

**Presence of corals [*Siderastrea radians* (Pallas, 1766)\*] of the last interglacial (130-120 ka) in the Canary Islands: marine palaeo-biogeographical implications.****Meco, J.<sup>1</sup>, Lomoschitz, A.<sup>2</sup>, Betancort, J.F.<sup>1</sup>, Soler-Onís, E.<sup>1</sup>**<sup>1</sup>*Departamento de Biología, ULPGC, 35017 Las Palmas de Gran Canaria, Canary Islands, Spain*<sup>2</sup>*Departamento de Ingeniería Civil, ULPGC, 35017 Las Palmas, Canary Islands, Spain***Abstract**

The coral *Siderastraea radians* (Pallas, 1766) currently lives in Atlantic tropical regions of the Americas and Africa: between Brazil (Laborel, 1971), the Caribbean Sea and Bermuda islands (Verril, 1907) on the one side; and on the other, between Liberia and Cameroon; in Bioko, Sao Tomé and Annobom (Pagalu) islands and in Cape Verde (Laborel, 1974). This coral is round, spheroidal or hemispheroidal, generally characterized by irregular masses that range between 5 and 12 cm in size, but sometimes can reach 50 cm in diameter. It lives in very shallow waters and intertidal zones. In the Canary Islands, *S. radians* has been found within marine deposits at the following localities: Tachero, Tenerife (García Talavera et al., 1978); Las Playitas, Fuerteventura (Zibrowius & Brito, 1986; Meco, 1986); La Santa, Lanzarote (Meco et al., 2003; 2006) and San Cristóbal, Las Palmas de Gran Canaria (Meco et al., 2006). Some specimens from La Santa have diameters of as much as half a meter.

With the exception of Tachero's deposit, considered Holocene in age (Mellahian-Flandrian), the rest of localities correspond to the last interglacial period or MIS (Marine Isotope Stage) 5.5.

Currently, U-series is the most reliable dating method for last-interglacial-age marine deposits and we have used it to date the fossil corals. One specimen from La Santa has an age of  $130.2 \pm 0.8$  ka and other from San Cristóbal has an age of  $120.5 \pm 0.8$  ka (Muhs et al., 2014). These data confirm they belong to MIS 5.5. Outside the Canaries, fossil specimens of *S. radians* have been also found in Cape Verde Is., the Caribbean Sea (Bahamas, Florida Keys, Puerto Rico, Grand Cayman, Jamaica, Curaçao, Barbados) and possibly Brazil and Bermuda (Muhs et al., 2014). U-series ages at all these localities also correspond to the last interglacial. On the other hand, from the specimens found on the African coast (Mauritania, Senegal and Angola) only one coral from Mauritania was dated by radiocarbon (Chevalier and Hebrard, 1972) but its age (ca. 31 ka) is only a minimum estimate.

Within the localities mentioned above, only those located on the African and Canary coasts exceeded the current boundaries of *S. radians*. Its palaeo-biogeographical distribution thus indicates that in the Upper Pleistocene (MIS 5.5), and along the Canary and African coasts, the Canary Current was likely warmer than today and the Guinean counter-current might be expanded; however, no such change occurred on the Atlantic American coasts, at least to the extent that allowed expansion of the range of *S. radians*. In other words, during the last interglacial there was an expansion of the biogeographical zone of *S. radians* in the central Atlantic, but this change only occurred in the African, or eastern Atlantic region.

Furthermore, the Atlantic Ocean didn't change its geographical configuration, due mainly to tectonic plate movements, in the Upper Pleistocene. Thus, the variations mentioned above might be related to astronomic causes; which changed the amount of sunshine, temperature regime, ice volumes, wind patterns, and ocean currents and, as a consequence, the marine fauna location.

(\*1766 *Madreporaria radians* Pallas Elench. Zoöphylacium p. 322)

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