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High warmth and moisture in southwestern Iberia during the cold MIS 17 interglacial (700 ka)

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The MIS 17 interglacial, dated between ~715 and 685 ka, is one of the coolest interglacial of the last 800,000 years characterized by the lowest CO_2 and CH4 concentrations and relatively high δ18Ob values in comparison with the interglacials before and after the Middle Pleistocene Transition (MPT). This interglacial marks the end of the MPT as intensified, long and asymmetrical 100,000-year ice age cycles became eminently established and the North American ice caps took over the previous dominance of the Eurasian ice sheets in the total Northern Hemisphere ice volume. This change in the location of the dominant ice caps coincided with a major reorganization of the North Atlantic oceanic currents when the “Boreal heat pump” was replaced by the “Nordic heat pump” implying a northward migration of the Polar Front. Some authors recently suggest that the well-established 100 kyr cycles would start after a long period of advection of warm water that brought atmospheric moisture to Europe enhancing the growth of Alpine glaciers. However, no data exist so far demonstrating the arrival of sustained high amount of moisture to Europe at the end of the MPT. Here we present new vegetation and climate data based on the analysis of the pollen grains preserved in the southwestern Iberian margin IODP site U1385 (37°34.285’N, 10°7.562’W, 2578 m depth). This site, collected during IODP Expedition 339 - “Mediterranean Outflow”, is under the direct influence of the westerlies, which bring precipitation to Europe and control present-day vegetation greenness, an indicator of forest cover. Our new results will be compared with published oceanic records from the same site and strategically located high and lower latitude paleoceanographic records.