

## **TAOS/WX Weather Feed**

### **Global Weather Hazard Forecast Summary**

#### **Version 1.0 Beta**

The Global Weather Hazard Forecast Summary Feed is a global level summary of weather hazards derived primarily from the US GFS model, processed by the TAOS/WX system to create GIS layers, estimate impacts, and compute return periods. Version 1.0 Beta computes five day wind damage and precipitation return periods, with impacts aggregated at the national level and provided as tables in CSV format. Hazard maps are provided in both Google Earth (KMZ) and ESRI format shapefiles for wind and precipitation, as well as for other weather variables such as severe convective storms, wind chill, heat stress, and below freezing conditions. Although the underlying impact calculations are made using the 1km hazard and exposure data, the GIS hazard layers are normalized to a 11km grid in this package to conserve space, coincide with other data sources, and facilitate global level graphics and mapping. In addition to the hazard forecasts, a hindcast analysis is provided for the previous day, as well as a precipitation forecast verification analysis using rain gauge and satellite rain estimates for the date three days prior to the package date (to allow time for rain reports to be assimilated).

The package includes a number of reports in PDF format, which include documentation on the process used to create the data sets. The distribution file is provided in a zip archive named `taoswx_global_package_YYYYMMDD.zip`, where:

<i>YYYY</i>	Year the forecast made
<i>MM</i>	Month the forecast made
<i>DD</i>	Date the forecast made

#### **PDF format reports:**

Four reports are provided in PDF format:

<code>global_wind_fcst_YYYYMMDD.pdf</code>	Wind Hazard Economic Impact Forecast Summary
<code>precip_forecast_rtnpd_YYYYMMDD.pdf</code>	Precipitation Return Period Forecast Summary
<code>global_wind_hindcast_YYYYMMDD.pdf</code>	Wind Hazard Economic Impact Hindcast Summary
<code>precip_verif_YYYYMMDD.pdf</code>	Precipitation Forecast Verification Report

Each report contains a chapter consisting of technical notes describing how the data layers were created. These can be consulted for basic information regarding the following data layers.

#### **CSV format data tables:**

The economic impact data is provided in a zip archive, `wind_damage_tables_YYYYMMDD.zip`. The archive unzips in to five files with national level economic impact summaries for each forecast day. Each file is named `gfs_national_wind_econimpact_YYYYMMDD_fFFF.csv`, where:

<i>YYYY</i>	Year
<i>MM</i>	Month
<i>DD</i>	Day of Month
<i>FFF</i>	Forecast Day

Each file is a comma separated variable (CSV) format with a header line. Variables are:

<u>Column</u>	<u>Description</u>
scenario_id	Scenario code in the form fFFF_YYYYMMDD
dtg	Valid Date for the forecast
tech	technique (always GFSX) in Version 1.0 Beta
*_id	numerical country/admin area ID from global ADM data set
name	country/admin area name
country	ISO 3 letter alphanumeric country code
exposure	Vulnerable exposure value in 2022 dollars
population	Population (2021)
econ_impact	Estimated Economic Impact in 2022 dollars
pop_tswind	Estimated population experiencing 34 knot winds or higher
pop_huwind	Estimated population experiencing 64 knot winds or higher

### **Google Earth (KMZ) format GIS layers**

Seven Google Earth compatible files are included in each package. Five of the files are of the form gfs\_forecast\_YYYYMMDD\_FFF.kmz, as defined above. Each of these files contains seven layers:

cyclone areas	Areas within the region of influence of organized cyclones
precipitation	Precipitation
high winds	High Winds (includes national wind damage table)
Severe Convective Areas	Areas of severe convective weather/Tornado risk
Wind Chill	Areas meeting the CMC/NWS Wind Chill warning Criteria
Heat Index	Areas meeting the US NWS Heat Index warning Criteria
Freezing areas	Areas with below freezing and hard freeze conditions

Two additional files are provided, a map of precipitation return periods (gfs\_precip\_return\_period\_YYYYMMDD.kmz) and a file to accompany the precipitation verification report (gsod\_YYYYMMDD.kmz) which includes station data, satellite precipitation, and model precipitation for the most recent available day with complete validation data.

### **ESRI Shapefile GIS layers**

Five zip archive are provided, each containing GIS layers in shapefile format, one zip archive per forecast day. Each archive contains seven shapefiles, named LAYER\_F, where LAYER is the layer name, and F is the day number of the forecast. Layers are as follows:

<u>Layer</u>	<u>Description</u>
cyclone	Areas within the region of influence of organized cyclones
precip	Precipitation
wind	High Winds (includes national wind damage table)
torn	Areas of severe convective weather/Tornado risk
chill	Areas meeting the US NWS Wind Chill warning Criteria
heat	Areas meeting the US NWS Heat Index warning Criteria
freeze	Areas with below freezing and hard freeze conditions