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Crazy Weather and the Arctic Meltdown: Emerging Connections

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The issue: In recent decades, the pace of Arctic warming was at least double that of the globe. A growing body of research suggests this differential warming will increase the frequency of extreme weather events in the northern hemisphere. **Why it matters:** Extreme weather events cause billions of dollars in damage, scores of deaths and injuries, and thousands of disrupted lives each year. The frequency of these events is increasing, and certain types have clear links to climate change. Rapid Arctic warming is expected to cause more persistent weather regimes that can lead to devastating drought, prolonged heat waves, extreme fire seasons, stormy winters, and heavy flooding, many of which have been prominent weather headlines across the U.S. in recent years. **State of the Science:** The dramatic Arctic warming during recent decades is reducing the temperature difference between the Arctic and mid-latitudes, which is weakening the jet stream's west-to-east winds. Instead of a coherent river of strong winds, a weaker jet tends to waver, split, and wander north and south on its path around the northern hemisphere. These wavier jet streams are responsible for a variety of extreme weather events, which have become more frequent in the U.S., Canada, Europe, and Asia.