



## **The signature of stratospheric ozone on tropical temperature trends, as revealed by model integrations with single forcings**

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The effect of ozone depletion on temperature trends in the tropical lower stratosphere is explored with an atmospheric general circulation model, and directly contrasted to the effect of increased greenhouse gases and warmer sea surface temperatures. Confirming and extending earlier studies we find that, over the second half of the 20th Century, the lower-stratospheric cooling caused by ozone depletion is several times larger than that induced by increased greenhouse gases and higher sea surface temperatures. Moreover, our model suggests that the response to different forcings is highly additive. Finally we demonstrate that when ozone depletion alone is prescribed in our model, the seasonal cycle of the resultant cooling response in the lower stratosphere bears a very high resemblance to the one of the recently reported trends in satellite and radiosonde observations: this results offers new, strong evidence for the key role of stratospheric ozone on tropical lower-stratospheric temperature trends.