# visual
# weather

**Display data from any place on Earth in any way you want – in real time.**

**Schedule automatically executed tasks and support users in performing all daily tasks**
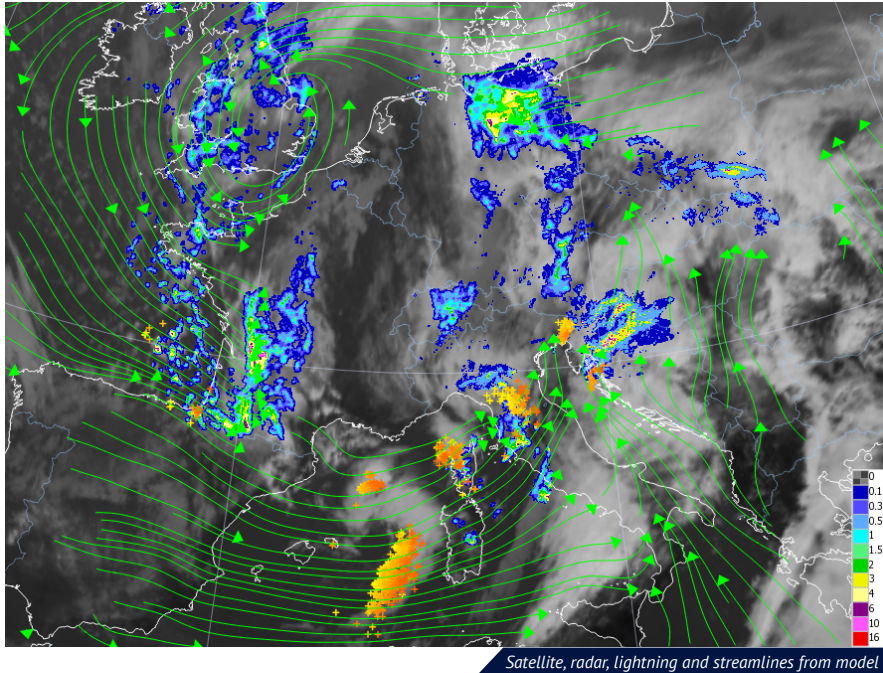
Visualization
**without limits**

## ibl
weather
software
solutions

# REAL-TIME VISUALISATION

**Visual Weather is a meteorological software for reception, processing and graphical representation of meteorological data, monitoring of incoming messages and values, production of textual (TAFs, public forecasts) and graphical products (SWL, surface analysis, etc.), including tools for managing forecast roles and workflows, automatic generation of image products and other functionalities for fulfilling the tasks of a meteorological service.**



*Satellite, radar, lightning and streamlines from model*

## VISUALISATION OF ANY DATA

Visual Weather allows to overlay any of the available data types: topography, station observations (SYNOP, METAR), NWP model data, SIGWX, satellite and radar images, etc.

- Wide range of options for customizing the content and the look of each layer
- Unlimited high-quality zooming, panning and area changing
- Multi-wiew function to allow to display the same map in multiple windows for different times, levels or models

## CROSS-SECTIONS AND METEOGRAMS

It is possible to view the NWP model, observation, satellite or radar data as a route-cross-section or a meteogram.

- Route or time cross-sections can be quickly displayed by simply clicking the desired route or place on a map
- Users can interactively change the location or route and the time range by using the side window

## THERMODIAGRAMS

Thermodiagrams can be plotted on the basis of NWP model, TEMP, PILOT or AMDAR as Skew-T, Stuvegram, Tephigram, Aerogram or Hodogram.
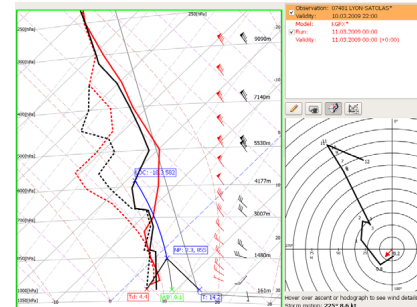


Following functionalities are supported:
- Roaming profile: display of thermodiagram for any point clicked on the map
- Easy comparison of thermodiagrams from multiple sources
- Interactive construction tools and computation of wind-shear between levels
- Tabular display of temperature, winds stability indexes, wind-shear, etc.



*Wind, humidity and icing route cross-section*

# UNIQUE FEATURES


K-index
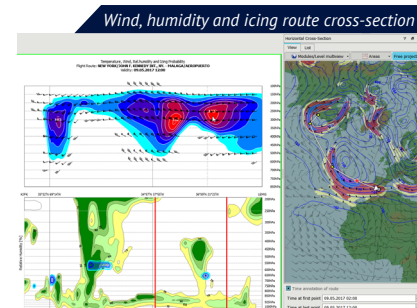
## ADVANCED COMPUTATIONS

Visual Weather features a powerful mathematical subsystem that allows to decode values from received data and define calculations using any of over thousand predefined functions to:

- perform numerical calculations across different NWP model fields: difference of two different models or two forecast times, construction of probabilistic fields (max, min, average) from different models or forecast periods
- create value-added charts displaying the new computed parameters, thermodynamic indices, vorticity and advection parameters, thickness, wind chill index, etc.
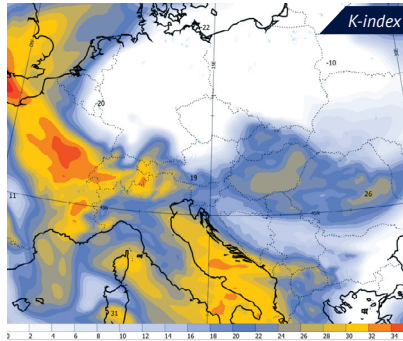
## AUTOMATED PRODUCTION

Automate tasks that do not require human intervention. Most users run batch production 24/7 which includes:

- Automatic load balancing across multiple servers
- Producing graphical maps for websites, presentations
- Saving animation loops (WEBM, GIF)
- Generating tabular sheets from models, observations, and calculations
- Calculating derived NWP fields with 80+ configurable algorithms: thunderstorm & turbulence indices, 0-degree temperature heights, ensemble percentiles & thresholds, etc.
- Running scripts leveraging VW Python API



## ON SCREEN ANALYSIS (OSA)

On-Screen Analysis✳ allows to analyse the observed data (METAR, SYNOP, TEMP) creating a regular grid data, with the following features:

- The analysed parameter joins all relevant observations from various report types
- A NWP model is used for comparison, quality control with observation and completing areas where no observations are present
- Ability to manually correct or reject observations with immediate update of the analysis
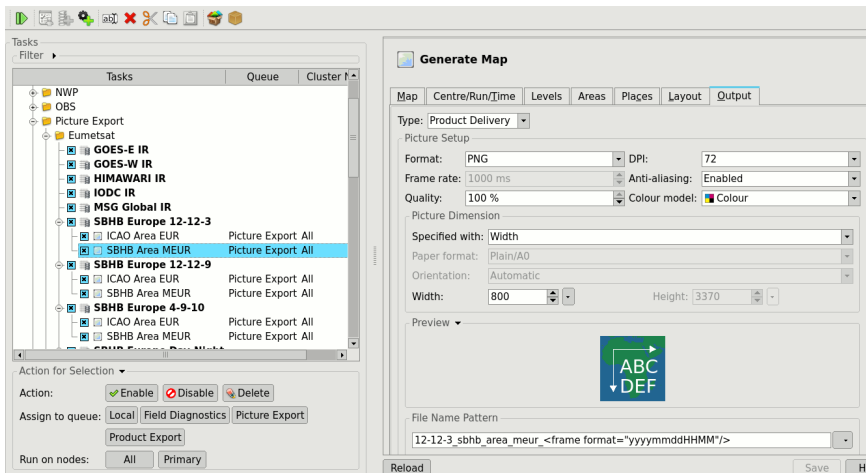- Field can be exported into GRIB for later reuse in other products

✳ On Screen Analysis contains algorithms created by the UK Met Office and fall under the Crown Copyright.

## ALERTS & TAF MONITORING

Option to monitor observations, NWP models, lightning detection system, radars for user defined thresholds and areas.

- Alerts are displayed on main display as map points and tables
- Special TAF Monitoring tool allows to compare TAFs to latest METARs and display notifications about significant differences

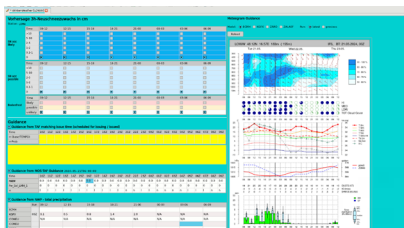# FORECAST AND ALERT PRODUCTION


**visual weather**

## PRODUCTION AND WORKFLOW

Assign graphical and text production tasks to roles and set due times and product issue windows. Task lists encourage timely completion of work by alerting users if deadlines are at risk. Observe the workload on all job positions at a glance. Prepare work ahead of time and schedule for later issuing. Receive alerts if distribution fails. Enable automation for products that support it.







## WEATHER CHART DRAWING

Users can place weather objects on any map background: fronts, clouds, turbulences, thunderstorms, convective areas, isobars, annotations, and 70+ more:

- Geolocated objects that can be combined with other data and products
- Produce standard aviation charts: low-level
- SIGWX, SIGMET, AIRMET, Volcanic Ash Advisory with translation to TAC & IWXXM.
- Export to GeoJSON, GML, KML, Shapefile, etc.
- Fully customisable drawing styles
- Collaborative drawing
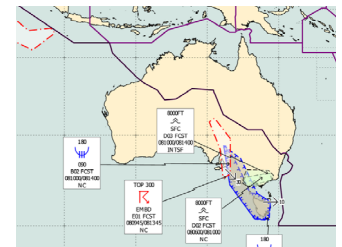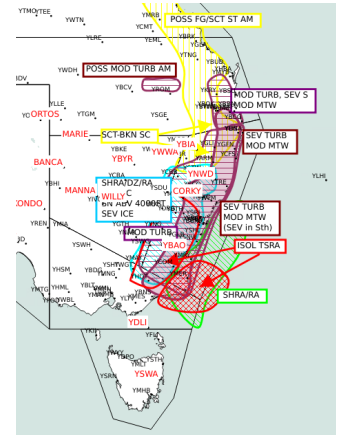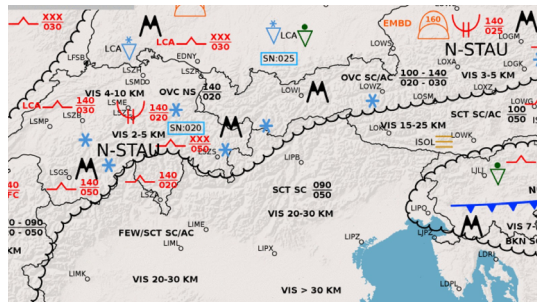






## TEXT-BASED PRODUCTION

Visual Weather enables meteorologists to create text-based forecasts and alerts. Users can design the entry forms or seek help from IBL. A single form can generate multiple outputs (text, HTML, PDF, LibreOffice, JSON, XML). Visual quality can be fully customised using templates. Results can be published online, sent to social media and customers, or integrated into apps.

- First-guess values from model, calculations, or previous entry
- Structured forms or free text (including bold, italic, colours, lists)
- Display guidance data (model, external sources)
- Validation to prevent errors
- Spell-checker
- Extend with Python plugins

# INTEGRATION AND SCALABILITY

## INTEGRATION LEVELS

By reflecting the newest technologies Visual Weather ranks as the world's top meteorological visualization and processing system. It features:

- Data input integration
- Wide range of outputs: maps, meteograms, tables, combined products
- Ready for future (updates with new functions and future data formats)
- Built-in web server implements OGC WMS, WCS, WFS and EDR services for exposing weather as charts, coverage grids, and points to provide data to web applications and external users
- Online Weather applications are built using OGC services
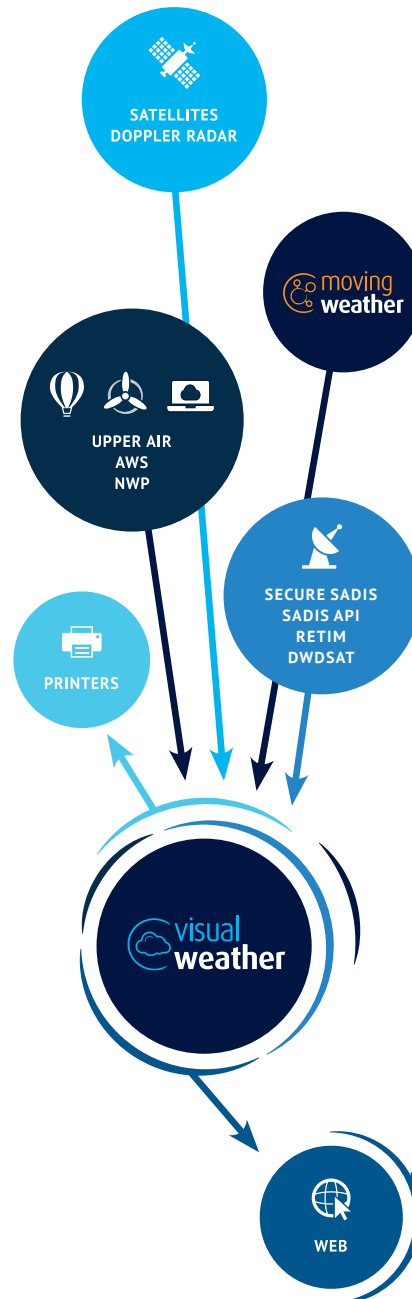- Extensible through Python API: plugins, bespoke applications

### Deployment Scalability

Visual Weather can be deployed in many ways. Common operational schemes are:

- Client/server architecture – server shares its database and presets with individual client desktops or laptops. Servers can be clustered for high availability (HA) or load balancing. User profiles can be accessed from any client.
- Remote desktop protocols – users connecting via Citrix or other RDP stacks
- Standalone workstation – everything running on one PC or laptop

### System Compatibility

- Runs on modern 64-bit Windows and Linux (RHEL and Debian derivatives)



SATELLITES DOPPLER RADAR

moving weather

UPPER AIR AWS NWP

SECURE SADIS SADIS API RETIM DWDSAT

PRINTERS

visual weather

WEB

USERS

USERS

## DIVERSITY OF DATA INPUT

Visual Weather is very flexible in the reception and transmission of data. It is able to receive, store and process various data types and inputs, including:

- Satellite broadcast reception
- Message Switching Systems
- Surface observation network
- Remote-sensing portable instruments
- SADIS Secure FTP, SADIS API, WIFS, EUMETCast, DWDSat, RETIM, ISCS
- TCP/IP WMO stream protocol
- Download files from FTP, SFTP, Amazon S3 buckets, Azure Blob Storage
- Aeronautical data (TAC, IWXXM)
- Table driven formats (BUFR)
- Gridded data from NWP numerical models (incl. rotated and ensembles) of atmosphere, oceans or sea surface
- Wind profilers
- Lightning detection systems
- Meteorological radars (Doppler, 3D volumetric, side views)
- Satellite images
- NowCasting systems
- Customer-specific data

For full technical specifications contact **sales@iblsoft.com**.

**ibl** weather software solutions
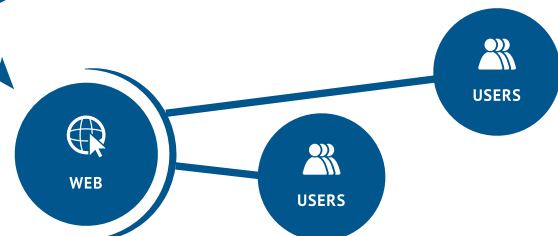
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IBL Software Engineering builds its reputation on 45 years of tradition in the field of Meteorological IT development. Dating from its first Automated Meteorological Message Switching Systems, the branch in Frankfurt, Germany, was established in 1988, 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.**

Integrate all data, products and services

**aero** weather

**numeric** weather

**satellite** weather

**climate** weather

**online** weather

**recode** weather

**open** weather

**moving** weather