How is a heat-event defined?

Up until now there is no official definition of a heat wave or heat event that can be applied over different climatic zones. A requirement of the "heat wave" definition for the climate information decision support tool for Europe was, that it can be applied all over Europe. This implies that the heat wave definition has to be relative with respect to local weather or climate. The definition that is used for the Web-based decision support tool uses 2m temperature as meteorological parameter and a threshold that depends on the temperature of the last 30 days (→ **Figure 3**).

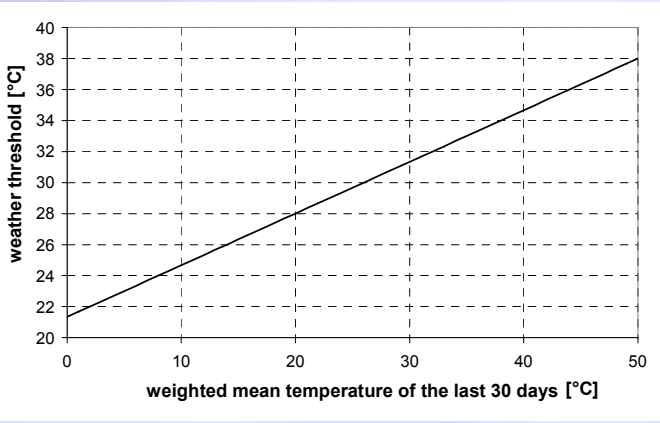

Figure 3: 2m temperature thresholds for identifying heat events in relation to the weighted mean temperature of the last 30 days

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Box 2: Differences between warnings issued by national HHWSs and medium-range heat information

The heat information provided on the internet not only covers the medium-range but also forecasts the probability for heat events on the short-range time scale, which is also covered by the traditional HHWS. Therefore, it could happen that the medium range heat information tool calculates a high probability for a heat-event in a particular region, but the respective national HHWS issues no warning, or the other way round. This could mean that one of the forecasts is wrong. The more likely explanation of such a phenomenon is, however, that different methodologies or thresholds are used for the identification of a heat-event, or that the thresholds that are used to identify a heat situation differ.

! The medium-range heat information does not substitute national HHWSs, but complements the national warning systems with medium-range heat forecasts . !

Please contact us!

Nobody is perfect. In case that information provided about a HHWS is incorrect, incomplete or obsolete or that we failed to include a system we would appreciate if you could get in touch with us.

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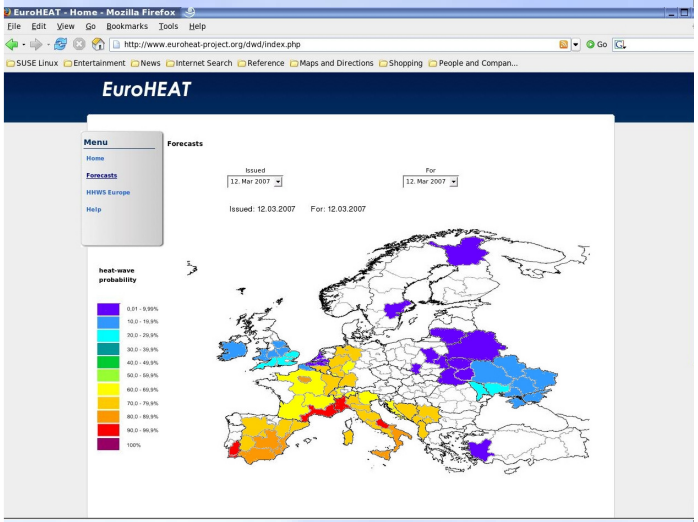
Climate Information Decision Support Tool for Heat in Europe

EuroHEAT



How to use the medium range heat information tool

http://euroheat-project.org/dwd

Aim of the Web-based climate information decision support tool

The Web-based climate information decision support tool is a tool to provide decision makers with early information about potential dangers for human health from heat waves. This timely information gives the health system time to prepare in case that a heat wave is forecast.

The medium range heat information is no substitute for the operational national Heat Health Warning Systems (HHWSs). In contrast to a a traditional HHWS that has, in general, lead times of between 0 and 3 days and provides deterministic heat warnings, the climate information decision support tool provides probabilistic medium-range heat information. Medium-range in meteorology means lead times of between 3 and 10 (15) days. The uncertainty of the weather forecast for the medium-range is much higher than for short-range forecasts.

Box 1: heat-wave probabilities

0.01 - 9.99%	The probabilities for a heat-wave are calculated based on 50 different forecasts (ensemble forecasts) for each point. Within the EuroHEAT project it could be demonstrated that for this kind of medium-range heat forecasts an exceedance probability of 30% was optimal with respect of the amount of overforecasting and underforecasting heat events.
10.0 - 19.9%	
20.0 - 29.9%	
30.0 - 39.9%	
40.0 - 49.9%	
50.0 - 59.9%	
60.0 - 69.9%	
70.0 - 79.9%	The heat-wave probabilities displayed on the map are mean probabilities for a region. In regions with big differences in elevation or coastal regions the heat-wave probability can differ significantly within a region.
80.0 - 89.9%	
90.0 - 99.9%	
100%	

Apart from the information about the current heat situation that is actualised daily between 9:30 and 11:00 UTC, static information about the operational HHWS is also provided on the EuroHEAT web-site. The national HHWSs and heat plans are linked so that the decision maker can inform himself about current warnings in Europe and about the public health interventions that are activated during the different levels of heat warnings in different European countries.

http://euroheat-project.org/dwd/hhws.php

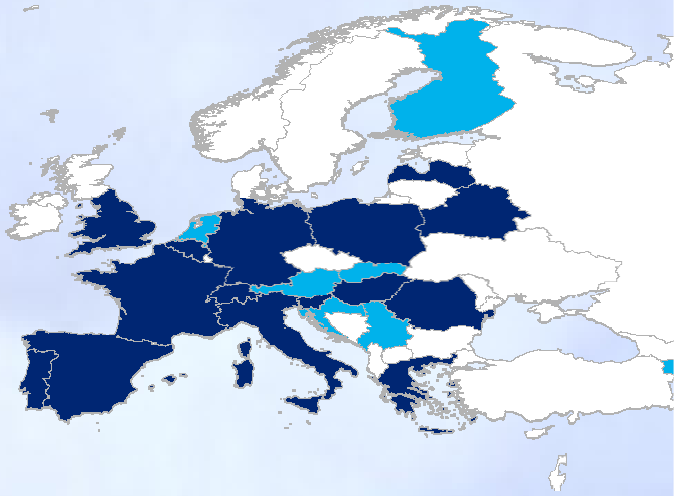


Figure 1: Operational HHWSs in Europe (dark-blue) and planned HHWSs (light-blue)

What kind of information is provided?

The core of the Web-based climate information decision support tool is the medium-range heat wave forecast. On the Web site http://euroheat-project.org/ dwd the probabilities for exceeding regional thresholds for heat are displayed on a regional scale (→ **Box 1**).

France	
Web-site	http://www.meteofrance.com/FR/sante/canicule_vigilance_cani.jsp
Warnings issued by	Meteo France in co-operation with INVS (Institut de veille sanitaire)
Warning season	1 June - 31 August each year
Criteria for calling heat warnings	Regional specific thresholds for daily maximum and minimum temperatures which correspond to the 99,5% percentile of the 3-day running mean of minimum and maximum temperature (minimum threshold between 18°C and 24°C, maximum thresholds between 31°C and 36°C).
Level of warnings	1. seasonal vigilance (1 June - 30 September) 2. warning and action (thresholds are reached within 3 days or at the beginning of the heat wave) 3. maximal mobilisation (thresholds have been reached)
Heat plan	http://www.sante.gouv.fr/canicule/doc/plan_canicule_2006.pdf

Figure 2: Characteristics of operational HHWSs, example France

Each day a forecast of the probabilities for heat events for the following 9 days is issued. The user has the possibility of displaying either the forecast issued on the current day or the forecasts that have been issued during the last 9 days. He can thus track the development of the heat wave and compare the forecasts with the warnings issued by the national HHWS (→ **Box 2**).

The climate information decision support tool provides in addition information about national HHWSs. On the Web site http://euroheat-project.org/ dwd/hhws.php the coverage with operational HHWSs in Europe is displayed (→ **Figure 1**). The map is based mainly on a questionnaire that was sent to the National Meteorological Services in spring 2006. Countries that had an operational HHWS in 2006 are coloured in dark blue. A click on these countries opens a table with the main characteristics of the respective HHWS. Information about the institution(s) running the system, the time of the year the warning system is operational, the criteria for calling heat warnings, the different levels of warnings and a link to the heat plan is provided in this table (→ **Figure 2**).