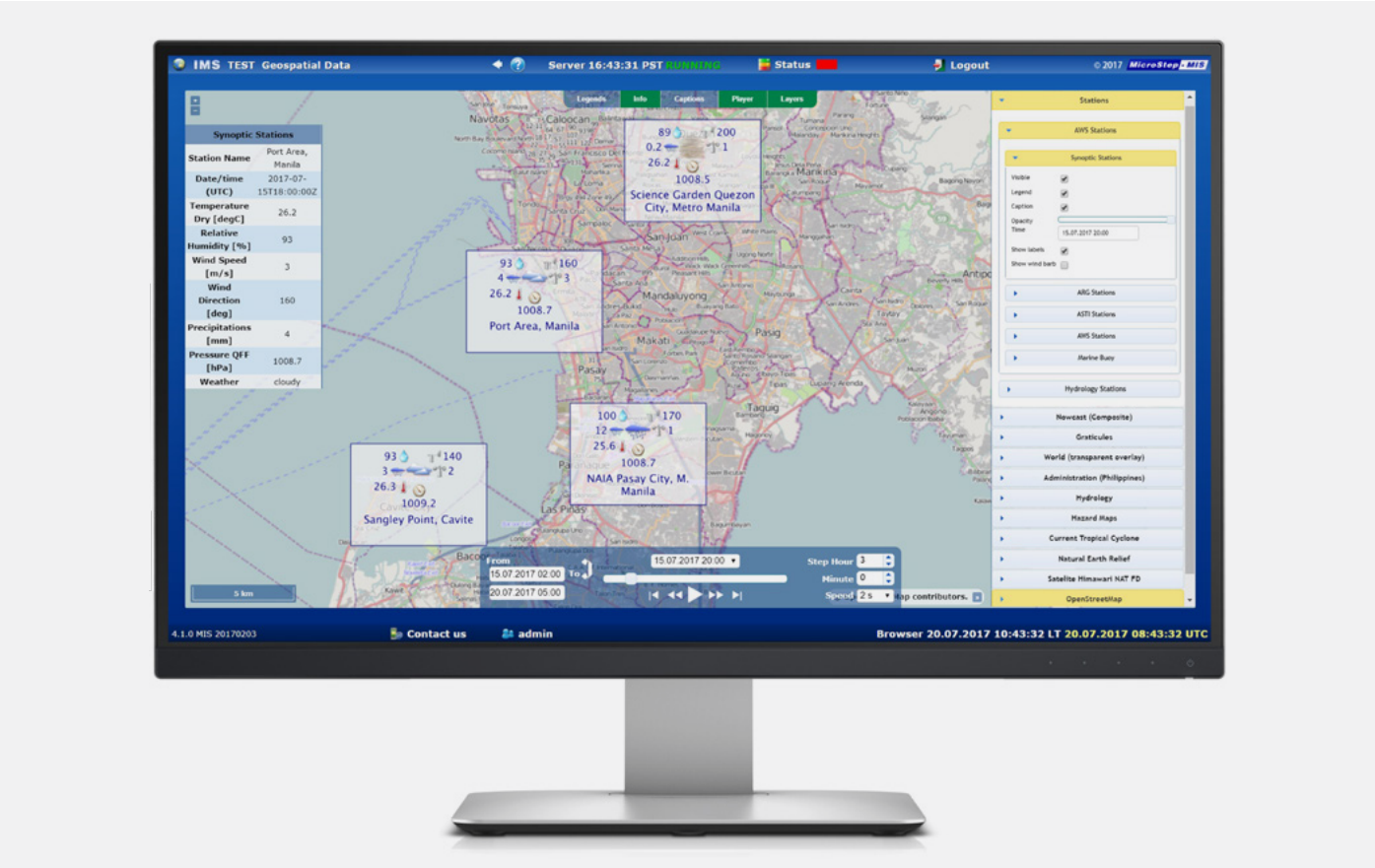
IMS4 Maps

IMS4 Maps is a tool for processing, editing and sharing on the web of the geospatial data, both static data sets (topography) as well as current, historical or forecast, surface or upper air meteorological, climatological, hydrological, radiation and/or other environmental ones.



Data inputs

Integrating the best of the IT as well environmental science worlds, IMS4 Maps process the data in numerous formats:

- SQL geospatial data such as PostGIS, Oracle Spatial, ArcSDE
- Shapefiles, GeoTIFF, JPEG2000
- GTOPO30, ECW, MrSID
- Web based maps such as OpenStreetMaps, etc.
  - OpenStreetMap data stored in the local database or from 3rd party source (organization's server) including the counties, etc.
- OPMET data such as SYNOP, METAR/SPECI, TAF, SIGMET, IWXXM, etc.
- NWP/dispersion/climatic/marine model data such as GRIB, GRIB2, NetCDF
- Weather radar data such as BUFR (OPERA), HDF
- Radiation data such as ANSI N42.42
- Satellite data such as XRIT (EUMETSAT, HIMAWARI, COMS)

Data output

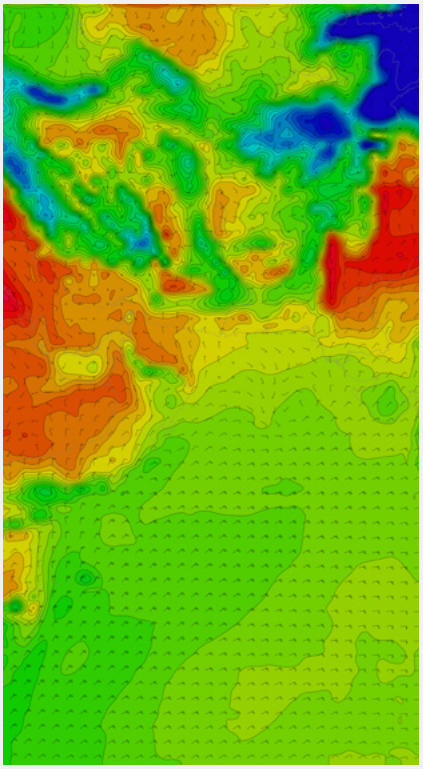
The IMS4 Maps produces the data in KML, GML, Shapefile, GeoRSS, GeoJSON, PDF, JPEG, GIF, PNG, SVG and more formats on output. The 2D data sets can be displayed in the forms of the colored fields, contours, isolines, iso surfaces, gradients. The wind data can be visualized as wind barbs, streamlines or particle animation. In addition, one can edit data via the WFS transactional profile (WFS-T). Although IMS4 Maps come with the integrated web client for previewing data layers, thanks to compliance with the OGC standards any OGC web service enabled client software can access the IMS4 Maps server.

Modular architecture

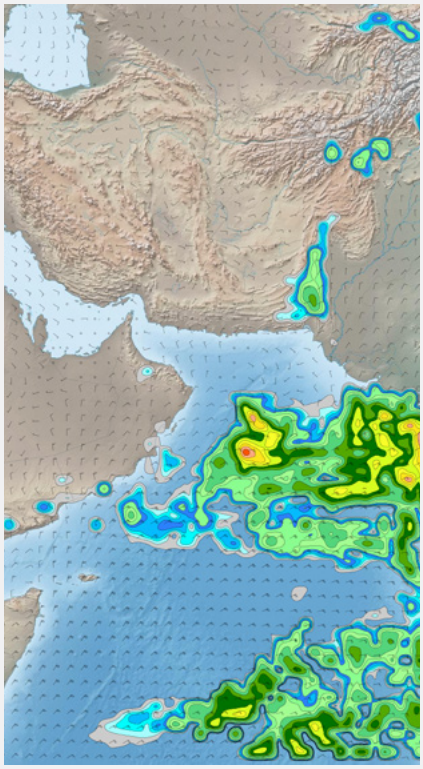
The modular structure of the IMS4 Maps software allows to setup the combination of the modules tailored to the particular system needs:

- IMS4 Maps basic - core IMS4 Maps engine, obligatory module
- IMS4 Maps database - IMS4 engine for communication with database, obligatory for modules presenting database layers
- IMS4 Maps offline openly licensed map integration
- IMS4 Maps offline map custom area
- IMS4 Maps radar product layer - Layer for displaying various

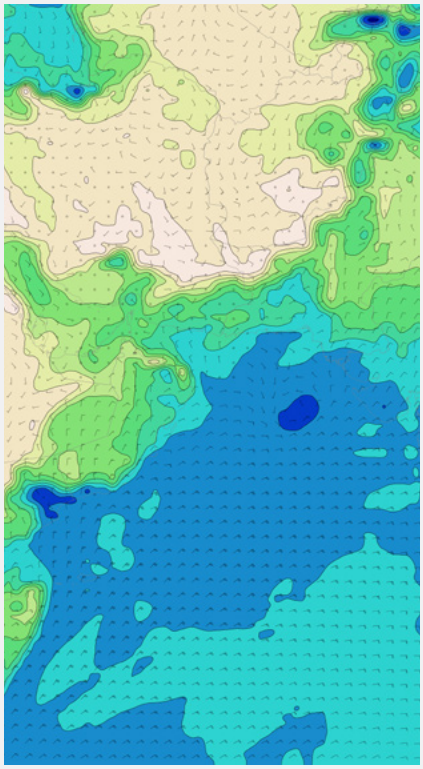
radar products. Supported formats are: HDF5
- IMS4 Maps NWP model layer - Layer for displaying numerical weather predictions in GRIB format.
- IMS4 Maps SIGWX map layer - significant weather charts layer
- IMS4 Maps static raster layer - Layer displaying georeferenced rastered image
- IMS4 Maps single parameter raster layer - Layer displaying georeferenced rastered image dependent on one variable (e.g. time)
- IMS4 Maps multi parameter raster layer - Layer displaying georeferenced rastered image dependent on more variables (e.g. model run and forecast time)
- IMS4 Maps static database layer - Layer displaying static data from database
- IMS4 Maps parameterized database layer - Layer displaying data from database dependent on one or more parameters
- IMS4 Maps remote WMS layer - Layer displaying information from remote WMS server
- WMO/OASIS Common Alerting Protocol layer - Layer visualizing the warnings



Wind and temperature



Wind and precipitation

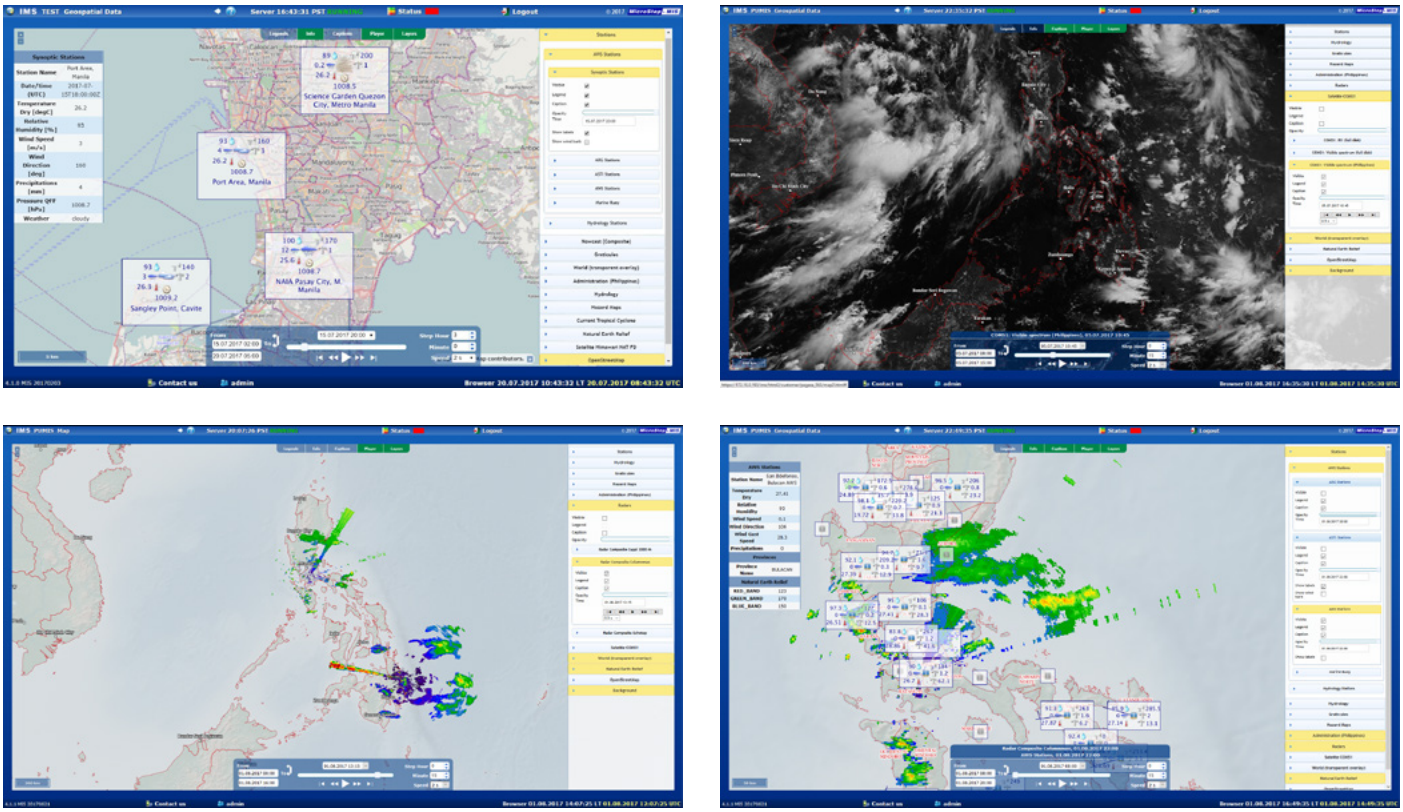


Wind and relative humidity

IMS4 Maps Client

The IMS4 Maps web client provides users with an easy to use interface to access, browse and animate various data layers which include but are not limited to:
- Overlay, switch on/off, reordering of the layers
- Setting layer transparency
- Applying custom filtering and styles to layers for enhanced visualization
- Zoom in / zoom out, pan, rotate functionality
- Browsing the model data through model runs, forecast times, vertical coordinates
- Integration with IMS4 UDCS and IMS4 EnviDB databases
- Displaying of station actual and / or historical values (measured / calculated parameters, status information) in digital and / or symbolic forms
- Indication of the warning situations and station alarms
- Smart tooltips showing the actual values in each layer upon mouse click, trends, meteograms or additional information
- Time dimension animation over multiple layers simultaneously
- Measurement of distances, areas etc. with option to select the specific unit.
- Multiple window management, synchronization in time/space
- Chart editor tool with library of meteorological objects and standard operations like creation, deletion, rotation, moving, duplication, grouping
- Export of window content into the graphical format (BMP,

JPEG, GIF, PNG, GeoTiff), export the animations into the video format
- The scenes created by the particular user can be saved and later quickly reloaded.
- Data from SYNOP, METAR, BUOY, TEMP (TAC/BUFR) can be visualized in various styles (digits, station model, icons, etc.). The data can be visualized and clustered depending on thresholds, regions, type of variable.
- The ensemble NWP models are supported, the minimum, maximum, average and median values, percentile forecasts for the variables can be obtained, as well as probability of forecast reaching the specific threshold can be calculated.



IMS4 Map Client - Synoptic stations data visualization

Compliance with standards

- ICAO Annex 3 Meteorological Service for International Air Navigation
- WMO No. 306 Manual on Codes
- OGC Web Map Service 1.3.0, 1.1.1
- OGC Web Feature Service 2.0.0, 1.1.0, 1.0.0
- OGC Web Coverage Service 2.0.1, 1.1, 1.1.1, 1.1.0, 1.0.0
- OGC Web Process Service 1.0.0
- ISO 19142 = WFS 2.0.0
- ISO 19128 = WMS 1.3.0

Integration with other IMS4 products

- IMS4 UDCS Unified Data Collection System
- IMS4 EnviDB Environmental Database
- IMS4 RadarStudio
- IMS4 Satellite Weather Data