
Climate change. Finco (Catholic University): “The observed phenomena could become the norm”

Mandarin-sized hailstones destroyed crops and cars, and damaged and pierced the facades of buildings and houses. There were tornadoes, floods and, at the other extreme, heat waves. The frequency, combined with the intensity, of the extreme weather events that hit Italy and many other areas of the planet is of particular concern to scientists and other experts. It is very likely that such weather events will recur in the near future. In the meantime, and because the effects of this reduction will not be immediate, it is necessary to take action to reduce carbon dioxide emissions. Even planting more trees around the world, especially in cities, would be useful but not a solution, says environmental physics researcher and professor at the Catholic University of Brescia, **Angelo Finco. Professor, how can this series of extreme weather events in Italy be explained?** The intensity and frequency of extreme weather events will increase as global temperatures rise. What is more, the Mediterranean area is considered crucial, since data from over 160 years of records show a temperature rise of over three degrees, higher than the rest of the planet, which is one and a half degrees. This means that

If a peninsula with a pre-existing humid climate, such as Italy, is hit by high temperatures and more humidity, more fuel will be released, causing major storms.

However, we cannot say whether we will see the same situation next year. Last year, for example, was dry, while this year is very hot. It is common to say that these events are the result of climate change, but a serious scientist can only say that these events are very likely to be the result of climate change. **So why can't we be sure that they are related?** Because we can't run a controlled experiment, that is, we don't have another planet where we can reduce CO₂ emissions to see what happens. The frequency of extreme weather events has increased, and it is reasonable to say that this is related to climate change. A single event is not a statistical indicator. While in the past an extreme weather event was extremely unlikely, today it is the frequency and severity of these events that are changing, and we need to consider adaptation and mitigation measures. **Wouldn't reversing the trend have an immediate impact?** The problem is that the climate system is very inertial. If serious action is taken now, the effects will not be seen for many years. In the meantime, temperatures will rise. **Would it be possible to improve the situation by planting more trees in cities and around the world?** It would hardly be a game changer. Years ago, it was suggested that a trillion trees should be planted around the world - 125 trees for every person - to reduce emissions, but this is neither feasible nor decisive. What we need to do is reduce emissions. Planting trees would buy us some time to reduce emissions, but the fundamental problem remains: there is no space, or rather there would be space, provided we lost biodiversity. We could recover some areas where the forest has been eroded to make pasture. But we would still face the problem of losing entire ecosystems. The forested area in Italy has been steadily increasing due to rural abandonment, but it needs to be better managed through adaptation measures. **Should we plant more trees in urban areas?** Planting trees is not the answer, but it could be useful - although it should be done with great care. Areas should be devoted not so much to CO₂ absorption but to the ecosystem services that vegetation provides, namely shading of streets and houses. Plants provide transpirational cooling. But this requires a green planning strategy. Some plants can remove pollution, but again the recommendation is not to focus on one plant species as this would undermine plant and animal biodiversity. It is a complex problem and there is no single solution. The green transition is a calculator in hand, which means that the contribution that certain actions can make must be assessed and priority actions must be decided, because the clock is ticking. **What can we expect if we fail to reduce emissions?** Italy is likely to be one of the hardest hit countries. What we

have seen this summer could become the norm. Let us remember that one year is not a statistical factor. Trends show that these extreme weather events will increase, as will temperatures. What is surprising is that even in the last few decades there were scientists who warned of rising temperatures, but their warnings were ignored.

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