Met Office

Global Atmospheric Hi-Res Model

Met Office Unified Model

The flagship numerical weather prediction (NWP) model developed and used at the Met Office is called the Unified Model (UM). Unlike most other NWP centres, the same model is used for both weather and climate prediction. For weather forecasting the Met Office run several configurations of the UM as part of its operational NWP suite.

A global configuration provides the large-scale weather forecast and also supports the nested higher resolution regional models with boundary data. More detailed short-range forecasts are provided by these high-resolution models which are able to represent certain atmospheric processes more accurately, as well as having a more detailed representation of surface features such as coastlines and orography.

Met Office Global Atmospheric Hi-Res Model

A global configuration of the Met Office Unified Model provides the most accurate short range deterministic forecast by any national meteorological service covering a six day period.

With a resolution of approximately 0.234 x 0.153 degrees, it is able to produce selected hourly data covering the first 48 hours at surface level and at standard pressure levels twice a day.

The model's initial state is kept close to the real atmosphere using hybrid 4D-Var data assimilation.

	Surface Level Parameters	Time Steps
1.	mean sea level pressure	Hourly T+0 to T+36, 3 hourly T+39 to T+144
2.	1.5m temperature	Hourly T+0 to T+48, 3 hourly T+51 to T+144
3.	10m u-wind component	Hourly T+0 to T+48, 3 hourly T+51 to T+144
4.	10m v-wind component	Hourly T+0 to T+48, 3 hourly T+51 to T+144
5.	high cloud	Hourly T+0 to T+48, 3 hourly T+51 to T+144
6.	medium cloud	Hourly T+0 to T+48, 3 hourly T+51 to T+144
7.	low cloud	Hourly T+0 to T+48, 3 hourly T+51 to T+144
8.	convective cloud	Hourly T+0 to T+15, 3 hourly T+18 to T+144
9.	rate of dynamic rain	Hourly T+0 to T+18, 3 hourly T+21 to T+144
10.	rate of dynamic snow	Hourly T+0 to T+18, 3 hourly T+21 to T+144
11.	accumulated dynamic rain	Hourly T+1 to T+48, 6 hourly T+54 to T+144
12.	accumulated convective rain	Hourly T+1 to T+48, 6 hourly T+54 to T+144
13.	accumulated dynamic snow	Hourly T+1 to T+48, 6 hourly T+54 to T+144
14.	accumulated convective snow	Hourly T+1 to T+48, 6 hourly T+54 to T+144
15.	total downward SW flux (surface)	Hourly T+0 to T+48, 3 hourly T+51 to T+144
16.	snow depth	Hourly T+0 to T+18, 3 hourly T+21 to T+72, 6 hourly T+78 to T+144
17.	1.5m fog fraction	Hourly T+0 to T+48, 3 hourly T+51 to T+72, 6 hourly T+78 to T+144
18.	total cloud	Hourly T+0 to T+48, 3 hourly T+51 to T+72, 6 hourly T+78 to T+144
19.	1.5m visibility	Hourly T+0 to T+48, 3 hourly T+48 to T+72, 12 hourly T+84 to T+144
20.	boundary layer depth	3 Hourly T+0 to T+144
21.	rate of convective rain	3 Hourly T+0 to T+144
22.	rate of convective snow	3 Hourly T+0 to T+144
23.	sensible heat flux	3 Hourly T+0 to T+144
24.	10m maximum wind gust	3 Hourly T+0 to T+144
25.	convective cloud base pressure	3 Hourly T+0 to T+144
26.	convective cloud top pressure	3 Hourly T+0 to T+144

27.	maximum wind ICAO height	3 Hourly T+0 to T+54, 6 hourly T+60 to T+84
28.	total precipitation accumulation	3 Hourly T+3 to T+48, 6 hourly T+54 to T+144
29.	vertical velocity (700 hPa)	3 Hourly T+0 to T+60,12 hourly T+72 to T+144
30.	1.5m specific humidity	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
31.	1.5m relative humidity	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
32.	wet bulb potential temperature	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
33.	snow probability	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
34.	latent heat flux	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
35.	total precipitation rate	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
36.	net solar radiation flux (surface)	3 Hourly T+0 to T+72,12 hourly T+84 to T+144
37.	cloud fraction below 1000ft	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
38.	lowest cloud base > 2 oktas	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
39.	maximum u-wind	3 Hourly T+0 to T+54, 6 hourly T+60 to T+84,12 hourly T+96 to T+144
40.	maximum v-wind	3 Hourly T+0 to T+54, 6 hourly T+60 to T+84,12 hourly T+96 to T+144
41.	tropopause ICAO height	3 Hourly T+0 to T+48, 6 hourly T+54 to T+84,12 hourly T+96 to T+144
42.	tropopause pressure	3 Hourly T+0 to T+48, 6 hourly T+54 to T+84,12 hourly T+96 to T+144
43.	tropopause temperature	3 Hourly T+0 to T+48, 6 hourly T+54 to T+84,12 hourly T+96 to T+144
44.	maximum wind level pressure	3 Hourly T+0 to T+48, 6 hourly T+54 to T+84,12 hourly T+96 to T+144
45.	surface (skin) temperature	3 Hourly T+0 to T+84, 6 hourly T+90 to T+144
46.	soil temperature	3 Hourly T+0 to T+84
47.	maximum screen temperature	6 Hourly T+0 to T+144
48.	minimum screen temperature	6 Hourly T+0 to T+144
49.	roughness length	3 Hourly T+0 to T+144
50.	land/sea mask	T+0

Pressure Level Parameters		Time Steps
1.	geopotential height	3 Hourly T+0 to T+84, 6 hourly T+90 to T+144
2.	temperature	3 Hourly T+0 to T+60, 6 hourly T+66 to T+144
3.	u-wind component	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
4.	v-wind component	3 Hourly T+0 to T+72, 6 hourly T+78 to T+144
5.	relative humidity	3 Hourly T+0 to T+60, 6 hourly T+66 to T+144

Standard Pressure Levels

1.	1000hPa
2.	950hPa
3.	925hPa
4.	850hPa
5.	700hPa
6.	500hPa
7.	400hPa
8.	300hPa
9.	250hPa
10.	200hPa
11.	150hPa
12.	100hPa

Model Run Times

00UTC & 12UTC

Domains

Northern Hemisphere

Area A:	Lat. 89.9° to 0.3°N	Long. 45.00°W to 45.00°E
Area B:	Lat. 89.9° to 0.3°N	Long. 45.00°E to 135.00°E
Area C:	Lat. 89.9° to 0.3°N	Long. 135.00°E to 135.00°W
Area D:	Lat. 89.9° to 0.3°N	Long. 135.00°W to 45.00°W

Southern Hemisphere

Area E:	Lat. 0.3° to 89.9°S	Long. 45.00°W to 45.00°E
Area F:	Lat. 0.3° to 89.9°S	Long. 45.00°E to 135.00°E
Area G:	Lat. 0.3° to 89.9°S	Long. 135.00°E to 135.00°W
Area H:	Lat. 0.3° to 89.9°S	Long. 135.00°W to 45.00°W

(Sub domain areas are not currently available)

Resolution

0.153° (~17km)

Format

GRIB1

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