



Coupled paleomagnetic/dating investigation of the Upper Jaramillo reversal from lava sequences (Tenerife, Canary islands)

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A sequence of lava flows has been emplaced during the transition between the Jaramillo subchron and the Matuyama chron in Tenerife (Canary island). This sequence is located along the flank of the collapse of Güimar, in the south central part of the island. It includes 26 flows from the full normal polarity to the full reverse polarity. On the basis of K/Ar dating, the section is bracketed between 1012 ± 18 ka and 975 ± 17 ka. Additional coupled K/Ar and $40\text{Ar}/39\text{Ar}$ dating have been obtained through the sequence and place the reversal itself between 992 ± 12 ka and 979 ± 10 ka consistently with previous dating of the upper Jaramillo reversal. They indicate a particularly high extrusion rate at this site (Guillou et al., session IG9/GMPV7/PS9.6).

Full paleomagnetic analyses have been conducted on these lava flows including rock magnetic analyses (thermomagnetic curves, hysteresis curves, FORC diagrams, k-T curves), zero-field stepwise thermal and alternating field demagnetizations. Thellier and Thellier paleointensity (PI) determinations were also performed and based on the selection criteria defined by Kissel and Laj (2004), only 30% of the samples yielded reliable results.

The first 9 flows at the bottom of the sequence are characterized by a normal polarity. Only two of them yield PI consistent with the present day field intensity in the Canary islands. The two following flows are deviated from the magnetic pole, beyond the secular variation but their VGP is still in the northern hemisphere, over northeastern Pacific. The associated intensity drops significantly to about $11 \mu\text{T}$ that is less than 30% of the present dipole value. The following flows have all a negative inclination and their PI remain low (around $8\text{-}12 \mu\text{T}$). The virtual geomagnetic poles are first over East Antarctica before describing a northward loop almost up to New Zealand. The VGPs then go back close to the southern pole, and mark a second loop to southeastern Pacific associated with little greater PI ($19\text{-}23 \mu\text{T}$). Finally, the last reliable PI data is around $25 \mu\text{T}$, slightly closer to the present day intensity value. Although it is delicate to reconstruct the exact eruption rate, the drop in paleointensity prior to the major directional reversal appears to occur more rapidly than the slow recovery. When considering the PGV path, we lack intermediate points to describe it fully but the transitional points we have are consistent with the detailed path reported for this reversal from sediments.