Global gridded probabilities

Name

Met Office Blended Probabilistic Forecast – Global gridded probabilities

Description

This product provides gridded probabilistic weather forecasts. The grid resolution is approximately 20km and covers the whole globe. It is produced by the Met Office IMPROVER Blended Probabilistic Forecast system. It is available in NetCDF format.

Blended Probabilistic Forecast data is derived from the Met Office's operational NWP (Numerical Weather Prediction) ensembles and nowcasts. To give more reliable predictions, these are then blended and calibrated using the IMPROVER pipeline, and verified using spread–skill and reliability checks.

This is 1 of 8 Blended Probabilistic Forecast products published by the Met Office on the Registry of Open Data on AWS. Data is available for the Global and UK domains, as gridded and spot (site-specific), and represented as percentiles and probabilities.

This info is correct as of April 2026, but some things (like the number of sites, parameters and timesteps) may change in future.

How probabilities work

Ensemble forecasts show a range of possible weather outcomes. However, some users may find it more useful to see ensemble forecasts presented as probabilities, particularly when they're interested in specific thresholds.

Probabilities are generated from an ensemble forecast by counting how many members of that ensemble exceed a particular threshold value. For example, if the threshold for screen temperature is 5°C, and 9 out of 18 ensemble members show a screen temperature above 5°C, there is a 50% chance of temperatures exceeding 5°C.

About the grid

The grid resolution for Blended Probabilistic Forecast Global gridded probabilities is approximately 20km and covers the whole globe.

Numerical weather prediction (NWP) models generate forecasts for each grid point within a geographical area of interest. Each of these gridded forecasts corresponds to a particular diagnostic (e.g. precipitation rate) at a particular time. IMPROVER then takes

an ensemble of these gridded forecasts and applies post-processing techniques to enhance them and represent them probabilistically. The resulting grid of values represents probabilities of exceeding or falling below a particular threshold.

Aspect	Values
Projection	Equirectangular Latitude-Longitude
Standard parallel	48.16° N
Reference datum	earth_radius = 6371229.0 m
Nominal resolution	20 km or N640
North-South spacing	0.1875° (20.85 km)
East-West spacing	0.28125° (~20.86 km - UK, 31.27 km - equator)
North-West corner	89.90625°N, 179.859375°W
South-West corner	89.90625°S, 179.859375°W
South-East corner	89.90625°S, 179.859375°E
North-East corner	89.90625°N, 179.859375°E
East-West points	1280
North-South points	960
Grid type	Arakawa A

Parameters and timesteps
There are 31 weather parameters available including:

- Cloud
- Lightning
- Humidity
- Visibility
- Precipitation rate and accumulations
- UV
- Wind

For most parameters, the following timesteps are available:

- Every hour from 0 to 120 hours
- Every 3 hours from 123 to 192 hours

However, timesteps vary significantly for some parameters. Check the parameter documentation for more details.

Latency
Data is made available shortly after the blend time.

Archive length
Data is available for the past 30 days.

Business needs
This product supports risk-based decision-making by providing uncertainty ranges rather than single deterministic values. Typical uses include:

- assessing uncertainty for operational planning
- evaluating weather-related risk thresholds
- deriving deterministic products (e.g. 50th percentile) from probabilistic outputs

Gridded forecasts show how a diagnostic varies spatially across a domain at a given time. By using a time series of gridded fields, you can determine how a weather diagnostic is expected to evolve across a geographic area.

If you need a forecast for a specific location, a spot forecast may suit your needs better than gridded data. Spot Blended Probabilistic Forecasts are also available as percentiles and probabilities for both the UK and Global domains.

Update frequency

4 times each day at around 00, 06, 12 and 18 UTC.

License/terms and conditions

This product is licensed under CC BY-SA.

Documentation

Link to documentation doc

Managed by

Met Office
See all datasets managed by Met Office.

Contact

Please email our Service Desk at: servicedesk@metoffice.gov.uk and let them know which dataset you are using and that it's from the Registry of Open Data on AWS.

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

Met Office Blended Probabilistic Forecast Global Gridded probabilities was accessed on DATE from https://registry.opendata.aws/met-office_bpf_global_gridded_Probabilities

Usage examples

Tutorials

- Numerical weather prediction models by Met Office
- The Met Office Unified Model by Met Office
- Introduction — IMPROVER documentation

Tools & Applications

- Iris by Iris Contributors

Info that appears in the right-hand column of the page

Description

Enter a short, one-line description.

Resource type

S3 Bucket

Amazon Resource Name (ARN)

AWS Region

AWS CLI Access (No AWS account required)

Explore

Browse bucket

Description

???

Resource type

Amazon Resource Name (ARN)

AWS Region