Creating the Panel Figures:

Step 1) Running the *n*-sub-epidemic and spatial-wave frameworks

Prior to producing the panel figures, make sure you have run all the spatial-wave and *n*-sub-epidemic forecasts. Once the forecast files have been conducted, please move to Step 2.

Step 2) Formatting and renaming the forecast files

Once you have completed step one, you are now ready to format the *n*-sub-epidemic and spatial-wave forecast files. Figure 1 is an example of how the original files will look prior to formatting.

A table with numbers and letters

Description automatically generated

**Figure 1.** An example of the original forecast files output obtained from the *n*-sub-epidemic and spatial-wave code.

If you are working with yearly data, you will then need to make sure the dates are formatted appropriately. You will need to remove the month and day column, leaving only the column of years (Figure 2). If working with daily or weekly data, you will combine the month, day, and year into one column (Figure 3). Therefore, you should only have ONE column of dates. Once formatted, the column of dates needs to be labeled “Date”. No other changes need to be made within each file.

A table with numbers and letters

Description automatically generated

**Figure 2.** An example of the fully formatted forecast file when using yearly data.

A screenshot of a table

Description automatically generated

**Figure 3.** An example of the fully formatted forecast file when using weekly data.

Step 3) Naming the formatted forecast files

Once the files have been formatted, they must be renamed a specific way. Please use the following template in naming the forecast files:

**<Model Framework>-<Model>-horizon-<Horizon Number>-calibration-<Calibration Size>-<Location>-<Forecast Period Date>**

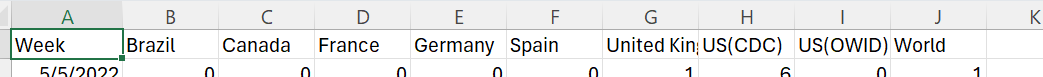
The model framework corresponds to if working with the spatial-wave or *n*-sub-epidemic framework. For example, if working with the *n*-sub-epidemic model, <Model Framework> would equal NSE in the file name. If working with the spatial-wave framework, it would equal SW. The <Model> corresponds to the specific model within the framework (i.e., ranked(1), ensemble(2), etc.). The <Horizon Number> is the length of the forecasting horizon, and <Calibration Size> is the number of years/weeks/days used to calibrate the model.

The <Forecast Period Date> is the last date of data used to calibrate the model. If working with yearly data, it needs to be a four-digit year. If working with weekly or daily data, it needs to be included as a “MM-DD-YYYY” formatted date. Below includes two examples of the file naming scheme for yearly, and weekly/daily data for an n-sub-epidemic, ranked(1) model for the “US(CDC)”.

**Yearly Data:** NSE-ranked(1)-horizon-4-calibration-12-US(CDC)-2019

**Daily/Weekly Data:** NSE-ranked(1)-horizon-4-calibration-12-US(CDC)-03-05-2019

\*Please note, the location MUST match the name used in your original data (i.e., column name) used for the dashboard. For example, the data I used to run the ARIMA/GLM/GAM/Prophet forecasts is included in Figure 4. As can be seen, I have a column called “US(CDC)”.



**Figure 4.** The column names of the data used to run the forecasts in the dashboard.

Step 4) Using the Dashboard

Once the files have been formatted correctly, and the names changed to follow the format above, you are now ready to open the dashboard. Prior to producing the panel figures, you must re-run the ARIMA, GLM, GAM, and Prophet forecasts. Please make sure that you use the same forecasting horizon, locations, forecast period date, and calibration length indicated in the file names above. You can run all of your locations at once (i.e., select all locations of interest).

After re-running the forecasts in the dashboard, please navigate to the “Model Comparison” page.

A screenshot of a computer

Description automatically generated

Once you have navigated to the model comparison page, you will see two options in the sidebar panel:

A screenshot of a computer

Description automatically generated

Please ignore the “Performance Metrics” browse button. YOU DO NOT NEED IT TO PRODUCE THE PANEL FORECASTS. However, once you have reached this point, you will need to browse for your newly created formatted and renamed *n*-sub-epidemic and spatial-wave forecast files. You can select ALL of your files. Once selected, you should now see both individual and panel forecast figures.

Common Issues:

1. If you get a panel figure of just n-sub-epidemic, and spatial-wave figures and one panel of ARIMA/GLM/GAM/Prophet figures please double check your location names, and that the horizon, calibration period, and forecast period date selected in the main dashboard match what was specified in the file names.
2. If no figures show up, or you are missing the ARIMA and GAM figures, please run “dev.off()” in your R console.