Europe is warmed by water vapor feedback

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Swiss scientists say Europe's recent rapid temperature increase is likely due to an unexpected greenhouse gas: water vapor.

Researchers at the World Radiation Center in Davos, Switzerland, say elevated surface temperatures caused by other greenhouse gases have enhanced water evaporation and contributed to a cycle that stimulates further surface temperature increases.

The scientists say their findings might help answer a long-debated Earth science question about whether the water cycle could strongly enhance greenhouse warming.

The Swiss researchers examined surface radiation measurements from 1995 to 2002 over the Alps in Central Europe and found strongly increasing total surface absorbed radiation, concurrent with rapidly increasing temperatures.

The authors, led by Rolf Philipona of the World Radiation Center, show experimentally that 70 percent of the rapid temperature increase is very likely caused by water vapor feedback. They indicate the remaining 30 percent is likely due to increasing manmade greenhouse gases.

They suggest their observations indicate Europe is experiencing an increasing greenhouse effect and the dominant part of the rising heat emitted from the Earth's atmosphere (longwave radiation) is due to water vapor increase.

The report appears in the journal Geophysical Research Letters.