

An Overview of the ^{14}C Marine Reservoir Effect on the Coast of Brazil

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Abstract

Since 2012, as part of a large project that aims to quantify the ^{14}C Marine Reservoir Effect (MRE) on the Brazilian coastline, hundreds of marine and terrestrial samples have been analysed and the results are slowly becoming available for different regions on the coast. Recognizing the importance of the MRE for the correct calibration of ^{14}C ages obtained from marine material, which, in turn, is often important for archaeological and environmental studies, the proper assessment of the MRE in Brazil has been a priority for the Radiocarbon Laboratory of the Universidade Federal Fluminense (LAC-UFF). Indeed, the LAC-UFF has had a major role in this endeavour and, through partnerships with institutions worldwide, it has been possible to generate data that sheds light on a variety of natural phenomena occurring in the Brazilian coastal waters (e.g., limestone dissolution, upwelling, freshwater discharge). Interestingly, while the pre-bomb values tend to be positive and relatively low (up to approx. 100 ^{14}C yr) along the coast, values obtained from archaeological samples are mostly highly negative (up to -140 ^{14}C yr). Here we present the current status of MRE research in Brazil, discussing both temporal and geographic variations, and highlighting the importance of the collaborations established between the LAC-UFF and major laboratories around the world. We also present the future prospects of this project and the limitations encountered so far.