

## Characterization of the “b” value to the Ampato - Sabancaya - Hualca Hualca volcanic complex (2015)

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In the present study we analyzed the seismic catalog of volcano–tectonic events recorded in the Ampato–Sabancaya–Hualca-Hualca volcanic complex during the 2015 year in order to characterize the “b” value and correlated with the local tectonic regime and the possible interaction and/or location of the magmatic chamber of this volcanic complex. We used the ZMAP program and the likelihood maximum method (Utsu, 1965) applying a grid with nodes every 350 m and 25 earthquakes as minimum and 200 earthquakes as maximum. On the other hand, we computed the magnitude of completeness with the best combination method (Wiemer & Wyss, 2000). According with those results we identified 4 zones: 1) Huambo–Cabanaconde fault system ( $b=0.62\pm 0.05$ ;  $M_c=1.9$ ), 2) NE of Hualca-Hualca volcano ( $b=0.95\pm 0.08$ ;  $M_c=2.7$ ), 3) ~3.5 km from the crater of Sabancaya volcano ( $b=0.84\pm 0.10$ ;  $M_c=2.6$ ), 4) SW of Huambo–Cabanaconde fault system ( $b=0.50\pm 0.04$ ;  $M_c=1.8$ ). The “b” value in this study is close to 1 especially in the zones 2 and 3, and indicates a big tectonic deformation or a high degree of breaking in those zones. Finally in the 3D mapping we identified 2 anomalies, the first located at the NE of Sabancaya volcano (depth <1 km) which could be associated to a high zone of heterogeneity because it is close to a possible magmatic body, and the second anomaly is located to the NE of Hualca–Hualca volcano and presents a high “b” value (~1.2). The volume of this anomaly increased between 4 and 5 km of depth and could be associated with the magmatic chamber location as observed in earlier studies (Garza, 2014).