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Holocene stalagmite indicates alternating influence of central European and Mediterranean climate in northern Italy

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High-resolution stable isotope (δ^{18}O and δ^{13}C) and lamina thickness profiles as well as several radiocarbon ages were obtained for Holocene stalagmite ER 76 from Grotta di Ernesto (northern Italy), which was precisely dated by U-series methods and lamina counting. ER76 was already dated in a previous study (McDermott et al., 1999), and except for a 2000-year-hiatus between 20 and 40 mm distance from top the new ages agree with the previous ones.

Grotta di Ernesto is located in a key position between central Europe and southern Italy. The comparison of the stable isotope signals and the lamina thickness dataset with other stalagmite δ^{18}O records located north (COMNISPA, Vollweiler et al., 2006) and south (CC26, Corchia cave, Zanchetta et al, 2007) of the cave indicates that Holocene climate in northern Italy switched several times between central European and Mediterranean conditions. Mediterranean conditions seem to have prevailed during the deposition of sapropel S1 (8.2 - 7.4 ka), between 5.8 and 5.1 and possibly between 3.9 and 2.7 ka. These phases coincide with the most prominent and persistent HSG peaks in the North Atlantic (Bond et al., 2001) indicating a possible relationship

between the climatic switching and NADW production.

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