



Reception, Processing and
Display of Satellite Imagery

Display of
Satellite
Imagery

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 **ibl** weather
software
solutions

OVERVIEW

Satellite Weather is a powerful and reliable solution that lets you easily access, process and visualise satellite data with focus on geostationary meteorological satellites, including the newest MTG.

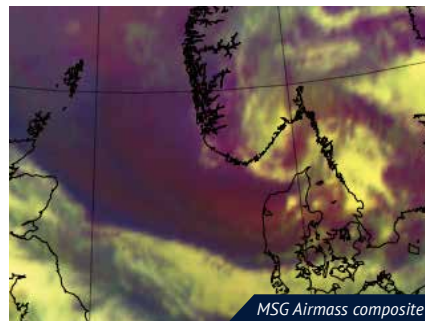
It is designed for stability and automatic non-stop operation. It provides a high flexibility of options hidden behind a user-friendly graphical interface for configuration of the desired products.

With powerful visualisation, Satellite Weather helps you to monitor and analyse weather patterns with satellite technology, generate accurate insights and predictions for various meteorological applications. The abilities can be further extended by integration with Visual Weather.



SERVER FEATURES

- Composition of segments and producing complete image data
- MTG-I data processed using PyTroll service
- Subsetting, remapping into standard projections
- Calibration to reflectance or brightness temperature
- Output in WMO GRIB2 (for MSG, Himawari)
- Output in CF NetCDF (for MTG-I)
- Automatic image production (PNG, JPEG, ...) and dissemination
- Corrections: solar zenith angle, parallax, IR3.9 reflectance component and CO₂ correction, rayleigh-scattering correction for MTG
- Graphical user interface for easy configuration of desired spectral channels, output formats, areas and resolution, corrections, etc.
- Monitoring of incoming segments and produced output
- Redistribution, archiving and housekeeping of processed and other received data



Satellite data used in screenshots: (c) EUMETSAT



BASIC ARCHITECTURE

Data mainly from EUMETCast (using Tellicast and DVB-S2 receivers), EUMETSAT Data Store or Himawari-Cast/Cloud:

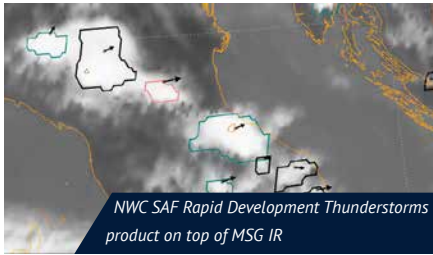
- Receiving server - Receiving data from EUMETCast (using Tellicast and DVB-S2 receivers) or EUMETSAT Data Store
- Processing server
- Workstations for visualisation (optional)



WORKSTATIONS

Features of the workstation software:

- Multiple layers in one map (e.g. SAF data on top of MSG imagery)
- RGB composites incl. your own formulas
- Sandwich products (add detail to IR using a higher-resolution visible channel)
- Customisable colour palettes
- Geographic overlays
- Time navigation, animation loops, zoom, pan and tooltips
- Map legends (data time, colour scale, your logo)



INTEGRATION

Output from Satellite Weather in GRIB2 / CF NetCDF format can be provided to the Visual Weather (fully featured meteorological workstation). This enables:

- Overlay of satellite data with:
 - radar, lightning and other observations
 - tropical cyclone tracks
 - NWP model fields, surface analysis, etc.
- Use satellite images as guidance for drawing forecast products (analysis charts, SIGMET, ...)
- Provide satellite data via OGC Web Map Service (WMS) for web applications (including Online Weather), or other GIS use cases
- Alert on thresholds from satellite image

The output can be provided as pre-computed tiles to allow workstations or Visual Weather access the big data efficiently.

FTP/SFTP upload and other distribution channels allow integration with other systems as well.



SUPPORTED DATA

IMAGERY

- MSG (HRIT format)
- MTG-I (CF NetCDF segments)
- Himawari (HRIT or HSD format)
- GOES-R series (ABI L1b, ABI L2 format)

NWC SAF / GEO

- Cloud Top Height
- Cloud analysis products
- Precipitation estimate products
- Rapid Developing Thunderstorms (RDT)
- High Resolution Winds (HRW)
- More image and vector products

Land SAF (LSA)

- Land Surface Temperature
- Surface Albedo, Surface Solar Irradiance
- Snow Cover, Vegetation Cover, Leaf
- Area Index, etc.

Ocean and Sea Ice SAF (OSI)

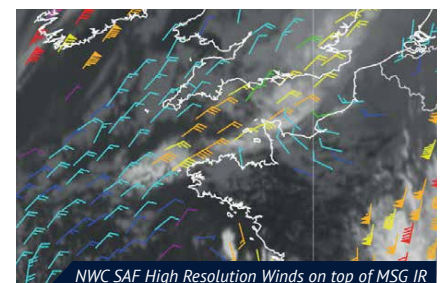
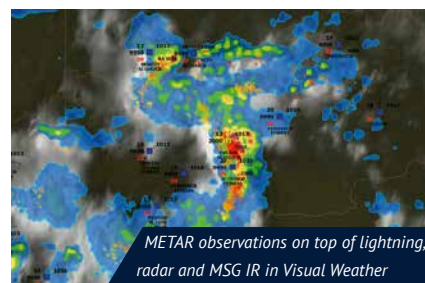
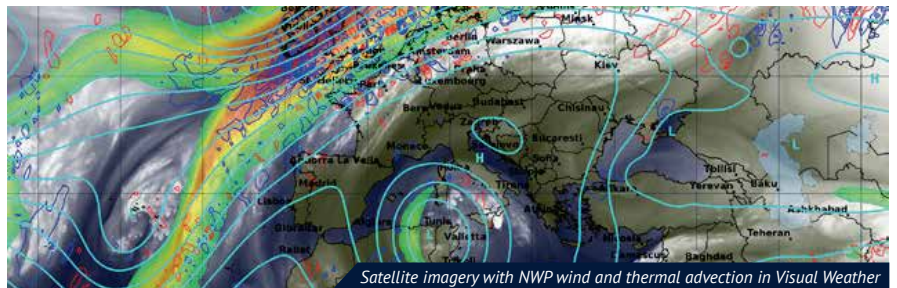
- Sea Surface Temperature
- Sea Ice, Sea Winds
- Radiative Fluxes

MPEF (including RSS and IODC)

- Global Instability Index (GII, RII)
- Atmospheric Motion Vectors (AMV)
- Cloud analysis products
- Cloud Top Height, etc.

OTHER

- Lightning data (MTG LI, GOES GLM)
- Hydro-Estimator satellite rainfall estimates
- and more





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IBL Software Engineering builds its reputation on 45 years of tradition in the field of Meteorological IT development. Dating from its first Automated Meteorological Message Switching Systems, the branch in Frankfurt, Germany, was established in 1988, while the branch in Bratislava, Slovakia was opened in 1997. IBL Software Engineering is employing IT specialists working exclusively in the Meteorological IT Environment with a high level of professional expertise.

IBL Software Engineering is ISO 9001:2015, ISO 27001:2013, and ISO 14001:2015 certified in the scope of development, supplying, installation, and maintenance of software for meteorological information systems. As a representative of Hydro-Meteorological Equipment Industry it is recognized by WMO and IBL's experts are participating in the number of WMO Expert Teams. IBL pays close attention to the advancements in BUFR, IWXXM, Amendment 81, GRIB3, etc. and its products fully comply to the following standards:

- WMO Manuals on Codes 306, on Global Telecommunication System 386, on Global Data Processing System 485
- ICAO Annex 3 up to Amendment 81 and ICAO Regional SIGMET Guides as of 2023
- SADIS workstation requirements 1.1 April 2021

PRODUCT PORTFOLIO

If the integration of all meteorological data processing systems is the key factor for the effective operation of your business, then with the IBL product portfolio your integration efforts are minimized, because IBL systems are designed to closely cooperate to provide the desired synergy.

No
meteorological
office is an
island, entire
of itself.

