and temperature are expected with vertical resolution of 1-2km and spatial resolution of ~6-7km over Europe, complementing model-derived fields or radiosonde profiles. IRS is also sensitive to atmospheric trace gases such as NH3, SO2 and CO. Since this capability is a first-ever for EUMETSAT and its users, significant user training is required to visualise and interpret the data directly, e.g., in nowcasting applications. Strong impact on improving weather forecasting skill is expected by assimilating IRS radiances in NWP models, similar to data from its IASI sister missions in polar orbit. EUMETSAT informs its member states regularly informed about the status of IRS testing and release of early data via its MTG User Preparation user group and the Core NWP user group.

Stephan Stapelberg (EUMETSAT): ***Level 2 products from EUMETSAT's first geostationary hyperspectral Infrared sounder mission***
The Infrared Sounder (IRS) aboard Europe's new meteorological satellite offers high-resolution, frequent atmospheric observations to enhance weather forecasting. Using EUMETSAT's piecewise linear regression method, it retrieves detailed temperature, humidity, and ozone profiles with uncertainty estimates. These data, combined with cloud information and Instability indices, are expected to improve the performance of numerical weather prediction (NWP) models, particularly in the context of severe storm forecasting

Suzana Panezic (DHMZ): ***Towards operational all-sky assimilation of MTG-S1 IRS data***
The InfraRed Sounder (IRS) on MTG-S1 will provide radiance measurements every 30 minutes across 1960 spectral channels, offering new opportunities to improve high-resolution weather forecasts. To fully exploit these data for operational use, assimilation methods are extended beyond clear-sky conditions to include observations affected by clouds. The Okamoto all-sky method is tested in the regional numerical weather prediction model AROME, employing IASI radiances as a proxy until IRS data are available.

Xavier Calbet (AEMET/NWC SAF): ***MTG-S/IRS***
The MTG-S/IRS will be an infrared hyperspectral sounder in geostationary orbit, providing high spectral resolution radiances with a refresh rate of 30 minutes over the LAC-4 region (approximately the northern quarter of the IRS disk) and three consecutive slots every several hours over the rest of the LAC regions. The spatial resolution will be of 4 km at nadir. The MTG-S/IRS instrument will have close to 2000 channels in the thermal infrared which will allow the retrieval of temperature and water vapour profiles of the atmosphere at an unprecedented vertical resolution from geostationary orbit. The accuracy of the temperature and water vapour retrievals obtained from infrared sounders varies depending on the altitude, scene cloudiness and actual temperature and water vapour profile. The best accuracy and vertical resolution is typically obtained in the mid-troposphere,while the worst one is in the lower layers of the troposphere. Furthermore, retrievals show a good accuracy even over cloudy scenes reaching up to 80% cloud fraction. On average, the typical accuracy of infrared hyperspectral retrievals is approximately of 1 K in 1 km layers for temperature and 15% in 2 km layers for humidity. With these impressive specifications, it is highly likely that this instrument will be a breakthrough in meteorology and particularly in nowcasting in convective scenarios. It will be possible to estimate stability parameters with relatively high accuracy over all regions with less than 80% cloud fraction, every 30 minutes in the northern

part of the Earth's disk with a spatial resolution of 4 km at sub-satellite point. Some preliminary tests have been made with a similar polar orbiting instrument, IASI. Results from a small sample of case studies look very promising.

Zsofia Kocsis (HungaroMet): Possible ways to visualize IRS L2 data
The Infrared Sounder (IRS) onboard the MTG-S1 is the first geostationary sounding instrument to perform measurements over Europe with a temporal resolution of 30 minutes. EUMETSAT will provide temperature and water vapour profiles, together with instability indices derived from these measurements, thereby offering complementary information to Numerical Weather Prediction (NWP) model outputs and radiosonde observations for nowcasting applications. In this talk we will show different visualization of IRS Level-2 (L2) test data.