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## Reply to Comment by Doran et al. on "El Nino Suppresses Antarctic Warming"

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## Reply to comment by Doran et al. on “El Niño suppresses Antarctic warming”

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[1] Doran et al. commented on our recent paper “El Niño suppresses Antarctic warming” [Bertler et al., 2004] suggesting that our interpretation of their article “Antarctic climate cooling and terrestrial ecosystem response” [Doran et al., 2002] was incorrect. Instead they assert that their paper does not state that 1) Antarctica as whole is cooling since 1966 nor that 2) the McMurdo Dry Valleys data were used to verify this finding or represent this longer-term cooling.

[2] We are especially pleased that Doran et al. agree with us that the Dry Valleys do not show a longer-term cooling. However, we cannot find any fault in our interpretation of their original paper, owing to

“Although previous reports suggest slight recent continental warming, our spatial analysis of Antarctic meteorological data demonstrates a net cooling on the Antarctic continent between 1966 and 2000. . . The dry valley cooling and its seasonal pattern (that is, dominated by summer and autumn), reflects longer term continental Antarctic cooling between 1966 and 2000 (Figure 2 and Table1). Owing to the exclusion of dry valley records in Figure 2, compatibility with the dry valley data increases the validity of the analysis.” [Doran et al., 2002]

[3] While the dry valley data used by Doran et al. [2002] decrease on average between 1986 and 1999, the region shows a warming when annual temperature is averaged between 1969 to 1999 [Bertler et al., 2004]. So, how long has a data set to be before we can conclude a trend? As we

showed, Doran et al.’s observed decrease in temperature in the dry valleys is an apparent cooling, that has its origin in an ENSO driven change of atmospheric circulation, leading since 1977 to the import of up to 15K colder air, masking the underlying warming of the region [Bertler et al., 2004].

[4] However, ENSO is only one of many climate phenomena affecting the Antarctic and vice versa, with many oscillating on interannual, decadal, and centennial time scales. We showed that the data set used by Doran et al. [2002] is too short to infer trends, especially when our main quest is yet to fully understand the complex climate forcing and its time scales. However, this also emphasises the importance of studies like Doran et al. and LTER and that we need more and longer observations and proxy records.

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