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Supplement of

Millennial-scale precipitation variability over Easter Island (South Pacific) during MIS 3: inter-hemispheric teleconnections with North Atlantic abrupt cold events

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1 **Supplement**

2 Comments on E-W equatorial gradient calculation

3 Several Equatorial Pacific SST reconstructions could be potentially used for the calculation of
4 a tropical SST Pacific gradient. In our study we considered SST Pacific Equatorial
5 reconstructions obtained from the same proxy (Mg/Ca ratios measured on *Globigerinoides*
6 *ruber*) and depicting enough resolution between 65 and 38 kyr cal BP to resolve millennial
7 scale variability. Accomplishing these premises, two records from eastern edge were selected
8 (Figure 1): ODP 1240 (Pena et al., 2008) and TR 163-22 (Lea et al., 2006). These two sites
9 present slight differences on the absolute SST values (1°C), which reflect their relative
10 position within the cold tongue, with the warmer core (ODP 1240) located more toward the
11 tongue edge. ODP 1240 (Pena et al., 2008) was finally used by virtue of presenting higher
12 resolution than TR 163-22 (Lea et al., 2006).

13 On the western equatorial region four published SST records were originally considered
14 (Figure 1): MD 97-2141 (Dannenmann et al., 2003), ODP 1145 (Oppo and Sun, 2005), MD
15 01-2378 (Zuraida et al., 2009), and MD 06-3067 (Bolliet et al., 2011). Nevertheless, the
16 recorded patterns were significantly different due to the complexity of the local
17 oceanographic processes. SST variability in core MD 06-3067 is controlled by local
18 upwelling intensity related to the Mindanao Dome activity that respond to changes in the East
19 Asian winter Monsoon (Bolliet et al., 2011). This local SST signal during MIS 3 shows an
20 opposite trend compared to other records of the region which respond more to atmospheric
21 tele-connections (Bolliet et al., 2011). Core MD 01-2378 is situated under the direct influence
22 of Indonesian throughflow, the westward current that connects the tropical Pacific with the
23 Indian Ocean. The SST reconstruction during MIS 3 shows little changes and its evolution
24 has been associated to thermohaline circulation but also the Australasian monsoon and sea
25 level changes (Zuraida et al., 2009). Both core ODP 1145 located at 19°N (Oppo and Sun,
26 2005) and core MD97-2141 located at 10°N show SST oscillations above 1°C during MIS 3
27 indicating colder conditions for Heinrich Stadials (HS) and warmer ones for Dansgaard-
28 Oeschger (DO) interstadials but the resolution of ODP 1145 record is considerably lower than
29 the other one. For all these reasons, the SST record from core MD97-2141 has been
30 considered the most suitable to represent regional conditions of the warm pool during MIS 3
31 and it has been used in our gradient calculations.

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