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[20683001]

A frozen mountaintop in Tibet may offer an important clue about whether the Earth is warming perilously .

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The ice samples are an important piece of evidence supporting theories that the Earth has warmed considerably in recent times , largely because of pollutants in the air , and will warm far more in the century ahead .

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A substantial warming would melt some of the Earth's polar ice caps , raising the level of the oceans and causing widespread flooding of heavily populated coastal areas .

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" If you can use data to reconstruct what happened in the past , you have much more confidence in predictions for the future . " said Lonnie Thompson , a research scientist at Ohio State who dug for and analyzed the ice samples .

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To compare temperatures over the past 10,000 years , researchers analyzed the changes in concentrations of two forms of oxygen .

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These measurements can indicate temperature changes , researchers said , because the rates of evaporation of these oxygen atoms differ as temperatures change .

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Some climate models project that interior regions of Asia would be among the first to heat up in a global warming because they are far from oceans , which moderate temperature changes .

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But the ice-core samples are n't definitive proof that the so-called greenhouse effect will lead to further substantial global heating , Mr. Thompson acknowledged .

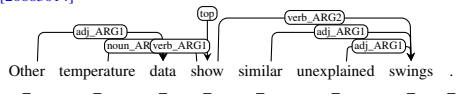
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According to greenhouse theories , increased carbon dioxide emissions , largely caused by burning of fossil fuels , will cause the Earth to warm up because carbon dioxide prevents heat from escaping into space .

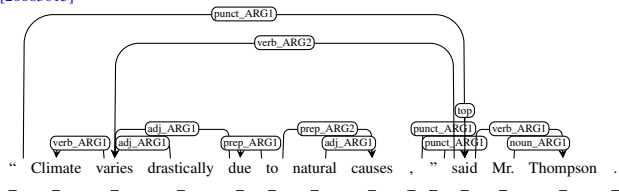
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Skeptics say that if that's the case , temperatures should have risen fairly uniformly over the past century , reflecting the increase in carbon dioxide .

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