



ARTIC TUNDRA: GEOGRAPHY

NEWS: Why Arctic tundra is emitting more carbon than it absorbs, for first time in many millennia

WHAT'S IN THE NEWS?

The Arctic tundra, a vital carbon sink, is turning into a carbon source due to rising temperatures and wildfires, releasing CO₂ and methane. This shift accelerates global warming and highlights the urgent need for climate action.

Significance of Arctic Tundra as a Carbon Storehouse:

- The Arctic tundra has stored **1.6 trillion metric tonnes of carbon** in permafrost—twice the atmospheric carbon.
- Cold temperatures slow decomposition, preventing carbon dioxide (CO₂) release and balancing the global carbon cycle.

Reasons for the Shift to a Carbon Source:

1. Rising Temperatures:

- Arctic warming is **four times faster** than the global average.
- Thawing permafrost activates microbes, releasing CO₂ and methane (CH₄).

2. Increased Wildfires:

- Wildfires directly emit greenhouse gases and accelerate permafrost thaw.
- 2024 saw the **second-highest wildfire emissions** in the Arctic.

Implications of Carbon Release:

- The Arctic tundra is shifting from a **carbon sink** to a **carbon source**.
- This change worsens climate change, causing higher temperatures, rising sea levels, and extreme weather events.

Future Prospects and Mitigation:

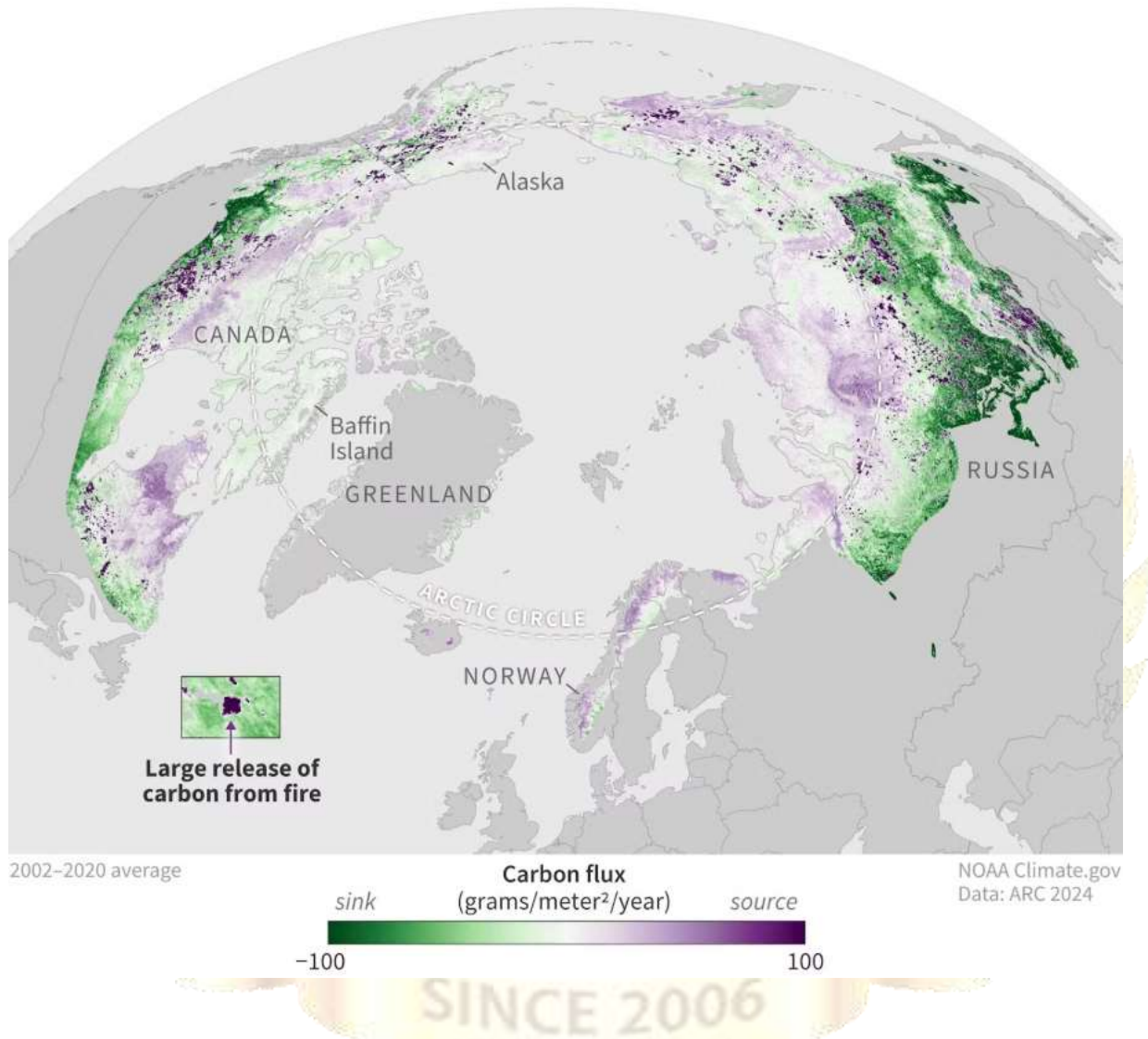
- **Reversing the trend:**
 - Requires aggressive global reduction in greenhouse gas emissions.
 - Mitigation can slow Arctic carbon release.
- Current trends of fossil fuel use and deforestation make this challenging.



Conclusion:

- The Arctic tundra's shift underlines the urgency for **global climate action** to prevent further warming and ecosystem disruptions.

With wildfires & warming, tundra now a carbon source



Source: <https://indianexpress.com/article/explained/explained-climate/arctic-tundra-emit-carbon-absorb-9728512/>