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By Victor Resco de Dios 20.07.2022

Wave of fires in Europe, the anomaly that will be the norm



Sources: The conversation [Image: Active fires (in red) between 16 and 17 July 2022. NASA]

From Faro to Marseille, a new wave of fires is <u>raging in southwestern Europe</u>. We are facing what <u>firefighters call fifth-generation fires</u>: a simultaneity of large fires that put in check the extinguishing systems, reaching in some cases to threaten urban centers.

What is happening these days in Europe is something extremely unusual. The worrying thing is that we are barely living a preview of what will happen in a few years. What we

now consider anomalous will soon be the new normal. When in two or three decades we remember the current campaign, it will surely seem slight by comparison.

Why it's an unusual campaign

Last year we published a study where we characterized, for the first time, the differences between the European pyroregions. That is, we study how and why the fire season varies spatially and temporally in Mediterranean Europe. The results we obtained allow us to determine why the current fire campaign is extremely anomalous:

- Incendios out of season. Neither in Portugal nor in many areas of the south of France is it common to observe large fires in the first half of July. Summer water stress peaks at the end of August, so fires at the beginning of summer were neither frequent nor extreme.

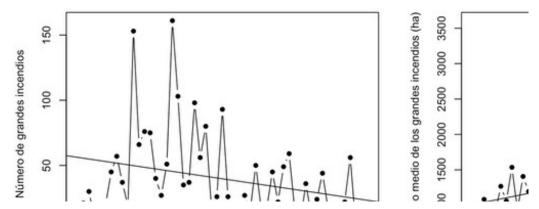
Until now, large fires in the first half of July were only common in the peninsular east: more arid areas where vegetation becomes flammable before.

<u>Europe is becoming aridified</u>, as a result of climate change and rural abandonment, which homogenizes the landscape and makes it <u>uniformly dry</u>, making it flush from below. This is the cause of the advance in the fire station.

- Increasing intensity of fires. Current fires can no longer be extinguished. They die of starvation (they have burned everything that was to be burned) or because it rains. They are fires that release the same energy as one, or more, atomic bombs and all extinguishing technology falls short in front of them.

Large fires are getting bigger. That is, the average size of fires that escape containment increases, and that happens because the intensity of the fires is increasing.

At the time of writing, it is estimated that one of the fires in Gironde (France) would be around 8 000 ha. We would be talking about the largest fire of the last 30 years in France and the third since the French record began in 1973. Something similar happened in the fire in the Sierra de la Culebra (Zamora) a few weeks ago: it touched the size of the most extensive fires recorded in Spain.



The number of large fires (those of more than 500 hectares) has decreased compared to the 80s because more is invested in means of extinction. However, the average size of large fires is increasing, indicating that the intensity and virulence of these large fires is increasing. Víctor Resco, from the General Statistics of Forest Fires of MITECO., Author provided

- Simultaneity of high intensity fires. It is not the first time that we have found ourselves in front of a scenario of fifth-generation fires. In the years 1978 and 1985, for example, there were more than 150 major fires in Spain. The unusual thing about the current season is not the number of large fires, but the simultaneity of very intense fires.

In addition, the simultaneity of fires is not occurring on a national scale, but on a subcontinental scale: southwestern Europe is in that situation. And the UK is expected to go into a heat wave, which could bring the big fires to the rainy British Isles as well.

A public health problem

Unfortunately, we know that the frequency and ferocity of heat waves <u>will increase with</u> <u>climate change</u>. During these episodes, <u>mortality increases</u> because the body decompensates, affecting especially older people or those with previous pathologies.

During heat waves, air quality also worsens markedly due to forest fires. The images of the Meteosat showed us, for example, how the smoke from the fires in the French Landes reached the Spanish Cantabrian coast.

Smoke inhalation is another factor contributing to excess mortality in heat waves; he is held responsible for <u>417 deaths in the 2019 Sydney fires</u>.



Image of July 15, 2022 from the Meteosat satellite where the smoke of the fires in the Landes (France) can be seen reaching the Spanish Cantabrian coast. Meteosat

The Danger of Continued Heat Waves

During <u>heat waves</u> the desiccant potential of the atmosphere increases and we find that many plants dry out, so they release more energy by burning.

It also reduces the humidity in the leaf litter, facilitating the ignition and spread of the fire. Those wetter areas that would normally act as firewalls, such as valley bottoms, become as dry as those around them. That is, the landscape becomes uniformly dry.

The desiccant atmosphere <u>also increases the yield</u> of forest fires, which again intensifies their behavior. That is, the convective column of the fire can ascend to great heights through the atmosphere, which can increase the currents and the transport of pavesas.



The plants dry out during heat waves, as we see in the rockroses (right) or pines (left).

Víctor Resco, Author provided

What to expect in the future

The fire belt is expanding in latitude and altitude. Large fires in areas of Europe where they were hitherto rare, such as the UK and Scandinavia, are becoming more common. Mountain areas, such as the Alps and Pyrenees, are <u>becoming increasingly flammable</u>.

The time when fires <u>were put out with water is over</u>. We are seeing the result of decades of neglect in land management and climate inaction. We're watching the trailer for the movie of the future that we're leaving to our children and our grandchildren.

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