

Interactive comment on “Temperature changes of the past 2000 yr in China and comparison with Northern Hemisphere” by Q. Ge et al.

Anonymous Referee #3

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The work of Ge et al. is an important new contribution on past temperature variations in China and is suitable for Clim Past. I would suggest the following comments to be taken into consideration during the revisions

Abstract: needs to be rewritten. The point on the PAGES contribution does not need to be in the Abstract. Need to be mentioned for which area and season the reconstruction is valid, provide information on uncertainties and what the is the novelty of the study.
Intro: Need to include also the new findings of Shi et al. (2012), Cook et al. 2013 (Clim Dynam). As well as the PAGES 2k consortium paper and highlight what is the new contribution of Ge et al. 2013 PAGES 2k has 9 groups, including a new ocean one
Data and Methods: This part needs improvements, both on the data and method side. Please clearly describe the data that have been used, distribution, length, seasonality,

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etc. I think it would be good to have another reference period, such as 1961-1990 as the long period currently presented is not optimal. The one from 1870-1990 is not appropriate as too long, including warming and cooling trends and the first part of the period is less trustworthy. Need to say also more on the uncertainties, what kind of uncertainties are included, which not and why the PLS recon shown in Fig 2 is systematically warmer. Please also provide more details how you weighted and how the adjustments were done. Please provide also more information on the calibration and verification periods and round the values in Table 1 to 2 digits after the comma. Expressions like AD 0s should be replaced with more appropriate expressions Page 512: as mentioned above, the reference period should be changed. Result section, where comparisons are shown with other evidence from China. Please indicate how independent those reconstructions are in comparison with the new data set. Are the same proxies used for the different reconstructions, etc. please provide important information on how dependent/independent the different reconstructions are. Comparison with other studies: The new reconstruction of Cook et al (2013) and Shi et al. (2012) should be included as well. In the parts where you compare the different reconstructions, please only report about results that are stat. sign. and give sign. level. It would be good here whether the current decades are exceptional in the context of the past, taking into consideration uncertainties. Conclusions: they should be reformulated, the content should be different from the abstract. The synthesis and major findings should be clearly formulated. In Fig 3 also Ge et al. 2010, Shi et al. (2012) and Cook et al. (2013) should be included. General: the paper needs a English check

References: Shi F, Yang B, von Gunten L (2012) Preliminary multiproxy surface air temperature field reconstruction for China over the past millennium. *Science China: Earth Sciences* 55(12): 2058-2067 Cook, E. et al. 2013: Tree-ring reconstructed summer temperature anomalies for temperate East Asia since 800 C.E. *Clim. Dyn.* Online first PAGES 2k Consortium*, * Ahmed, M., Anchukaitis, K.J., Asrat, A., Borgaonkar, H.P., Braida, M., Buckley, B.M., Büntgen, U., Chase, B.M., Christie, D.A., Cook, E.R., Curran, M.A.J., Diaz, H.F., Esper, J., Fan, Z-X., Gaire, N.P., Ge, Q., Gergis, J., González-Rouco,

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J.F., Goosse, H., Grab, S.W., Graham, N., Graham, R., Grosjean, M., Hanhijärvi, S.T., Kaufman, D.S., Kiefer, T., Kimura, K., Korhola, A.A., Krusic, P.J., Lara, A., Lézine, A-M., Ljungqvist, F.C., Lorrey, A.M., Luterbacher, J., Masson-Delmotte, V., McCarroll, D., McConnell, J.R., McKay, N.P., Morales, M.S., Moy, A.D. Mulvaney, R., Mundo, I.A., Nakatsuka, T., Nash, D.J., Neukom, R., Nicholson, S.E., Oerter, H., Palmer, J.G., Phipps, S.J., Prieto, M.R., Rivera, A., Sano, M., Severi, M., Shanahan, T.M., Shao, X., Shi, F., Sigl, M., Smerdon, J.E., Solomina, O.N., Steig, E. J., Stenni, B., Thamban, M., Trouet, V., Turney, C.S.M., Umer, M., van Ommen, T., Verschuren, D., Viau, A.E., Villalba, R., Vinther, B.M., von Gunten, L., Wagner, S., Wahl, E.R., Wanner, H., Werner, J.P., White, J.W.C., Yasue, K., and Zorita, E., 2013: Continental-scale temperature variability during the last two millennia. *Nat. Geosci.*, in press.

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