

Supplementary figures

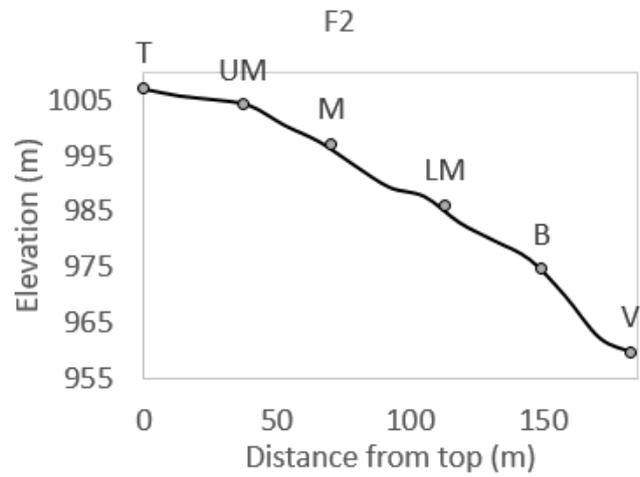
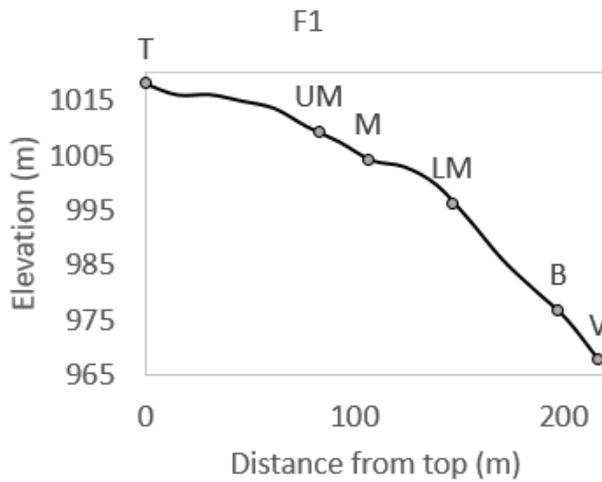
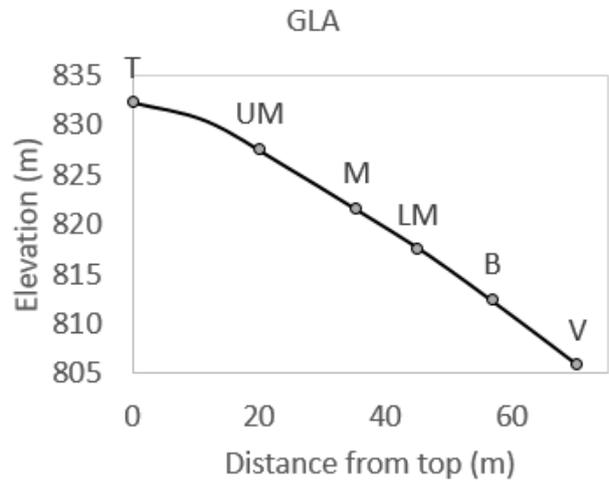
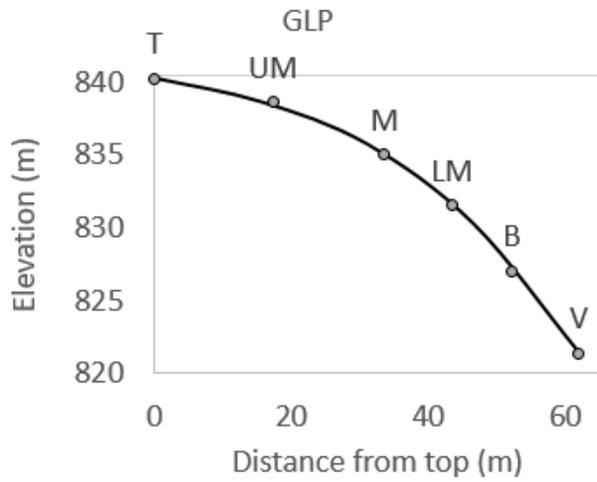


S1: Current vegetation cover of grassland (left) and forest hillslope (right) where soil sample were sampled. Photo taken in October 2019 by V.F. Razanamahandry.



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S2: Active inverse teardrop shape lavaka on a convex hillslope in the lake Alaotra basin and The *Eucalyptus sp.* tree above is taken as a references (Photo taken in October 2019 by V.F. Razanamahandry)



10 S3: **Sampling locations along the hillslope transect and their elevation profiles.** T (Top), UM (upper middle), M (Middle), LM (Lower Middle), B (Bottom) and V (Valley). Elevation data are extracted from the TanDEM-X DEM.



- 15 S4: Hillslope in convex shape surrounding lake Alaotra characterised by a relatively flat top with a slope which curved outward and steepen toward their bases (Photo taken in January 2019 by V.F. Razanamahandry)