

Creating Overlays in PUMA-2025



Importance of Overlays in the Forecasting Process

- Overlays are graphical layers added to base maps or satellite imagery to display specific meteorological data.
- They help forecasters and users interpret weather patterns by integrating multiple data sources into a single, coherent visual.
- Overlays play a crucial role in the weather forecasting process, particularly in visualizing and interpreting complex meteorological data.



Key Functions of Overlays

Data Integration

- Combine various datasets (e.g., temperature, wind, precipitation) on one map.
- Allow forecasters to see how different weather elements interact spatially.

Enhanced Visualization

- Make abstract data (like pressure gradients or jet streams) easier to understand.
- Use color coding, symbols, and contours to highlight critical features.

Improved Accuracy

- Help identify weather patterns and systems, such as fronts, troughs, and convergence zones.
- Support better model interpretation by showing real-time observations alongside forecasts.

Decision Support

- Aid aviation, agriculture, and emergency services by providing tailored overlays (e.g., turbulence zones, fire risk areas).
- Help pinpoint areas of concern for warnings and alerts.

Temporal Analysis

- Enable comparison of data across time by layering past, present, and forecasted conditions.
- Useful in tracking storm development or movement.



Creating overlays in PUMA 2025

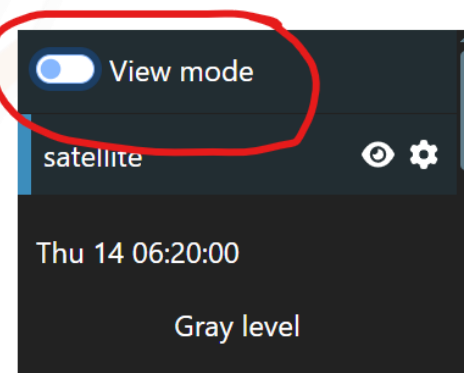
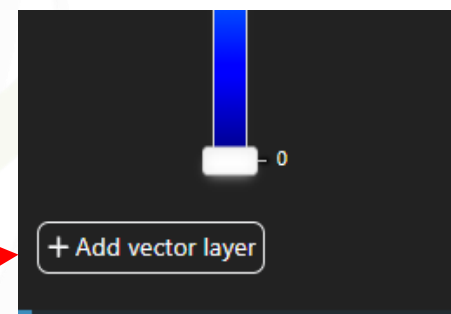
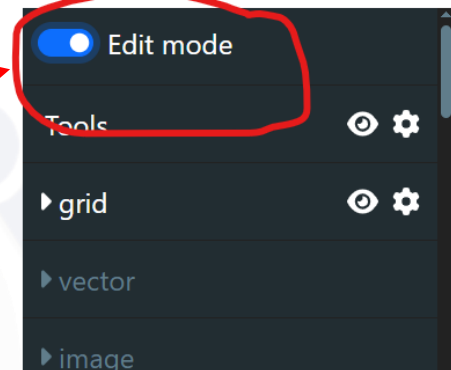
- This is done using the right-hand column on the display panel.
- Ensure that you are in edit mode

Step 1: Click and open the drop-down menu of the initially created template on which you want to superimpose the other types of events or information to see the different parameters previously entered.

Step 2: Click on “Add product vector layer” then enter the various parameters of the model or the desired data.

Step 3: To intuitively view all the products, you just have to click on the “Edit mode” button in blue to deactivate it and switch to “View mode” in white.

- View mode allows one to show or hide any overlaid parameters desired.



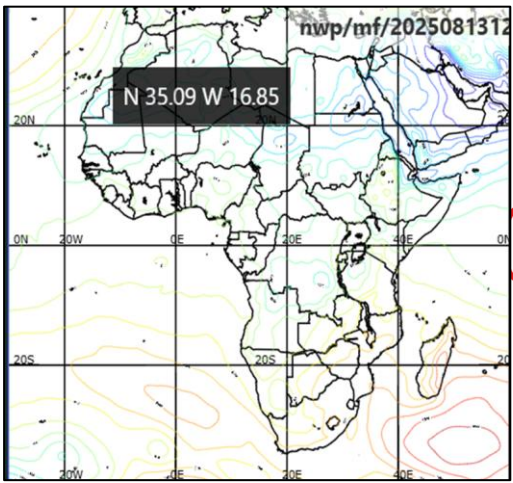


Possible Overlays in PUMA 2025

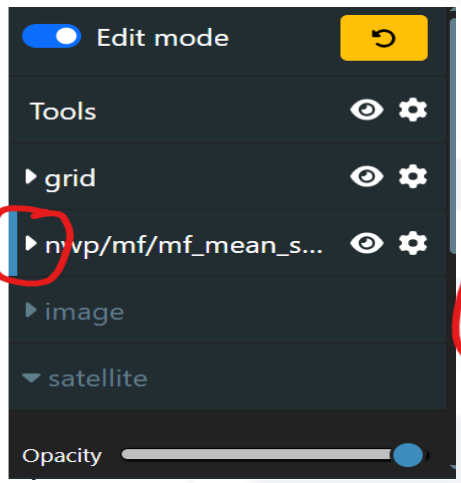
- Satellite and NWP products
Meant to understand the current conditions, and for nowcasting
- NWP and NWP
Designed for forecasting, allowing the overlay of any NWP forecasted data sets to understand the evolution of current conditions.
- Satellite with satellite
- Satellite with SAF products
Helps a forecaster investigate any weather phenomena on satellite imagery, e.g. A Satellite image with LI data
- Meteorological Data Dissemination (MDD) and NWP
- MDD and satellite data



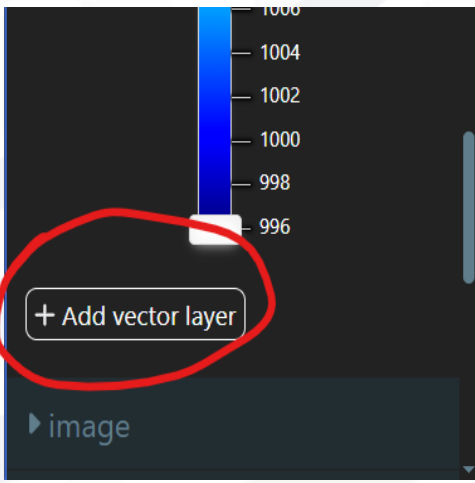
Overlay NWP with NWP



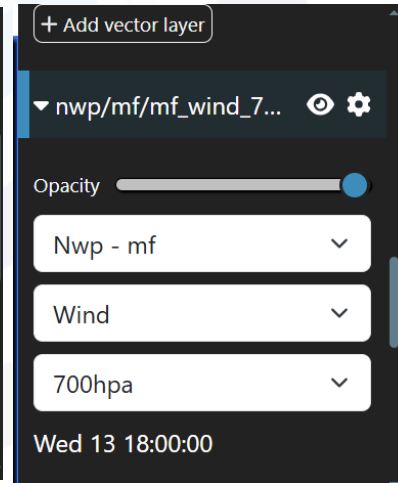
Step 1: Load the NWP MF mean sea level data



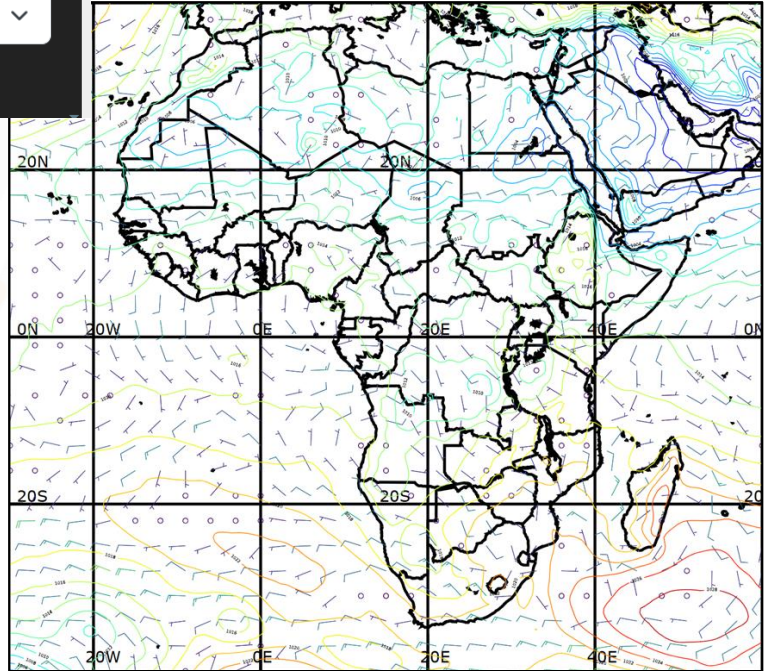
Step 2: On the right column, click on the arrow to expand the NWP.



Step 3: Click "Add vector layer"

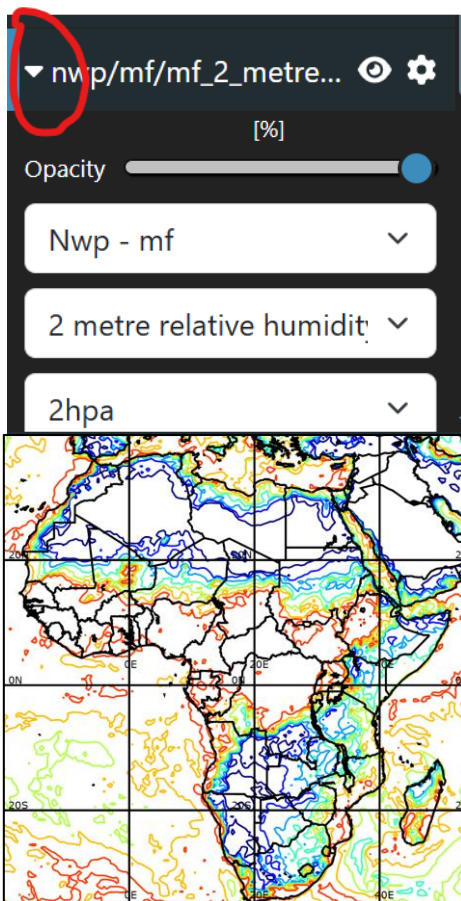


Step 4: On the drop-down arrow, choose the NWP MF data set, then select wind at 700hpa

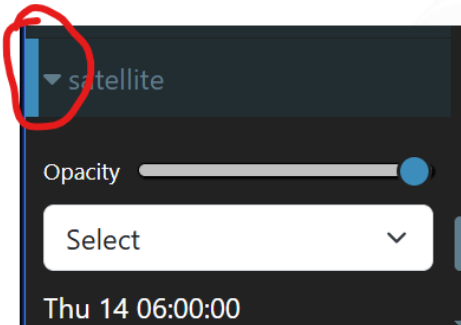




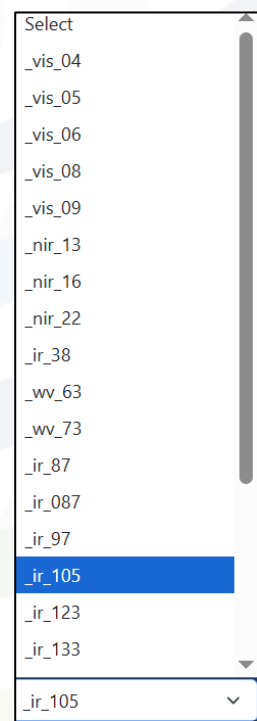
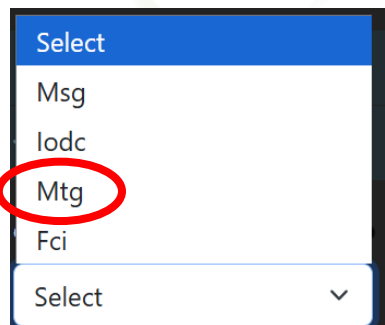
Overlay NWP and Satellite Data



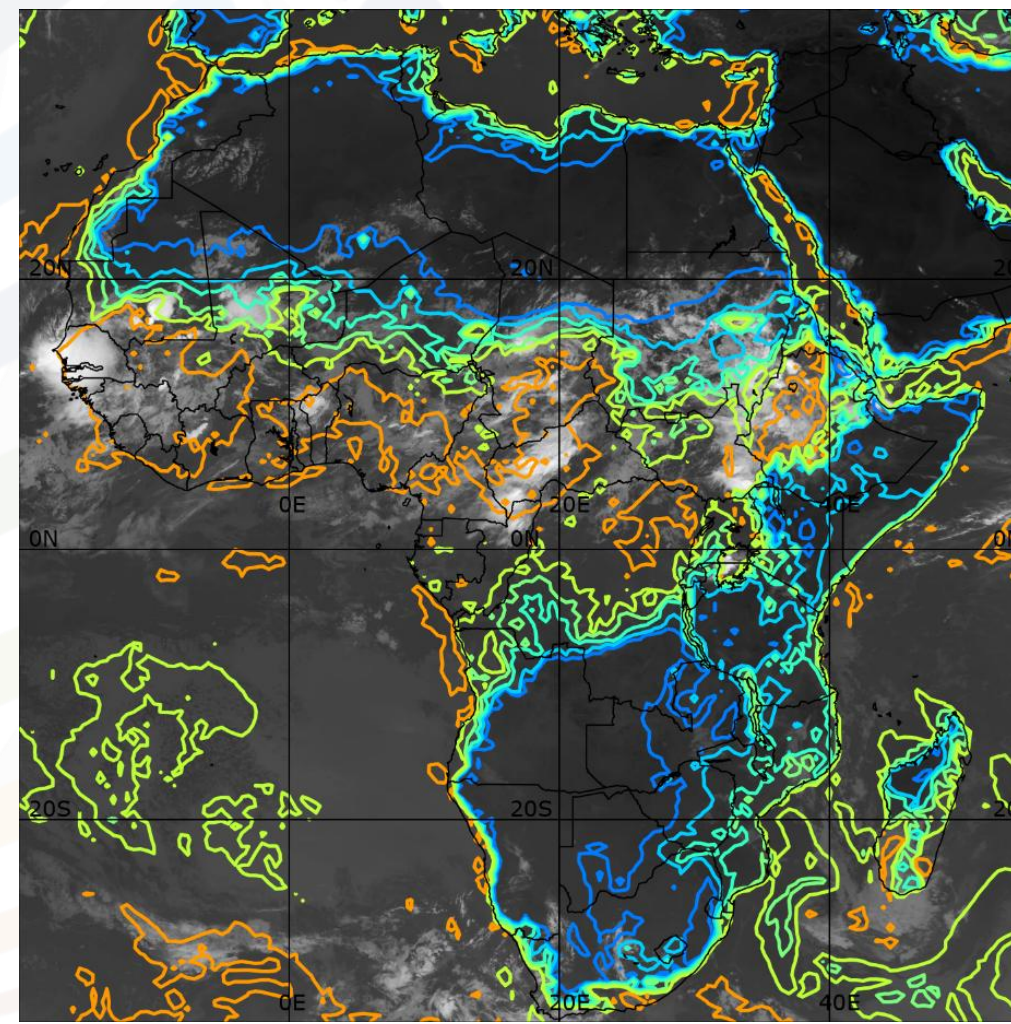
Step 1: Load the mf RH 2m data



Step 2: On the righthand side, click on the satellite data option



Step 3: Select "mtg" and the "_ir_105" option

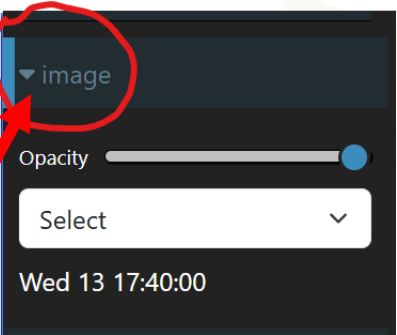




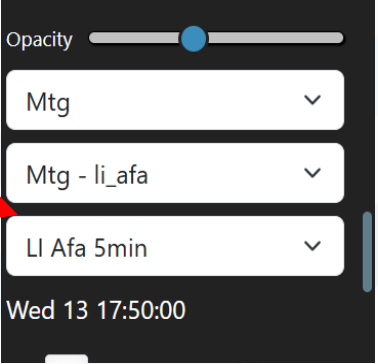
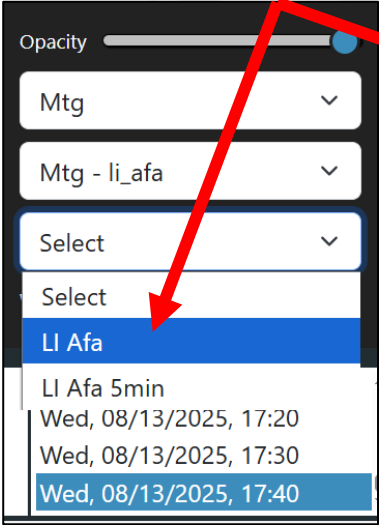
Overlay Satellite and LI AFA Data

Step 1: Load the MTG FCI IR 10.5 image

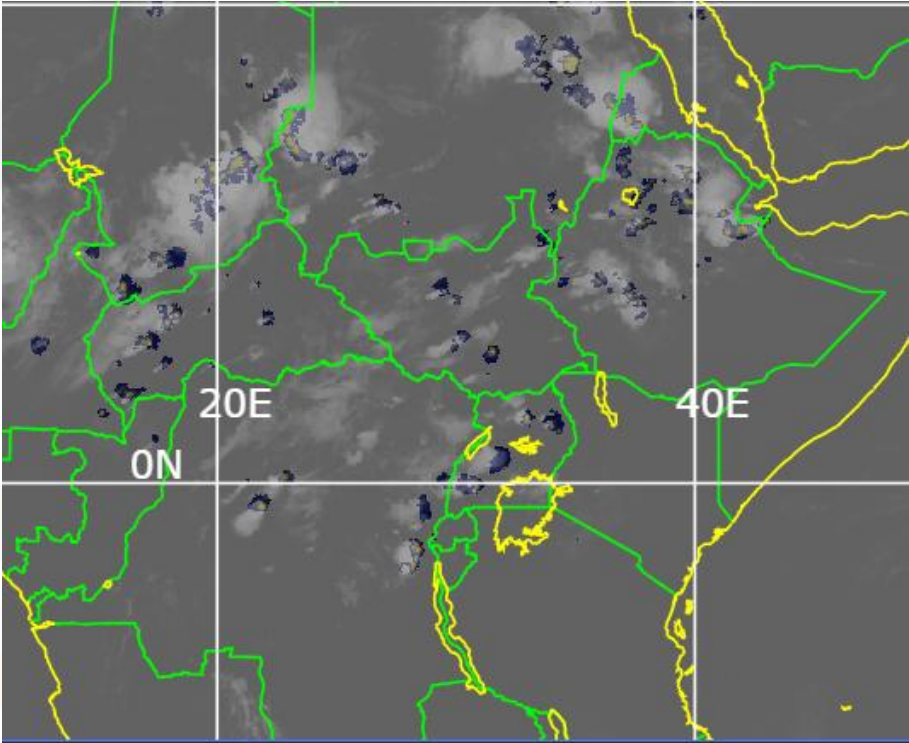
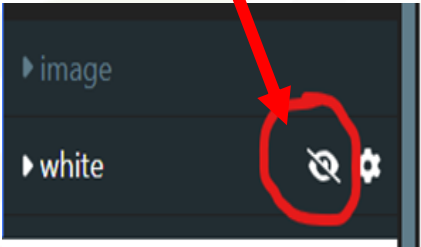
Step 2: On the right column, click on the “image” dropdown arrow



Step 3: Select on MTG data set and choose LI_AFA



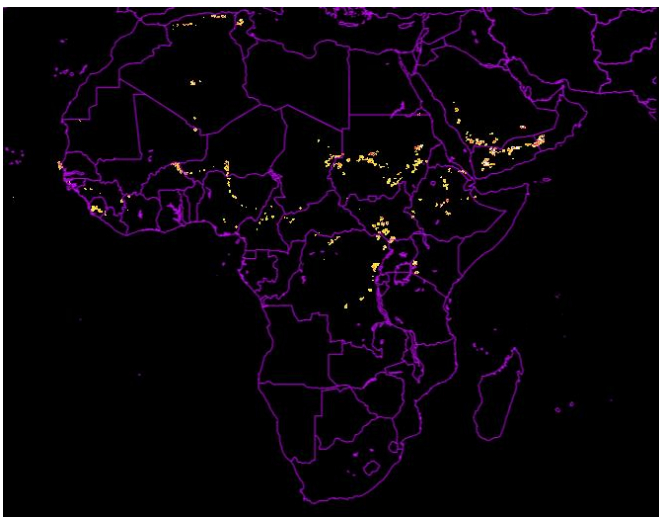
Step 4: Remove the white background, scroll down to the “white” tab and disable it



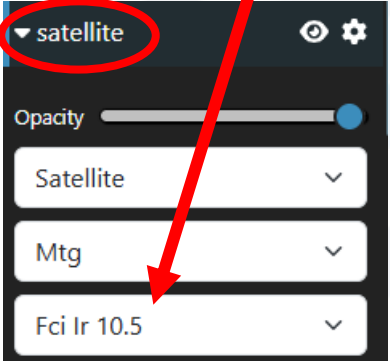
Step 5: Adjust the opacity and transparency of both images



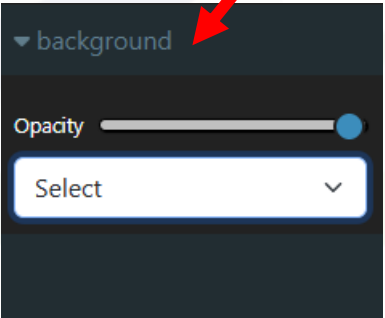
Overlay Satellite and LI AFA Data



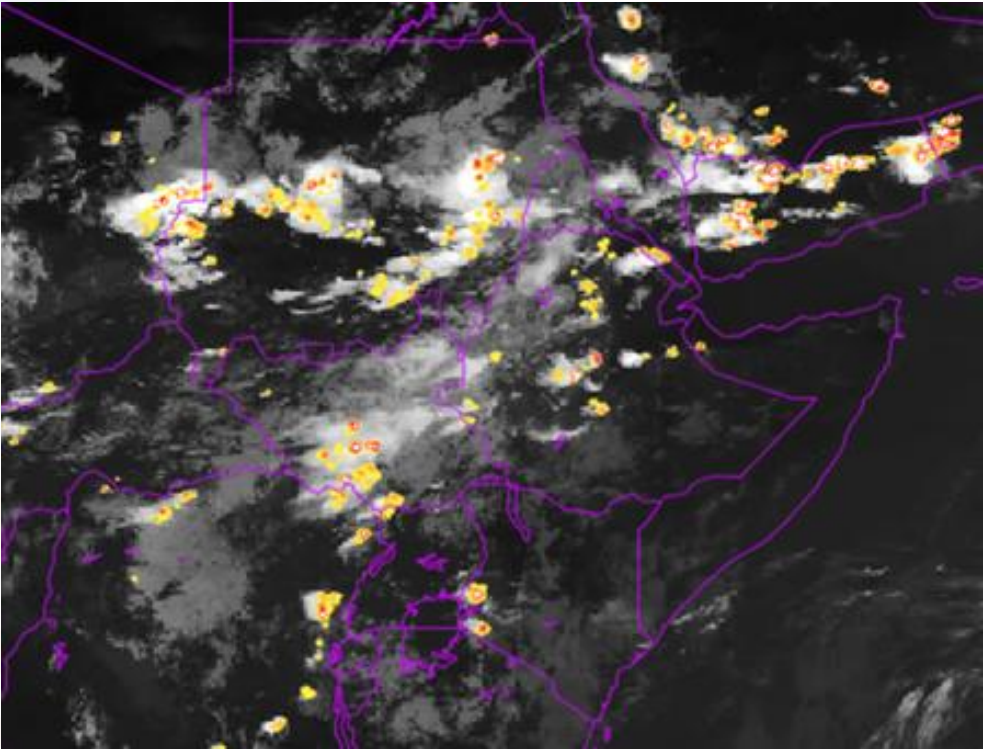
Step 3: Select the MTG FCI 10.5 satellite dataset



Step 4: Remove the white background if it appears, by scrolling down to the “background” tab and disable it

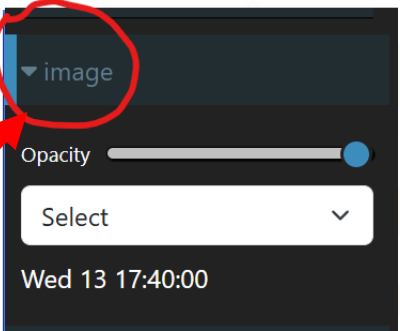


Step 5: Adjust the opacity and transparency of both images to achieve the contrast in the overlay



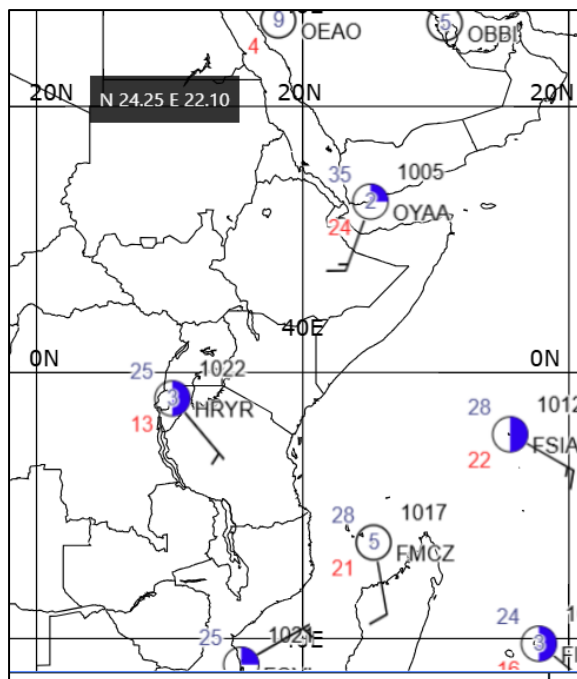
Step 1: Load the MTG satellite data set and choose “LI_AFA”

Step 2: On the right column, click on the “image” dropdown arrow

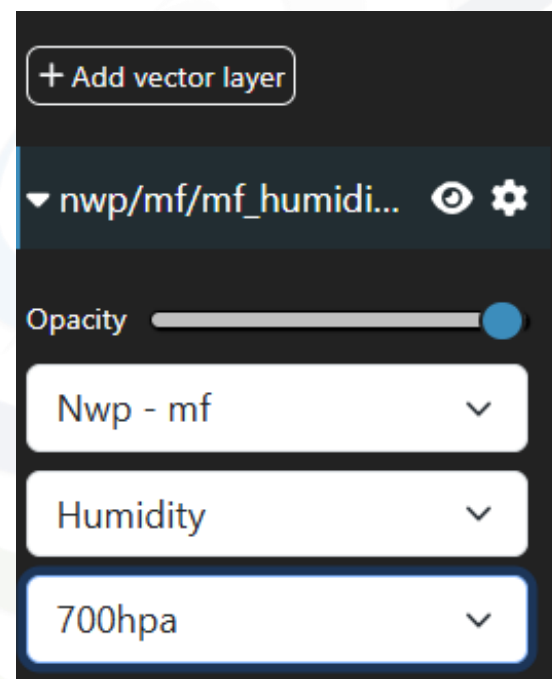




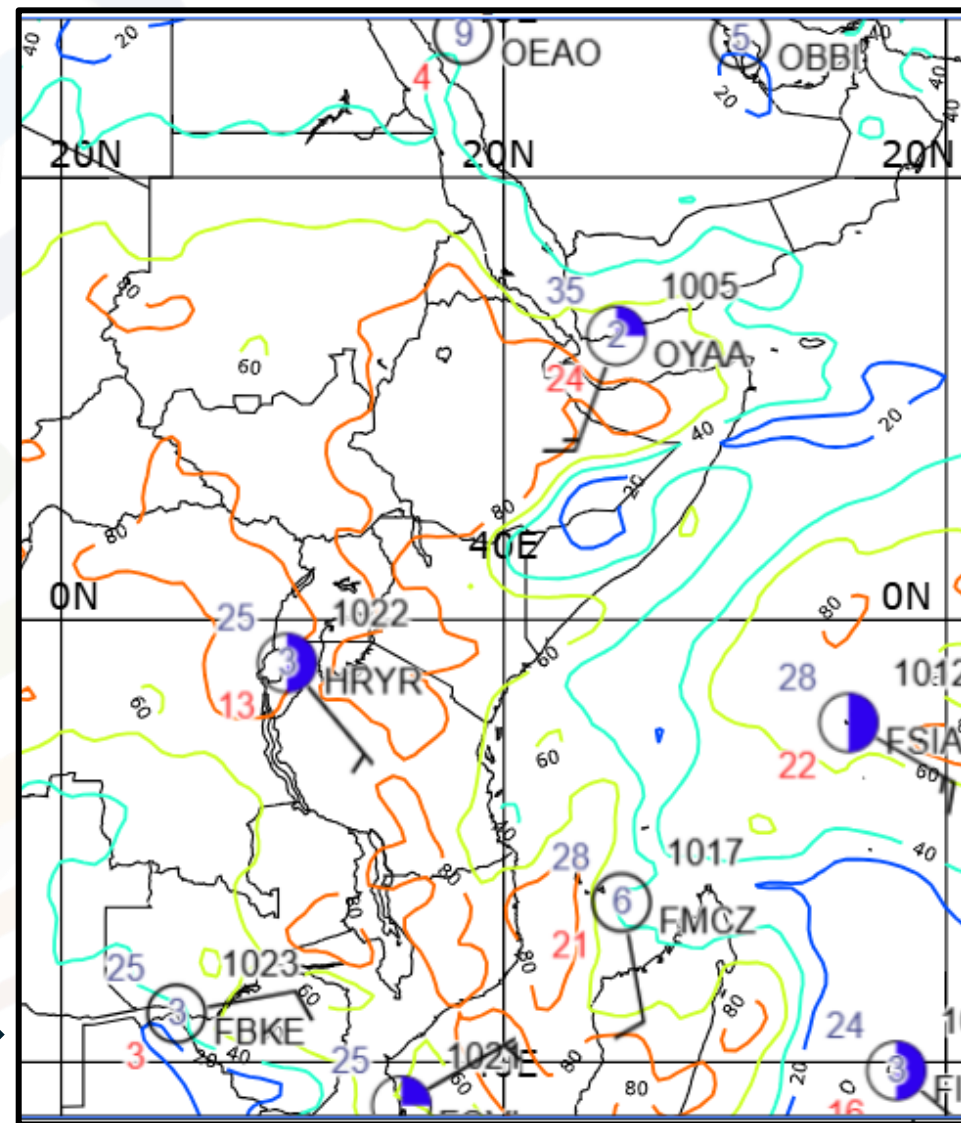
Overlay MDD and NWP Datasets

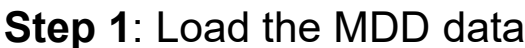


Step 1: Load the MDD data for your local region

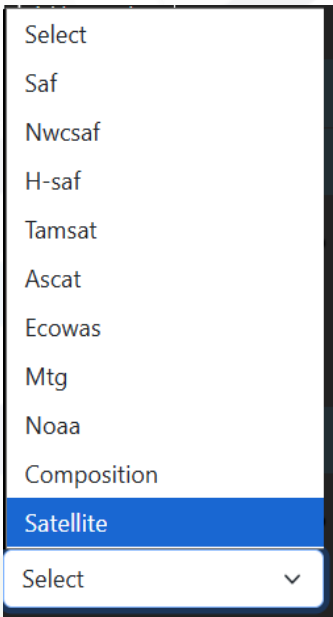


Step 2: Click on add vector layer, add the “NWP-mf” Humidity field at 700hpa

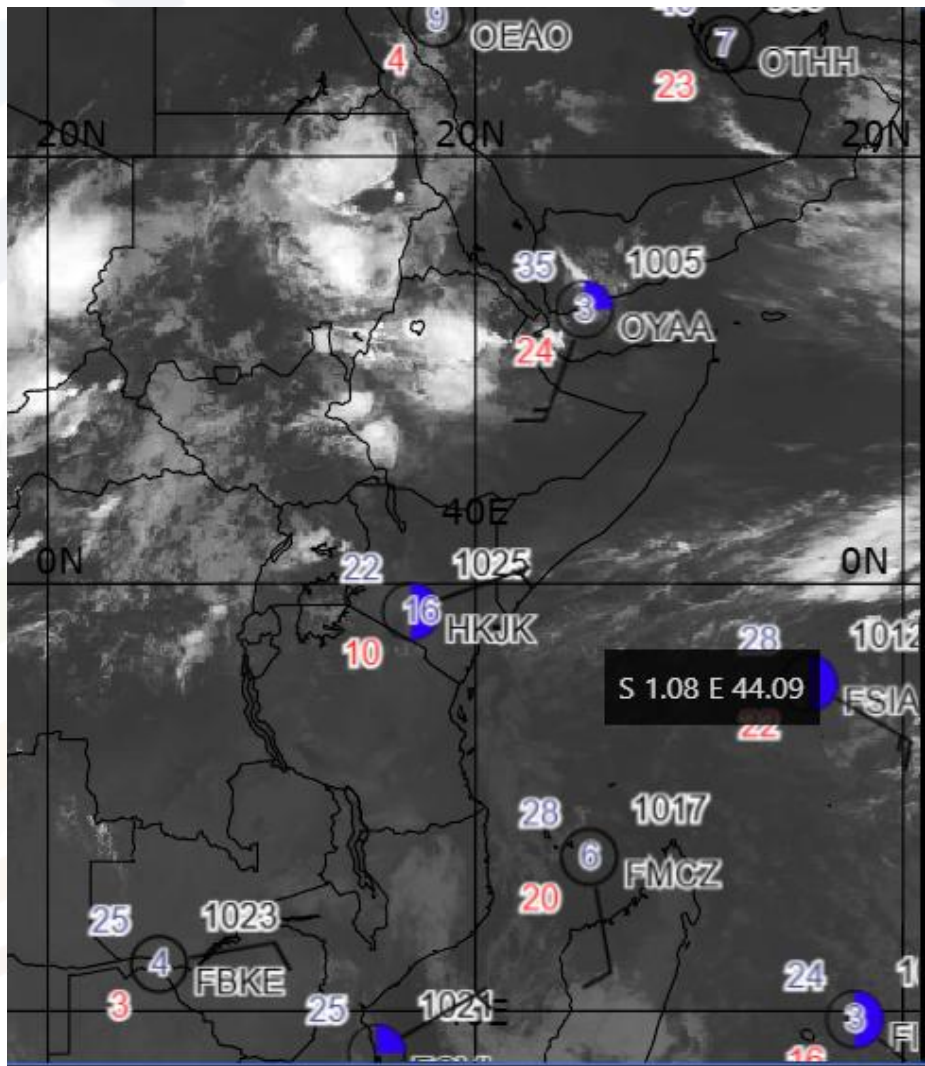




Step 2: On the RHC, add an image, load the satellite image



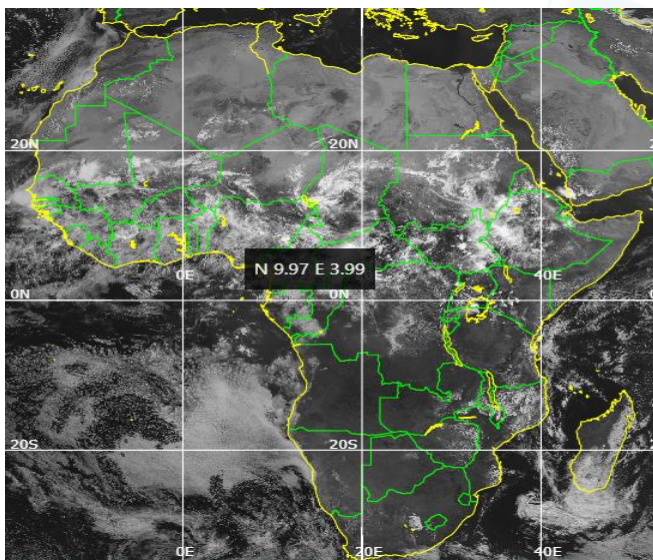
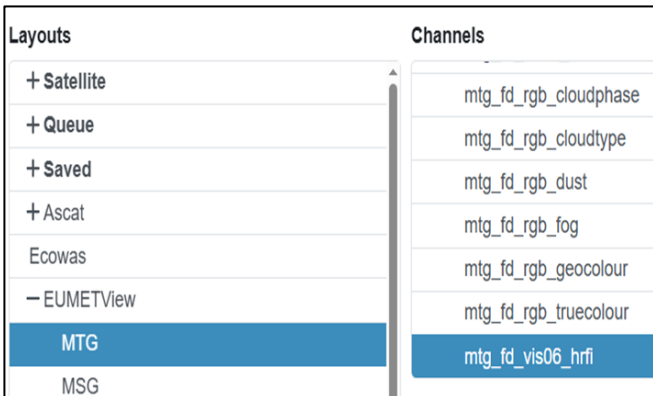
Step 3: Scroll down and disable the white background



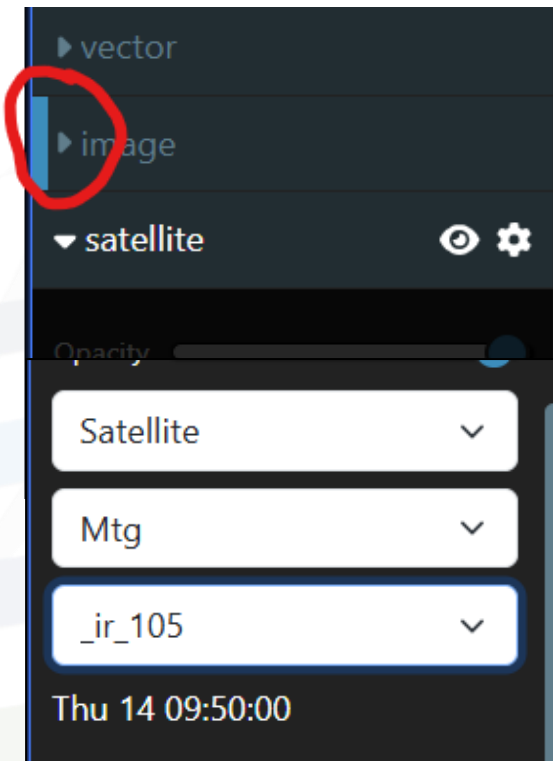


Overlay Two Satellite Products

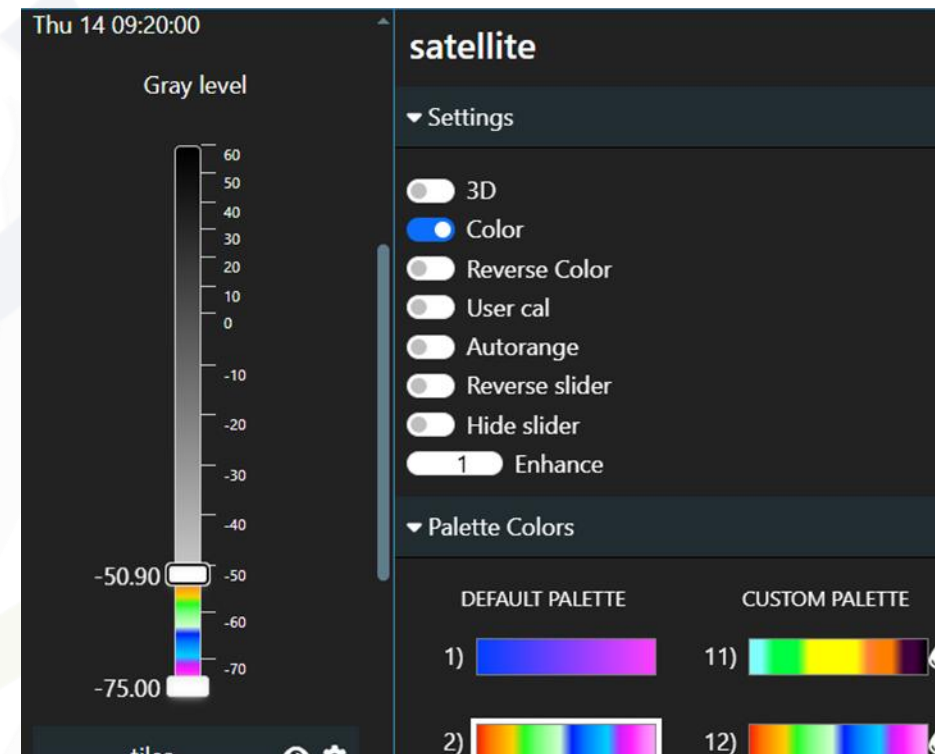
These are known as “Sandwich Products” and help forecasters to understand and visualize areas of very active convection.



Step 1: Open the MTG VIS 0.6 Hi-res image



Step 2: Load an MTG IR 10.5 image on top of it by clicking on “image” above the satellite image you’ve loaded



Step 3: Customize the IR 10.5 by colouring the cloud tops with a temperature of below -50°C
Adjust the opacity of both images to medium



VIS 0.6 and IR 10.5 Sandwich Product

