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Quaternary magnetostratigraphy in the eastern Lesser Antilles fore-arc and accretionary wedge sediments

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The Lesser Antilles subduction zone in the western Atlantic has a short historic record of strong earthquakes such as the 1843 earthquake at a magnitude M = 8.3 (Pointe-à-Pitre, France) and the 2007, M = 7.4 (Martinique, France), while the prehistoric record of large magnitude earthquakes is poorly documented. In order to reconstruct Quaternary seismic activity in this area, several long sediment cores were collected on board the R/V *Pourquoi Pas ?* in 2016 in order to recover turbidites possibly triggered by strong earthquakes. One of these cores (CAS16-24PC) was however collected away from steep slopes to record much fewer rapidly deposited layers (RDLs) and will be used to develop a regional continuous magnetostratigraphy. This 19.95-m-long piston core was collected at 4023 m water depth (above the carbonate compensation depth) in the Atlantic side of the Lesser Antilles, eastward of the Martinique Island. The magnetic susceptibility was acquired on board with a GEOTEK Multi-Sensor Core Logger, while the paleomagnetic data were acquired using a 2G Enterprises superconducting rock magnetometer on u-channel and discrete samples. The natural remanent magnetization (NRM) of the first 13 m is characterized by a strong, stable and well-defined magnetization carried by low coercivity minerals (maximum angular deviation (MAD) values $< 10^{\circ}$ and median destructive field (MDF) values ranging between 10 mT and 40 mT), whereas the last 7 m are characterized by a less stable magnetization carried by minerals with a stronger coercivity (MAD values from 5° to 40° and MDF values from 5 to 80 mT). The continuous relative paleointensity (RPI) profile was derived from continuous u-channel measurements by normalizing the NRM with the anhysteretic remanent magnetization (ARM), while discrete samples (cubes) were also used in order to define the paleomagnetic signal in polarity transitions or excursions. Using sedimentological, physical and geochemical data, we determined and removed RDLs to reconstruct an event-free composite record from the hemipelagic sediments. The new directional and RPI data from both u-channels and cubes reveal that the Matuyama-Brunhes boundary is recorded at 1361 cm, whereas the Jaramillo Subchron is identified between 1821 and 1702 cm, with boundaries being consistent with δ^{18}O results measured on the same core. Finally, the RPI profile also reveals variations that are coherent with previously published records and is further used, in tandem with the δ^{18}O data, to constrain the chronology.