



Nowcasting



Short-range forecasts

Nowcasting is a technique used for very short-range forecasting. The current weather is mapped and then an estimate of its speed and direction of movement is used to forecast the weather a short period ahead (assuming the weather will move without significant changes). It takes time to gather and map weather observations, so a short forecast is needed to outline what the weather is currently.

Nowcasts can be used as a source of detailed guidance on the location, extent and timing of imminent, often high impact weather events.

The Met Office produce a routine delivered service for T+0 out to T+6, for the United Kingdom, which blends our observations and UK Atmospheric Hi-Res model. At T+0 the blend is heavily weighted to observations and as time goes on the weighting of the UK Atmospheric Hi-Res model is increased, at T+6 the UK Atmospheric Hi-Res Model has the dominant weighting.

The UK Atmospheric Hi-Res model is part of the Met Office flagship numerical weather prediction (NWP) model called the Unified Model. The resolution of the Nowcasting is comparable to radar data.

The weather variables available include:

- Cloud;
- Snow;
- Visibility;
- Wind;
- Precipitation;
- Temperature;
- Humidity; and
- Lightning.

Screen Level

Temperature	No. files	Delivery frequency	Parameters contained within file	Time steps	Images per file	Definition
YYYYMMDDHHMM_u1096_ng_pp_analysis_temperature_screen_2km	1	60min	Temperature	T+0	1	Instantaneous screen temperature.
YYYYMMDDHHMM_u1096_ng_pp_nowcast_temperature_screen_2km	1	60min	Temperature	T+1 to T+6	6	Instantaneous screen temperature.

Relative Humidity	No. files	Delivery frequency	Parameters contained within file	Time steps	Images per file	Definition
YYYYMMDDHHMM_u1096_ng_pp_analysis_relhumidity_screen_2km	1	60min	Relative Humidity	T+0	1	Instantaneous screen relative humidity.
YYYYMMDDHHMM_u1096_ng_pp_nowcast_relhumidity_screen_2km	1	60min	Relative Humidity	T+1 to T+6	6	Instantaneous screen relative humidity.

Surface Level

Precipitation (hourly parameters)	No. files	Delivery frequency	Parameters contained within file	Time steps	Images per file	Definition
YYYYMMDDHHMM_u1096_ng_pp_analysis_precip_60min_2km	1	60 min	Snow fraction	T+0	1	The fraction of the precipitation falling that is snow (or ice). A value of 1 would indicate that it is all falling as snow, whereas a value 0 would indicate just rain.
			Critical snow rate	T+0	1	Minimum precipitation rate required to bring snow down to the surface (i.e. if the precipitation is heavier than this, you would expect to see snow, rather than rain).
			Precipitation type	T+0	1	Precipitation type with no bias

YYYYMMDDHHMM_u1096_ng_pp_nowcast_precip_60min_2km	1	60 min	Snow fraction	T+1 to T+6	6	The fraction of the precipitation falling that is snow (or ice). A value of 1 would indicate that it is all falling as snow, whereas a value 0 would indicate just rain.
			Critical snow rate	T+1 to T+6	6	Minimum precipitation rate required to bring snow down to the surface (i.e. if the precipitation is heavier than this, you would expect to see snow, rather than rain).
			60 min precipitation accumulation	T+1 to T+6	6	Amount of rain and/or snow that has fallen in the preceding hour.
			Precipitation type	T+1 to T+6	6	Precipitation type with no bias

Precipitation (15 min parameters)	No. files	Delivery frequency	Parameters contained within file	Time steps	Images per file	Definition
YYYYMMDDHHMM_u1096_ng_pp_analysis_precip_15min_2km	1	15 min	Precipitation Rate	T+0	1	Instantaneous amount of rain and/or snow falling.
YYYYMMDDHHMM_u1096_ng_pp_nowcast_precip_15min_2km	1	15 min	Precipitation Rate	T+15m to T+6	24	Instantaneous amount of rain and/or snow falling.
			15 min precipitation accumulation	T+15m to T+6	24	Amount of rain and/or snow that has fallen in the preceding 15 minutes.

Surface Wind	No. files	Delivery frequency	Parameters contained within file	Time steps	Images per file	Definition
YYYYMMDDHHMM_u1096_ng_pp_analysis_wind_10m_2km	1	60 min	Wind speed	T+0	1	Average wind speed over the previous 15 minutes at 10m above the ground.
			Wind direction	T+0	1	Average wind direction over the previous 15 minutes at 10m above the ground.
			Wind gust speed	T+0	1	Extreme value of wind speed over the previous 15 minutes at 10m above the ground.
YYYYMMDDHHMM_u1096_ng_pp_nowcast_wind_10m_2km	1	60 min	Wind speed	T+1 to T+6	6	Average wind speed over the previous 15 minutes at 10m above the ground.
			Wind direction	T+1 to T+6	6	Average wind direction over the previous 15 minutes at 10m above the ground.
			Wind gust speed	T+1 to T+6	6	Extreme value of wind speed over the previous 15 minutes at 10m above the ground.

Visibility	No. files	Delivery frequency	Parameters contained within file	Time steps	Images per file	Definition
YYYYMMDDHHMM_u1096_ng_pp_analysis_visibility_screen_2km	1	60 min	Visibility	T+0	1	Horizontal visibility at screen level
			Fog probability	T+0	1	Probability of visibility less than 1,000 m
YYYYMMDDHHMM_u1096_ng_pp_nowcast_visibility_screen_2km	1	60 min	Visibility	T+1 to T+6	6	Horizontal visibility at screen level
			Fog probability	T+1 to T+6	6	Probability of visibility less than 1,000 m

Above Ground Level

Cloud	No. files	Delivery frequency	Parameters contained within file	Time steps	Images per file	Definition
YYYYMMDDHHMM_u1096_ng_pp_analysis_cloud_cover_2km	1	60 min	Total cloud cover	T+0	1	Fractional cloud cover at any level.
			Low cloud cover	T+0	1	Fractional cloud cover below 5,000 feet above ground level.

			Low cloud cover	T+0	1	Fractional cloud cover below 5,000 feet above ground level.
			Medium cloud cover	T+0	1	Fractional cloud cover between 5,000 feet and 15,000 feet above ground level.
			High cloud cover	T+0	1	Fractional cloud cover above 15,000 feet above ground level.
			Cloud cover below 1000ft above ground level (AGL)	T+0	1	Fractional cover below 1,000 feet above ground level.
			Cloud base	T+0	1	Height of cloud base with at least 5 oktas (five eighths) of cloud cover.
YYYYMMDDHHMM_u1096_ng_pp_nowcast_cloud_cover_2km	1	60 min	Total cloud cover	T+1 to T+6	6	Fractional cloud cover at any level.
			Low cloud cover	T+1 to T+6	6	Fractional cloud cover below 5,000 feet above ground level.
			Medium cloud cover	T+1 to T+6	6	Fractional cloud cover between 5,000 feet and 15,000 feet above ground level.
			High cloud cover	T+1 to T+6	6	Fractional cloud cover above 15,000 feet above ground level.
			Cloud cover below 1000ft AGL	T+1 to T+6	6	Fractional cloud cover below 1,000 feet above ground level.
			Cloud base	T+1 to T+6	6	Height of cloud base with at least 5 oktas (five eighths) of cloud cover.
Lightning						
	No. files	Delivery frequency	Parameters contained within file	Time steps	Images per file	Definition
YYYYMMDDHHMM_u1096_ng_pp_analysis_lightning_rate_2km	1	15 min	Lightning rate	T+0	1	Number of flashes of lightning seen per second at a point.
YYYYMMDDHHMM_u1096_ng_pp_nowcast_lightning_rate_2km	1	15 min	Lightning rate	T+15m to T+6	24	Number of flashes of lightning seen per second at a point.

The full Nowcasting product delivers a total of 16 unique files, 20 files per hour, and a total of 185 images overall (407 images per hour).



Format

Nimrod multi-field format



Time steps

T+15mins out to T+6 (as stated)



Resolution

2 km



Model run times

Hourly



Domain

UK



Delivery

File Transfer Protocol (FTP)