

## Global warming could shorten day, report predicts

by Bend\_Weekly\_News\_Sources

Earth's 24-hour day may become about 12 hundred-thousandths of a second shorter due to the long-term trend of global warming, a new report contends. Alongside various environmental disasters that scientists predict will ensue from global warming "believed to be caused by emissions of heat-trapping gases due to human activities" another effect would be a redistribution of Earth's water. This would occur because of changes in water temperatures. Felix W. Landerer of the Max Planck Institute for Meteorology in Hamburg, Germany, and colleagues calculated the effects of this redistribution on the Earth's spin. This in turn determines the length of the day. If an appreciable amount of the weight of ocean waters redistributes itself toward the poles, this reduces the extent to which the planet as a whole bulges at the equator. This then results in something similar to what happens when a spinning skater pulls her arms in toward herself: the spin speeds up. Earth may witness an analogous effect, Landerer and colleagues reported in a paper published March 28 in the journal *Geophysical Research Letters*. The effect occurs because a rise in ocean temperatures would raise sea levels, the scientists explained. A considerable amount of ocean mass may transfer away from deep waters to shallower continental shelves, the sea beds that surround continents. In addition, "the continental configuration is such that there is a lot of shelf area especially in the higher northern latitudes," near the North pole, Landerer wrote in an e-mail. Thus, a movement toward shelf areas means a movement toward Earth's axis of rotation, and away from the equator. By the end of the next century, enough water mass could shift to shorten the length of day by about 0.12 thousandths of a second, Landerer's team predicted. They based their calculations on future ocean conditions predicted by the International Geosphere-Biosphere Programme on Climate Change Assessment.

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