

Public weather warning system of the Hungarian Meteorological Service

Aim of the warning system

The Hungarian Meteorological Service (OMSZ) operates a weather warning system in order to protect lives and properties, which is available on the OMSZ public website (www.met.hu/en/idojaras). The main purpose of the system is to ensure reliable sources of information before or during critical weather situations. The warning information is available on www.met.hu/en/idojaras/veszelyjelzes or veszelyjelzes.met.hu websites. The websites show coloured maps, which enable users to quickly recognize areas affected by hazardous weather phenomena. By clicking on the map, one can obtain more detailed information in text form, about the expected weather risks in a given region.

How does the warning system work?

a. Outlook and warning

Outlooks and warnings are issued for following weather phenomena:

- thunderstorm,
- torrential rain,
- wind gust,
- freezing rain,
- blowing snow.

In cases mentioned above, the severe weather information is provided in two steps.

- In the **first step**, an **outlook** information is issued in both **text and map** form, which is valid **for today and tomorrow**, in which we can find the description of the likeliest spatial and temporal evolution of severe weather phenomena.
- In the **second step**, when the severe weather meteorologist recognizes (upon measurements, observations, numerical weather prediction models) that the weather conditions are favourable for occurrence of severe phenomena, already indicated in the outlook, **warning (alert) is issued in map form, usually half an hour to three hours before the event**. It depends on the type of the severe weather or on the weather situation, whether the warning can be issued a few hours before the event will start to form, or only at the beginning of its evolution.

In general, the area, on which outlooks and warnings are issued, varies in size but the smallest area, for which the forecasts apply, is usually equivalent to half of an average county in Hungary.

b. Warnings on snowfall and large amount of rain

Warnings on **long-lasting, large amount of rain or snowfall** are issued in case that the event will occur on area of size equivalent to the territory of an average county in Hungary. **Very short-range warnings (alerts) on these phenomena are not issued!**

c. Special warnings

Special warnings used to be issued on **heat, on extremely cold weather** or on the **possibility of long-lasting dense fog** occurrence in case that the event will occur on area of size equivalent to the territory of an average county in Hungary. **Very short-range warnings on these phenomena are not provided either!**

Warning levels

Three warning levels are distinguished for both outlooks and warnings. If no severe phenomena are expected, which would meet the criteria, the area on the map appears in green colour.

First level (yellow)

The weather events in this category are not unusual but can be potentially dangerous, that is why it is recommended to be cautious, above all during weather-exposed activities. Especially in case of uncertain weather evolution and rapid change of weather situation it is advisable to follow weather information more frequently and in more details than usually.















Second level (orange)

Severe weather phenomena, which can, eventually, lead to damage, or even cause personal injury or accidents. In case of warning, be very careful, take care of your safety and your valuables. Follow the news and details of the weather evolution. Follow the advices of reliable media and instructions of the authorities.







Third level (red)

Dangerous weather events, causing serious damage, threatening human life in many cases, usually involving extensive areas. In case of warning, be especially careful, take great care of your safety and your valuables. Constantly monitor the most recent official weather information. Follow the instructions of the authorities at all times. Stay in a safe place. The highest (red) level of severe weather warning is issued only in case of very rare events.








- Outlook and warning on severe weather events

Severe weather event	Symbol	Short description	
Thunderstorm		1	Attention! Thunderstorm is expected locally, possibly accompanied by stormy windgusts and hail.
		2	Danger! Severe thunderstorms are expected, accompanied by severe windgusts and large hail.
		3	Hazardous weather! Severe thunderstorms are expected, accompanied by severe windgusts and large hail.
Torrential rain		1	Exceeding 25-30 mm of precipitation from intense shower or thunderstorm within a short period.
		2	Exceeding 50 mm of precipitation from intense shower or thunderstorm within a short period.
Wind gust		1	Expected wind gust exceeding 70 km/h.
		2	Expected wind gust exceeding 90 km/h.
		3	Expected wind gust exceeding 110 km/h.
Freezing rain		1	Slight freezing rain. Predicted amount of precipitation is only a few tenths of mms (>0.1 mm).
		2	Freezing rain lasting several hours. Predicted amount of precipitation exceeding 1 mm.
		3	Freezing rain lasting several hours. Predicted amount of precipitation exceeding 5 mm.
Blowing snow		1	Blowing snow of weak intensity, causing small snowdrifts in the area covered by fresh snow.
		2	Blowing snow causing medium-size snowdrifts in the area covered by fresh snow.
		3	Blowing snow of high intensity causing large snowdrifts in the area covered by fresh snow.

- Warning related to snowfall and large amount of precipitation

Severe weather event	Symbol	Short description	
Rain		1	More than 20 mm during 24 hours.
		2	More than 30 mm during 24 hours.
		3	More than 50 mm during 24 hours.
Snowfall		1	More than 5 cm of fresh snow during 12 hours.
		2	More than 20 cm of fresh snow during 24 hours.
		3	More than 30 cm of fresh snow during 24 hours.

- Special warning related to some severe weather events

Severe weather event	Symbol	Short description	
Extremely cold		1	Temperature can drop below -15 °C.
		2	Temperature can drop below -20 °C.
		3	Temperature can drop below -25 °C.
Extremely warm		1	Daily mean temperature likely reaches or exceeds 25 °C.
		2	Daily mean temperature likely reaches or exceeds 27 °C.
		3	Daily mean temperature likely reaches or exceeds 29 °C.
Long-lasting dense fog		1	Long-lasting (> 6 hours) dense fog is expected (visibility is only a few hundred meters).

Additional, important information

The weather forecasts and warnings are always valid for a period of time and not for a specific time. Furthermore, the forecasts and warnings concern expected intensity of meteorological phenomena and probability of their occurrence, not their direct or indirect consequences (e.g. floods) and related damages or accidents.

In complicated weather situations, it may happen that more, different types of severe weather appear at once, on the same territory. In that case, outlook is issued on each weather element (from the tables above), which occurrence can be expected on the given day (at any time, from 0 to 24 hour of that day).

Warnings are usually issued with lead-time of 0.5-3 hours. However, dependent on the weather situation, the warning, once issued, can remain valid for 3 to 6, or even up to 12 hours. In most of the cases, after such time, the warnings are either updated or cancelled. Because warning is a forecast product, it can be modified, updated anytime, upon most recent data and information.

A full picture of severe weather situation can be obtained by checking of all elements of the warning system (map warnings, text and map outlooks).

Severe weather warnings for Europe in map form are available on the www.meteoalarm.eu website.

Due to high temporal and spatial variability of the weather and due to limits of the contemporary forecasting tools (numerical models, nowcasting systems) and observation systems, it is not possible to specify and depict the occurrence of severe weather phenomena with absolute precision. The warning maps provide a schematic representation of the weather situation and of its likely, future development. Thus, **the outlook and warning does not guarantee that certain severe weather event occurs at a certain point of the area in question!**

The OMSZ, in collaboration with other partners, operates special wind forecasting and alerting systems in areas, which are especially important from the life and property protection point of view (e.g. storm-warning on the lakes Balaton, Velence and Tisza).