

## **Perspective on the West Antarctic warming from the reconstructed Byrd temperature record (1957-2012)**

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Large uncertainty remains in our knowledge of the temperature changes in West Antarctica since the mid-20th century. Existing Antarctic temperature datasets show significant disagreement about the sign, magnitude and seasonality of the temperature trends, largely a result of the paucity of long-term observations in the region. Only one instrumental record, Byrd Station, in central West Antarctica, provides near-surface temperature observations from 1957 onward, yet its numerous gaps have largely precluded its use for long-term climate change assessment. Here, we present the results from a reconstruction of the Byrd temperature record in which the missing observations have been filled in with 2-meter temperature estimates from global reanalyses. The 1957-2011 temperature trends derived from this reconstructed dataset confirm earlier evidence of significant warming annually as well as in austral winter and spring, but suggest larger temperature increases than previously thought. In addition, our analysis reveals for the first time some significant warming occurring in summer, which has important implications for the West Antarctic Ice Sheet given the increased possibility of surface melting that it entails. The consistency of these results with recent analyses of the West Antarctic spring- and wintertime warming will be discussed. We will also propose some mechanisms accounting for the summer warming.