Program LEFE/ action(s) | Project Title | Years 2013 – 2014
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INSU-OA/LEFE (ref AO2013-760179) | ARRA (Antilles Radiocarbon Reservoir Ages) | 

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Contribution to Nom des programmes internationaux

Other funding sources:

**Objectives (2-3 lignes):** Program ARRA aimed to quantify past changes of the radiocarbon reservoir ages \( R \) in the Caribbean Sea over the past 26Kyr by means of 14C dating of paired charcoals and foraminifera either collected in-situ within marine tephra or using geochemical and stratigraphical correlation of marine deposits to their 14C-dated terrestrial counterpart.

During ARRA 14C analyses of 270 samples collected along one long-lived coral (last 200 years), three marine cores and on land were treated at the LSCE radiocarbon laboratory. Half of the dating were obtained in the scope of program at the AMS facility ARTEMIS, thanked for his help, the other half charged by the LSCE. The canonical pre-anthropic values of \( R \) of some 400 years are measured, but the variability of \( \sim 200 \) years is larger than previous estimates. **Illustration 1** figures out the planktonic oxygen isotope record on the mastercore CARMAR 4 as a function of depth (blue points; left) and the 14C data obtained with foraminifera (blue diamonds; right axis). Paired in-situ charcoals are figured out by red stars on the same axis (not radiocarbon ages). Some of the 14C samples are under measurements and analytical check. Some past reservoir ages are already estimated. 14C samples of benthic foraminifera, allowing to understand the hydrological causes of variations of \( R \), were too small to be dated that will be done with the new AMS 14C CRS-MICADAS facility at the LSCE (scheduled in June 2015). The SST and benthic d\(^{18}\)O analyses have been performed on this core to analyze the local hydrology and potential changes of advection and mixing of different water masses (not shown) and they are under measurements in the other planned core. **On illustration 2,** one example of the land-sea geochemical and stratigraphical correlation is shown (land and marine tephra: black and open symbols). Statistical analyses of major element composition of individual glass shards to recover the whole geochemical trend within the different eruptions were done on 20 land deposits of well-known eruptions from Martinique at the microprobe national facility CAMPARIS and they are just achieved. These have been to be compared to same statistical analyses of the \( \sim 80 \) marine tephra in the adjacent CARMAR 4 core.

**Future of the project:**

No publications are yet available. Project CARRARA, extending program ARRA, was submitted to the ANR-2015 "Défis de tous les savoirs" without success.