

Interactive comment on “Two millennia of climate variability in the Central Mediterranean” by C. Taricco et al.

Anonymous Referee #1

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General comments

This paper presents a statistical analysis of a high-resolution isotopic time series. The authors compare the properties of their record with other proxy records of the Northern Hemisphere.

This is an interesting paper, but some points should be clarified before it is accepted for publication.

Specific comments

I would have liked to see a more thorough discussion on the climatic interpretation of the isotopic data before they are compared with other proxy temperature reconstructions, which are subject to debate. Have the authors compared their record to

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instrumental series of temperature covering the 20th century? They discuss the potential effect of salinity fluctuations (which might be due to precipitation anomalies), but should bring some kind of quantification of this effect. Instead, they only state that a salinity increase is "fairly unlikely" (p. 1098, l. 13), without giving a precise reason for rejecting this hypothesis.

The authors chose "a window width of $M=150$ points", out of a time series of 560 points. This means that there are less than 4 independent windows on which the analysis is done. I thought that (Vautard & Ghil 1989) advocated that M be larger than $N/10$ to achieve statistical significance. Can the authors justify why the window width ($M=300$) of the series of (Mann et al. 1999) is different from the one they use for their own record?

There is no real consensus on the northern hemisphere temperature reconstructions proxy reconstructions (Jansen et al. 2007). Comparing their record to the one of Mann et al. might induce a bias toward Penn State University. It might be useful to make similar comparisons with records exhibiting a different type of variability.

Conclusions, p. 1099, l. 9. Is there a reference for the "commonly alleged warmth of this period"? To be the Devil's advocate, could it be possible that the authors' record is not so good a proxy for temperature, that a difference with other testimonies of warmth is not statistically or physically relevant?

Minor remarks Abstract. The notion of "deep maximum" is very unusual. Please find a better adjective or remove it.

Introduction, second sentence. "Instrumental temperature series cover only a couple of centuries...". The paper of (Plaut et al. 1995) covers 335 years. Please rephrase the sentence.

Introduction, last para. The paper of (Sicre et al. 2008) should be cited here, with the book of Martinson et al. (1995).

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Results, p. 1094, l. 17. Is there a connection between the paper of (Mann & Jones 2003) and the list of papers cited at the beginning of the paragraph?

Results, p. 1096, l. 5. It is not clear in the manuscript what Delta 14C is. In their paper, (Stuiver & Braziunas 1993) analyse atmospheric residual Delta 14C (whose definition is rather complicated).

Results, p. 1096, l. 15: "... in phase with the solar cycle." Please explain which solar cycle?

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