

Spain and extreme weather events: the Health and Climate Change Observatory needs to be set up as a matter of urgency

On the eve of an episode of unusually high temperatures for this time of year, it is time to take stock of the summer we have experienced, characterised by a succession of extreme weather phenomena in the form of heat waves, drought and torrential rains. The seriousness and complexity of these problems and their repercussions in many areas, especially on health, make it urgent to set up the Health and Climate Change Observatory approved last July, with a stable and independent structure.

Cristina Linares, Julio Díaz 28/09/2023 - 10:33 CEST

[Versión en castellano](#)



A thermometer reads 50 °C in Murcia, in an archive image. EFE/ Juan Carlos Caval.

According to the Copernicus Climate Change Service, the global temperature for the months of June, July and August 2023 was 16.77 °C, which is 0.66 °C above average. In Europe, the figures are slightly worse: 19.63 °C average temperature, with a 0.83 °C increase.

This summer in Spain was the third warmest on record (second only to 2022 and 2003). Over the course of the summer, four heat waves were recorded, with a total of 24 days of heat waves. The average summer temperature in Spain was 1.3 °C above the normal average.

These high temperatures have left Spain with a 1,834 deaths attributable to these heat waves, according to MoMo data, a figure below the attributable mortality in the summer of 2022, which was 4,663, registered by the same daily mortality monitoring system of the Carlos III Health Institute.

On the other hand, the same meteorological situations that cause these high temperatures have had an impact on the exacerbation of drought in our country at a level that had not been seen since 1995 - conditions that have led our reservoirs to a dammed volume of only 36.5% of their total capacity, according to data from 25 September 2023. What is less well known is that droughts, in addition to their obvious direct impact on the agricultural and livestock system, also have short-term consequences on health: they increase morbidity and mortality due to circulatory, respiratory and renal causes and even mental illnesses, as well as increasing water-borne diseases, caused by the lack of water and its lower quality.

What is less well known is that droughts, in addition to their obvious direct impacts on the agricultural and livestock system, also have short-term consequences on health

With regard to the area burnt within our borders, it has also been smaller this summer: around 88,000 hectares burnt compared to the 254,000 hectares of territory burnt in 2022. Even so, we have recently experienced another of the risks associated with climate change, such as the DANA that occurred in Central Spain, leaving several people dead and damaging public infrastructure and homes. On the other hand, several cases of Nile Virus have been detected in Spain this summer, with one fatality.

Virulence in Canada, Hawaii or Greece

Although in terms of mortality and damage associated with these extreme phenomena, the summer of 2023 was not excessively catastrophic in Spain, what happened in other geographical areas confirms that climate change is a global process and that extreme phenomena are occurring more frequently and with greater virulence. We need only recall the devastating forest fires in Canada, or the floods on the east coast of the United States, an "unusually early and aggressive start" to the Atlantic hurricane season.

A devastating wildfire on the Hawaiian island of Maui, fuelled by heat and cyclonic winds, virtually destroyed a historic city. In Greece, heat waves, drought, forest fires and historically deadly floods have left the country devastated. Agriculture-related damage in Greece means that a quarter of the country's production has been lost this year, and worse, erosion and silting of fields means that it will take 9-10 years to restore their fertility, which is leading to massive internal population migration.

The EU's agricultural reserve is not prepared to cope with crises of this magnitude. It should not be forgotten that in Libya, deaths from the floods caused by Cyclone Daniel are estimated at more than 11,000, and there are fears that outbreaks of infectious diseases could increase this figure.

From climate change to Low Emission Zones (LEZ)

In our country, there is a synergic process between the atmospheric conditions favoured by climate change and the levels of atmospheric pollutants generated in cities through two factors. On the one hand, the increase in situations of Saharan dust advection not only produces an increase in the concentrations of particulate matter in the atmosphere, but is also related to the increase in other pollutants such as nitrogen dioxide and tropospheric ozone.

In addition, climate change is causing the Azores anticyclone to become increasingly extensive and intense, promoting situations of stagnation and atmospheric blockage that prevent the proper dispersion of these same anthropogenic pollutants emitted in cities.

This process of symbiosis between chemical air pollution and climate change also extends to the sources of emissions, which in a large city coincide with internal combustion vehicles as emitters of both CO₂ and other primary pollutants. The Low Emission Zones (LEZs) proposed in the legislation therefore have benefits at the local level (reducing the burden of disease and mortality attributable to air pollution) and at the global level by reducing greenhouse gas emissions. It should be recalled that approximately 10% of CO₂ emissions in Spain are related to urban traffic.

Challenging or reversing low-emission zones in cities with more than 50,000 inhabitants is not only detrimental to the health of the population; it is also a setback for climate change mitigation processes

Questioning or reversing the implementation of such measures in cities with more than 50,000 inhabitants is not only detrimental to the health of the population, but also a major setback in climate change mitigation processes.

The need for an inclusive response

We have so far described the complexity of the phenomenon we are facing, especially from the point of view of health impacts. The type of actions carried out so far seem to be individual actions that address a specific risk in isolation. For example, the Ministry of Health's high-temperature prevention plans do not take into account that when a heat wave occurs, there is also an increase in atmospheric pollution, an exacerbation of drought processes with their associated health impacts and, in addition, a greater probability of forest fires, which also have effects on morbidity and mortality from respiratory and circulatory causes in the short term, along with other long-term consequences such as an increase in the risk of mental health illnesses associated with these phenomena.

From the point of view of the health impacts of climate change, it is clear that its effects go far beyond the loss of lives related to high temperatures alone, and that prevention and management plans for these risks must integrate at least those already described if they are to be adequately addressed.

Just as the actions have to be integrated, different government bodies must work together

Just as the actions have to be integrated, the different government bodies involved must work in a coordinated manner. It is necessary, for example, that the Ministry of Health works together with the AEMET (MITERD) through its Meteoalerta system forecasts, which are fundamental to monitoring extreme weather events.

Not only are risk management processes necessary, but also research on the health effects of the events described above is proving to be key to quantifying impacts and identifying the most vulnerable population groups, and therefore improving prevention plans, which in the case of high temperatures results in a decrease in associated mortality.

In this context, on 18 July, the Council of Ministers approved the creation of the Health and Climate Change Observatory (OSCC) as a multidisciplinary body to address mainly the minimisation of risks and impacts and to work on adaptation processes. The seriousness and complexity of the problems associated with climate change makes its implementation urgent. Providing it with a stable and independent structure is essential if the health of current and future populations is to be effectively protected.



About the author: Cristina Linares

Co-director of the Reference Unit on Climate Change, Health and Urban Environment of the Carlos III Health Institute



About the author: Julio Díaz

Co-director of the Reference Unit on Climate Change, Health and Urban Environment of the Carlos III Health Institute

TOPICS [CLIMATE CHANGE](#) | [PUBLIC HEALTH](#) | [HEAT](#)

You may be interested in