Name

Met Office UK Marine Observations

Description

Marine surface weather observations for 32 parameters from 69 locations across the Met Office marine observation network. Observations are available for a rolling 7-day period (168 hours). The data is available as CSV files.

The data comes from moored buoys, light vessels and ships with automatic weather stations onboard. Buoys and light vessels are static and you can view their locations on the Met Office Marine Observations page. You can use the data to monitor the latest weather affecting a specific marine location so you can plan for your business or operations.

About the Met Office UK Marine network

This listing includes data from moored buoys, light vessels and ships with automatic weather stations onboard. Buoys and light vessels are static and you can view their locations on the Met Office Marine Observations page. Other marine observations network data sources that are not included in this listing include third-party offshore installations, drifting buoys, Argo floats, marine gliders and voluntary observing ships with manual data submission.

How the data is produced

Each observation location produces data at hourly intervals. Measurements are converted to standard meteorological formats before rigorous checks verify the integrity of the data. The data is then transmitted to users worldwide.

Periods of missing data may be due to:

- scheduled maintenance of observation instrumentation
- unexpected issues with instrumentation, sensor failure or network disruption
- ships being in port

Such issues may cause delays in data being transmitted. If this happens, we will try to retrieve observations for up to the past 24 hours to provide as complete a dataset as possible.

Business needs

Real World Data (RWD)

Marine observations are essential for industries (such as shipping and off-shore energy) that need an accurate record of marine weather conditions to help make decisions.

Marine observational data is also used to evaluate the accuracy of marine weather forecasts.

Situational awareness

Marine observations can be used to assess the impact of the latest weather affecting a marine location.

Parameters

The dataset includes 32 meteorological parameters, as well as timestep, latitude and longitude data. It also includes a series of quality control parameters, which have a ‘qc’ suffix. Observations are classified as ‘Good’, ‘Suspect’ or ‘Erroneous’:

- ‘Good’ observations have passed all automatic quality control checks.
- ‘Suspect’ observations meet a lower threshold of automatic quality control checks and should be used with caution. ‘Suspect’ records are routinely used operationally in real time but may be deemed as erroneous by subsequent quality control checks.
- ‘Erroneous’ observations have failed to meet automatic quality control checks and are not included in the dataset.

timestep
longitude
latitude
dew_point_humidity_marine_mean
dew_point_humidity_marine_mean_qc
horizontal_visibility_marine
horizontal_visibility_marine_qc
humidity_relative_marine
humidity_relative_marine_qc
pressure_marine
pressure_marine_msl
pressure_marine_msl_qc
pressure_marine_qc
significant_wave_height_h_third
significant_wave_height_h_third_qc
significant_wave_height_heave
significant_wave_height_heave_qc
significant_wave_height_hm_0
significant_wave_height_hm_0_qc
significant_wave_height_hm_0_swell
significant_wave_height_hm_0_swell_qc

significant_wave_height_hm_0_windsea
significant_wave_height_hm_0_windsea_qc
temperature_air_marine
temperature_air_marine_qc
temperature_sea_surface_marine
temperature_sea_surface_marine_qc
wave_height_maximum
wave_height_maximum_crest
wave_height_maximum_crest_qc
wave_height_maximum_qc
wave_height_maximum_trough
wave_height_maximum_trough_qc
wave_mean_direction
wave_mean_direction_qc
wave_mean_period_heave
wave_mean_period_heave_qc
wave_mean_period_tm_02
wave_mean_period_tm_02_qc
wave_mean_period_tz
wave_mean_period_tz_qc
wave_mean_spreading_angle
wave_mean_spreading_angle_qc
wave_peak_direction
wave_peak_direction_qc
wave_peak_direction_swell
wave_peak_direction_swell_qc
wave_peak_direction_windsea
wave_peak_direction_windsea_qc
wave_peak_period
wave_peak_period_qc
wave_peak_period_swell
wave_peak_period_swell_qc

wave_peak_period_windsea
wave_peak_period_windsea_qc
wave_period_tmax
wave_period_tmax_qc
wave_spectral_data_collection
wave_spectral_data_collection_qc
wind_direction_marine
wind_direction_marine_qc
wind_gust_direction_marine
wind_gust_direction_marine_qc
wind_gust_speed_marine
wind_gust_speed_marine_qc
wind_speed_marine
wind_speed_marine_qc

Update frequency and latency

Every hour, at 15 minutes past the hour, we retrieve a single set of parameter values for each location. For example, at 12:15 new data is retrieved for observations collected between 11:00 and 12:00. This is due to the quality checks required to verify data for public consumption and global network latency.

Archive length

Observations are available for a rolling 7-day period (168 hours).

Usage examples

```
import glob
import pandas as pd

specific_parameter = "air_pressure_near_surface_1_hour_20_second_mean"

# Load the files in to a Pandas DataFrame.
all_files = glob.glob("marine_obs/*.csv")
df = pd.concat((pd.read_csv(f, delimiter="|") for f in all_files))

# Convert timesteps to datetimes to ensure proper filtering
df['timestep'] = pd.to_datetime(df['timestep'])
```

```
# Exclude NAN values for the given parameter (optional)
df = df[df[specific_parameter].notna()]

# Get the latest record for each lat/lon pair for the given parameter
latest_idx = df.groupby(['latitude', 'longitude'])['timestep'].idxmax()
result = df.loc[latest_idx][['timestep', 'latitude', 'longitude',
specific_parameter]]
print(result)
```

License/terms and conditions and compliance

Contact

servicedesk@metoffice.gov.uk. Service desk is only available Mon – Fri, 09:00 until 17:00 UTC (-1 hour during BST). As a non-operational service we aim to respond to any service support enquiries within 3-5 business days.

How to cite

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