Description of weather overlays

Frequently Asked Questions (/category/Frequently-asked-questions) ADMINISTRATOR Dec 18, 2016, 1:26 AM (/post/3789)

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Radar, lightning: This overlay is a combination of these two parts: **1. weather radar** and **2. real-time lightning strikes**. Please note, although the radar and the lightning radiolocation are both integrated into one overlay, they work independently of each other; they have different data sources and a slightly different map coverage. However, on this feature, they share the timeline occurrence; you can display them together as an animation in the time course of 12 hours to 5 mins back in the past.

1. Reflectivity measured with a doppler radar, indicating actual rain/snow/hail or amount of preticable water in clouds.
   Weather radar, also called Doppler weather radar, is a type of radar used to locate precipitation, calculate its motion, and estimate its type (rain, snow, hail etc.) or amount of predictable water in clouds. Returned echoes from targets ("reflectivity") are analyzed for their intensities to establish the precipitation rate in the scanned volume.

2. We are getting the real-time lightning data from a database called Blitzortnung (http://en.blitzortung.org/). It is a great community project that Windy has become a contributor to some time ago. It is created by weather fans who buy and install their own lightning detectors, and build a free creative commons map of real-time lightning strikes. These have been integrated just on the web version so far; but iOS and Android apps will follow soon.

   For more info, please read: https://blog.windy.com/real-time-lightning-strikes (https://blog.windy.com/real-time-lightning-strikes)

Wind: Average wind speed 10 meters above the surface (or at a selected pressure level). Actual wind at the ground is influenced by many factors like mountains, cities, convective clouds and thermal effects.

Wind gusts: Wind gusts 10 meters above the surface in the last 3 hours. Actual wind at the ground is influenced by so many factors like mountains, cities and thermal effects. ECMWF model has a different method of Wind gusts computation, resulting in higher values than other models.

Wind accumulation: This overlay represents the maximum intensity projection of wind gusts over the next 10 days. Basically, each point on the map represents the strongest or maximum wind forecasted for that place in the next 10 days. This feature is especially helpful for tracking hurricanes and other strong wind events.
For more info, please read: https://blog.windy.com/wind-accumulation (https://blog.windy.com/wind-accumulation)

Rain, thunder: Rain/snow accumulation in the last 3 hours, combined with lightning density forecast.
For more info, please read: https://blog.windy.com/global-lightning-forecast (https://blog.windy.com/global-lightning-forecast)

Rain accumulation: Total rain accumulation in the next hours or days. It's being deduced from the reference time (see 'About these data' section in the Quick Settings Menu).

New snow: Total snow accumulation in the next hours or days. To estimate the depth of snow, we use the ratio: 1mm of rain = 1cm of snow.

Snow depth: Forecasted depth and density of snow in the next days. Actual snow depth will be influenced by many factors like orography, cities and so on.

Precipitation type: Precipitation types can include the character or phase of the precipitation which is falling to the ground level. Precipitation can fall in either liquid or solid phases, or transition between them. Rain, Freezing rain, Mixed ice, Snow, Wet snow, Rain with snow, Ice pellets.
More detailed info: https://community.windy.com/topic/5444/precipitation-type-newly-added (https://community.windy.com/topic/5444/precipitation-type-newly-added)

Thunderstorms: Defined as a number of lighting flashes in the area of one square kilometer, in one day.

Temperature: Temperature 2m above the surface (or at a selected pressure level). The actual temperature is influenced by many factors like mountains, convective clouds and cities.

Dew point: Temperature at 2m above the surface (or at a selected pressure level) at which a water vapour in the air will form dew. It is a measure of atmospheric moisture.

Humidity: Relative humidity 2m above the surface (or at a selected pressure level).

Freezing altitude: The freezing level, or 0 °C (zero-degree) isotherm, represents the altitude in which the temperature is at 0 °C (the freezing point of water).

Clouds: Clouds and rain/snow accumulation in the last 3 hours. Please note that rain from convective clouds can not be included in this value, therefore we advise you to observe the CAPE index.

High clouds: High clouds is cloud coverage at an altitude between circa 6500m and the cloud tops. Cloud cover is given in percent.

Medium clouds: Medium clouds is cloud coverage at an altitude between circa 2000m and circa 6500m. Cloud cover is given in percent.

Low clouds: Low clouds is cloud coverage at an altitude between the surface and circa 2000m. Cloud cover is given in percent.

Fog: Fog is a visible aerosol consisting of minute water droplets or ice crystals suspended in the air at or near the Earth's surface. Fog is heavily influenced by nearby bodies of water, topography, and wind conditions.

Cloud tops: 'Cloud tops height is the altitude of the cloud peak.

Cloud base: Cloud base height is the altitude of the lowest cloud base above the ground, especially important for pilots. The model of terrain is simplified, so be cautious to use these values in the mountains. On large areas, the forecast model is not able to calculate the cloud base.

Visibility: Visibility is a measure of the distance at which an object or light can be clearly discerned. Meteorological visibility refers to transparency of air: in dark, meteorological visibility is still the same as in daylight for the same air.

CAPE index: Convective available potential energy represents the potential energy of the atmosphere and can be the indicator of forming convective clouds and storms. Values from 1000 to 2000 can indicate forming of moderate thunderstorms, and over 2000 severe ones.

Waves: Significant wave height and its period of all wave types combined (swell and wind waves). Close to the shoreline, the actual height is influenced by the shape of the sea bottom.

Swell1: A swell consists of wind-generated mechanical waves that are not significantly affected by the local wind at that time. They have been generated elsewhere and some time ago, usually travelling long distances.

Swell2: Secondary swell is produced also by winds far away but in other places than Swell1. It has different heights, directions and periods than Swell1.

Swell3: Another secondary swell, with different heights, directions and periods than Swell1 and Swell2. More detailed info about the swells is **here** (https://en.wikipedia.org/wiki/Swell_(ocean)#The_mechanism_of_the_surface_wave_generation_by_winds).

Wind waves: Wind waves, or wind-generated waves, are surface waves that occur on the free surface of bodies of water (like oceans, seas, lakes, etc.). They result from the wind blowing over an area of water surface. Wind waves are generated by the immediate local wind – which gives them the direction. After the wind ceases to blow, wind waves are called swells.

Sea temperature: Sea surface temperature as estimated for actual time. Close to the shoreline, the actual value is influenced by the shape of the shoreline and the sea bottom, and also by wind and waves.

Currents: Surface sea currents as estimated for actual time. Close to the shoreline, the actual value is influenced by the shape of shoreline and sea bottom. Also, actual surface sea currents can be influenced by the wind.

CO concentration: Carbon monoxide is a colorless, odorless, and tasteless gas that is slightly less dense than air. The level of CO concentration in the troposphere is measured by a system called Parts Per Billion by Volume (PPBV).

Dust mass: Dust generally consists of particles in the atmosphere that come from various sources such as soil, dust lifted by weather, volcanic eruptions, and air pollution. The level of dust concentration is given in micrograms (one-millionth of a gram) per cubic meter of air, or µg/m3.

SO2 mass: Sulfur dioxide is a toxic gas with a burnt, match smell. It is released naturally by volcanic activity and is produced as a by-product of the burning of fossil fuels contaminated with sulfur compounds. The level of SO2 concentration is given in micrograms (one-millionth of a gram) per cubic meter of air, or µg/m3.

Ozone layer: Total column of Ozone is a factor that influences the amount of dangerous UV radiation coming to the surface. Measured in Dobson units. Higher values represent more ozone and less UV radiation.

Pressure: The mean sea-level pressure (MSLP) is the average atmospheric pressure at sea level. Atmospheric pressure, sometimes also called barometric pressure, is the pressure within the atmosphere of Earth (or that of another planet). In most circumstances atmospheric pressure is closely approximated by the hydrostatic pressure caused by the weight of air above the measurement point.

Weather warnings: Weather warnings are issued by national weather agencies in a form of "CAP alerts". More detailed info: https://blog.windy.com/cap-alerts-weather-warnings (https://blog.windy.com/cap-alerts-weather-warnings)

E S J 6 Replies 28

3 MONTHS LATER

1 out of 89

(/user/gkikas-lgpz)Gkikas LGPZ (/user/gkikas-lgpz) MODERATOR (/groups/moderators) Mar 31, 2017, 12:03 PM (/post/4973)

@ivo (https://community.windy.com/uid/3)
In the latest version of windytv there are more overlays (e.g. cloud tops, frz altitude, visibility).
So, some more descriptions needed.

3 Replies 8

(/user/ivo)ivo (/user/ivo) ADMINISTRATOR (/groups/administrators) Apr 2, 2017, 4:26 AM (/post/4990)

@meteo-GR Yep

S 1 Reply 2

ABOUT A MONTH LATER

E (/user/eand)Eand (/user/eand) May 4, 2017, 11:45 AM (/post/5423)

@ivo (https://community.windy.com/uid/3)

Could you explain difference between:

- wawes
- swell 1
- swell 2
- swell 3

M 1 Reply 43

4 MONTHS LATER
1 out of 89

(/user/gjwolfswinkel)gjwolfswinkel (/user/gjwolfswinkel) Aug 26, 2017, 6:30 AM (/post/6592)

The freezing altitude layer, how does that work? I am often looking at ski weather and on those sites, the current freezing altitude (frostgrenze in German, vorstgrens in Dutch) is at around 3800 meters. Yet the 'freezing level' layer shows values of 2500 to even 1900 meters for those locations, even though the current temperatures there are much higher.

Am I misinterpreting what the freezing altitude layer actually is or does? Or is the data faulty?

Thanks!

2

10 DAYS LATER

S (/user/shappy4)shappy4 (/user/shappy4) Sep 5, 2017, 8:09 AM (/post/6785)

@ivo (https://community.windy.com/uid/3)

Are the two numbers in the wind section - gusts and sustained winds?

1 Reply

6

V (/user/vernab)vernab (/user/vernab) Sep 6, 2017, 1:36 AM (/post/6817)

- how do I find the forecast for the storm Irma

1 Reply

1

(/user/gkikas-lgpz)Gkikas LGPZ (/user/gkikas-lgpz) MODERATOR (/groups/moderators) Sep 6, 2017, 1:54 AM (/post/6819)

1 out of 89

@vernab (https://community.windy.com/uid/221694)
https://www.windy.com/?gust,18.469,-63.896,7,a:FFMFF (https://www.windy.com/?gust,18.469,-63.896,7,a:FFMFF)

1

(/user/tz)TZ (/user/tz) ADMINISTRATOR (/groups/administrators) Sep 6, 2017, 3:08 AM (/post/6823)

@shappy4 (https://community.windy.com/uid/205651) The first number is wind direction and the second one is wind velocity (average value for last 3 hours).

2

14 DAYS LATER

(/user/igorxxxmirror)IgorXXXmirror (/user/igorxxxmirror) Sep 20, 2017, 6:00 AM (/post/7548)

Hello. What does the height of 100 meters mean? Above sea level or terrain? The navigation satellite writes that I have a height of 160 meters above sea level (160 m msl).

1 Reply

0

(/user/tz)TZ (/user/tz) ADMINISTRATOR (/groups/administrators) Sep 20, 2017, 6:16 AM (/post/7549)

@IgorXXXmirror (https://community.windy.com/uid/340863) Hi, 100m layer is above model terrain. Unfortunatelly it is very coarse terrain with 9km horizontal resolution.

J A 3 Replies

2

(/user/igorxxxmirror)IgorXXXmirror (/user/igorxxxmirror) Sep 20, 2017, 6:58 PM (/post/7579)

@TZ (https://community.windy.com/uid/1998) Thanks

1

(/user/rani)Rani (/user/rani) | **Premium** Sep 22, 2017, 8:41 AM (/post/7643)

@ivo (https://community.windy.com/uid/3)

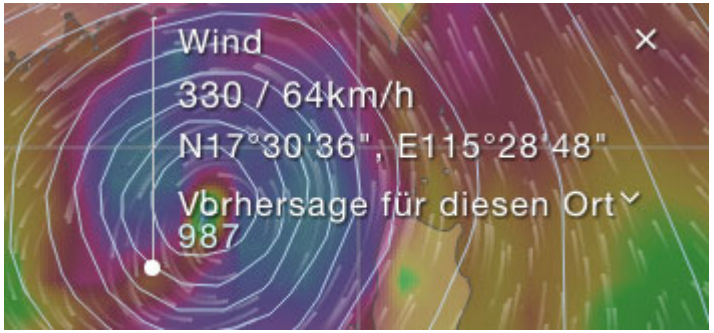
When using wave overlay, I see a color key indicating wave height and also boxes with values in them with either- or~ before the value. These numbers never match the color key .

Please explain.

1

22 DAYS LATER

(/user/atalantia)Atalantia (/user/atalantia) Oct 14, 2017, 12:02 PM (/post/7930)

What means the 330 before 64km/h? 

(/uploads/files/1507996938234-windyscreen.png)

1 Reply

0

1 out of 89

(/user/gkikas-lgpz)Gkikas LGPZ (/user/gkikas-lgpz) MODERATOR (/groups/moderators) Oct 14, 2017, 2:38 PM (/post/7931)

@Atalantia (https://community.windy.com/uid/352893)
wind direction 330 degrees (coming from NorthWest)

M 1 Reply > 4

ABOUT A MONTH LATER

(/user/jmds)jmds (/user/jmds) Nov 18, 2017, 11:51 PM (/post/8765)

@ivo (https://community.windy.com/uid/3) said in Description of weather overlays (/post/3789):

> Rain rate:

I cannot see RAIN RATE in the settings ....

1

3 MONTHS LATER

A (/user/alecloudenback)alecloudenback (/user/alecloudenback) | **Premium** Feb 16, 2018, 2:28 PM (/post/10244)

Is there an overview of the meteograms that Windy displays for the forecasts? I am not sure of what some of the background colors and charts mean.

1 Reply > 7

8 DAYS LATER

(/user/sonnigekerstin)sonnigekerstin (/user/sonnigekerstin) | **Premium** Feb 24, 2018, 9:02 PM (/post/10573)

@alecloudenback (https://community.windy.com/uid/502206) Me neither. I was searching for a manual to find out about the meaning of the different colors,graphs,pictograms etc....

E 1 Reply > 8

2 MONTHS LATER

J (/user/joalb)joalb (/user/joalb) Apr 12, 2018, 2:15 PM (/post/11742)

@tz (https://community.windy.com/uid/1998) What height does surface refer to? There would technically be no wind at the surface, so it must be some standard height above the ground (whatever the common reading instrument height is). What is that height? (i.e. 2m, 10m, 20m?). I'd like to use the data to estimate wind shear at a given location and using surface (0m) is not valid.

1 Reply > 0

(/user/gkikas-lgpz)Gkikas LGPZ (/user/gkikas-lgpz) **MODERATOR** (/groups/moderators) Apr 12, 2018, 2:45 PM (/post/11743)

@joalb (https://community.windy.com/uid/603195)
Surface wind refers to 10m above model's surface.
Surface temperature refers to 2m.

For ECMWF datasets, see https://www.ecmwf.int/en/forecasts/datasets/set-i (https://www.ecmwf.int/en/forecasts/datasets/set-i)
For ICON, see chapter 6 (Global output fields) in
"Database Reference Manual for ICON"
https://www.dwd.de/SharedDocs/downloads/DE/modelldokumentationen/nwv/icon/icon_dbbeschr_aktuell.html
(https://www.dwd.de/SharedDocs/downloads/DE/modelldokumentationen/nwv/icon/icon_dbbeschr_aktuell.html)

1 Reply >

1

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