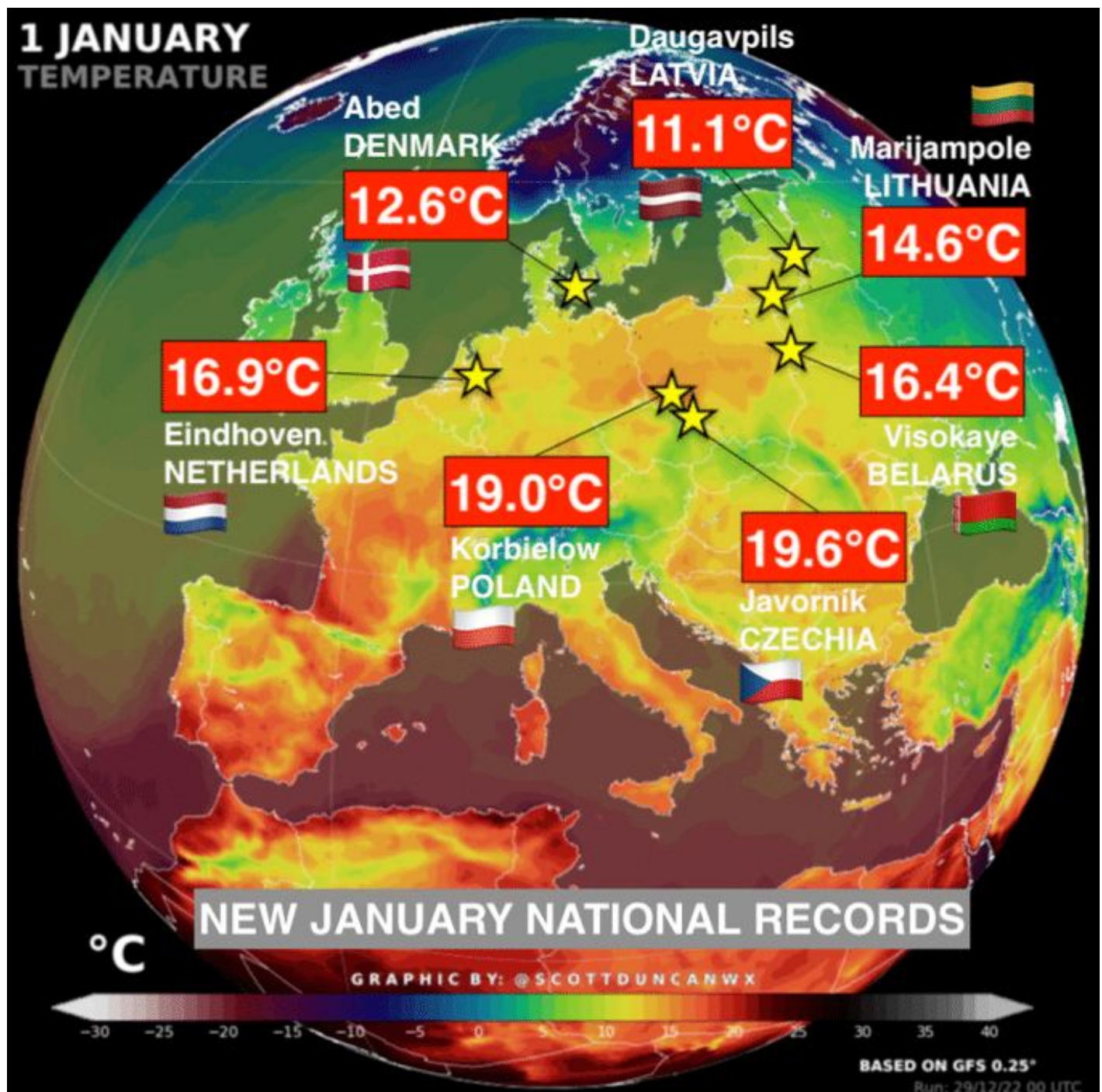


Heat Wave in Europe

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What's in today's article?

- Why in News?
- What is a Heat Dome?

- **What is the relationship between heat domes and the jet stream?**
- **Is Climate Change responsible for heat domes?**
- **News Summary**

Why in news?

- Several parts of Europe are witnessing an unprecedented winter heat wave.
- Calling it an “extreme event”, experts said that temperatures increased 10 to 20 degrees Celsius above normal.
- According to a report published in the Washington Post, the continent is experiencing an extreme warm spell because of the formation of a heat dome over the region.

What is a Heat Dome?

Image Caption: Heat Dome

- A heat dome occurs **when an area of high-pressure traps warm air over a region**, just like a lid on a pot, for an extended period of time.
- The longer that air remains trapped, the more the sun works to heat the air, producing warmer conditions with every passing day.
- Heat domes generally stay for a few days but sometimes they can extend up to weeks, which might cause deadly heat waves.
- Scientists suggest that any region of high pressure, whether a heat dome or not, forces air to sink and once it reaches the ground, it gets compressed and becomes even warmer.
 - Moreover, when air sinks, it gets drier and further raises the temperature of the area.

What is the relationship between heat domes and the jet stream?

- The heat dome’s formation is related to the behaviour of the jet stream — **an area of fast-moving air high in the atmosphere.**
- The jet stream is believed to have a wave-like pattern that keeps moving from north to south and then north again.
- When these waves get bigger and elongated, they move slowly and sometimes can become stationary.
 - This is when a high-pressure system gets stuck and leads to the occurrence of a heat dome.

Is Climate Change responsible for heat domes?

- Although heat domes are likely to have always existed, researchers say that climate change may be making them more intense and longer.
- They suggest with the rising temperatures, it is expected that the jet streams will become more wavy and will have larger deviations, causing more frequent extreme heat events.

News Summary

- On the first day of the year, seven countries in Europe recorded their warmest January.
- Temperatures were **at least 10 to 20 degrees Celsius above normal** from France to western Europe.
- Climatologists suggested that the temperatures surged to summer or springtime levels.
- For example, at Korbielów, a small village in **Poland**, the mercury reached 19 degree Celsius – a temperature the region is more used to in May.
 - It is 18 degree Celsius above the one degree Celsius yearly average for January

Q1) What causes a heat wave?

A heat wave occurs when there is high pressure in the atmosphere that forces hot air downward and traps it near the ground. This high-pressure system acts like a lock that prevents the hot air from rising. Consequently, rain cannot form and the hot air gets hotter.

Q2) What are jet streams?

Jet streams are relatively narrow bands of strong wind in the upper levels of the atmosphere. The winds blow from west to east in jet streams but the flow often shifts to the north and south.

Source: [What is causing the winter heat wave in Europe?](#) | [Firstpost](#) | [CNBC](#) | [WMO](#)

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