Science development on volcanology flawed by the Spanish IGN

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Scientists performing research activities in the field of volcanology, related more specifically to volcano monitoring in the Canary Islands, recently discovered that not all seismic events that occurred in the country had been listed in the Spanish National Seismic Catalogue and its related data base. The National Geographic Institute (IGN) is the legal Spanish institution in-charge of the National Seismic Catalogue, together with volcanic surveillance in Spain. It was therefore a huge surprise to discover that the number of seismic events registered in and around Tenerife Island in 2010, and according to the national catalogue, was only approximately 60, while the real number of seismic events recorded by the IGN in the region was 1,176 (figure 1).

Number of seismic events in 2010 open to the public and scientist: 56

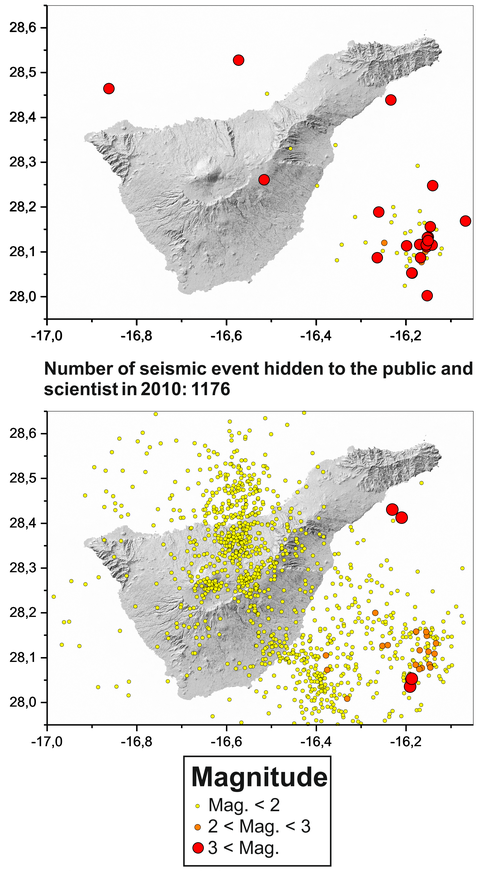

Figure 1. Epicenters location map of the seismic events in and around Tenerife island registered by the Spanish IGN during 2010. UP: Seismic data open to the public and scientific community. DOWN: Seismic data hidden to the public and also to the scientists who belong to the scientific comitte.

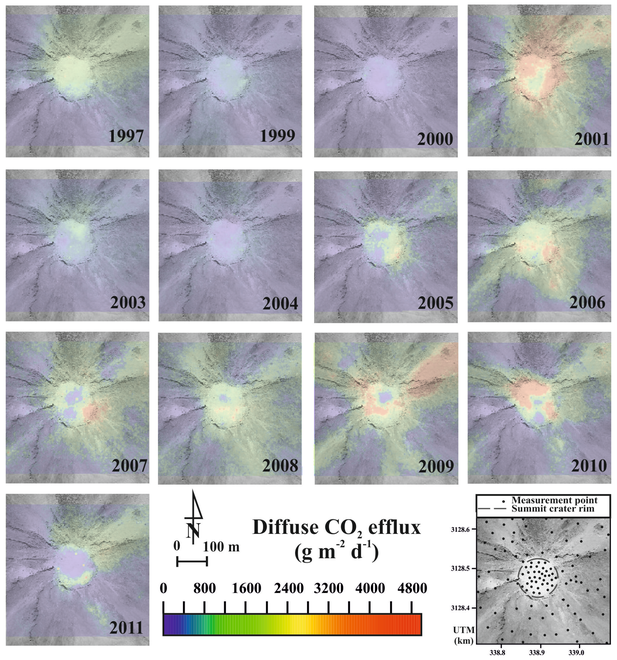

Figure 2. Spatial distribution maps of CO_2 efflux at summit cone of Teide from 1997 to 2011. And at the botton right the aerial view of study area and spatial distribution of measurement oiints at Teide volcano summit (Pérez et al., 2013).

The existence of two different accounts of seismic activity registered by the IGN in and around Tenerife Island, keeping one for the public eye, while hiding the other one from even the scientific community, is not only illegal but also unscientific, hindering the progress of science. In addition, most importantly it is detrimental for timely forecasting of sudden/instantaneous dynamic events, such as major earthquakes and/or volcanic eruptions which might spell disaster for the population, the economy of the island, and severely impact tourism. This unethical behaviour by IGN's volcanological staff has already caused damage to open scientific discussions; a key parameter for scientific development. A scientific contribution was recently published (figure 2 and 3) using data from 15 years of research on diffuse CO_2 emission monitoring from the summit cone of Teide volcano (Pérez et al., 2013), but not only (Melián et al., 2012). The seismic data that were used to discuss the observed temporal variations of the degassing pattern from Teide volcano came from the National Seismic Catalogue (figure 3 and 4). In contrast it is obvious that the observed variations on diffuse CO_2 emission from Teide volcano from 1997 to 2011 provided a better scientific explanation when using the real seismic data that had been concealed for several years by IGN's volcanological staff.

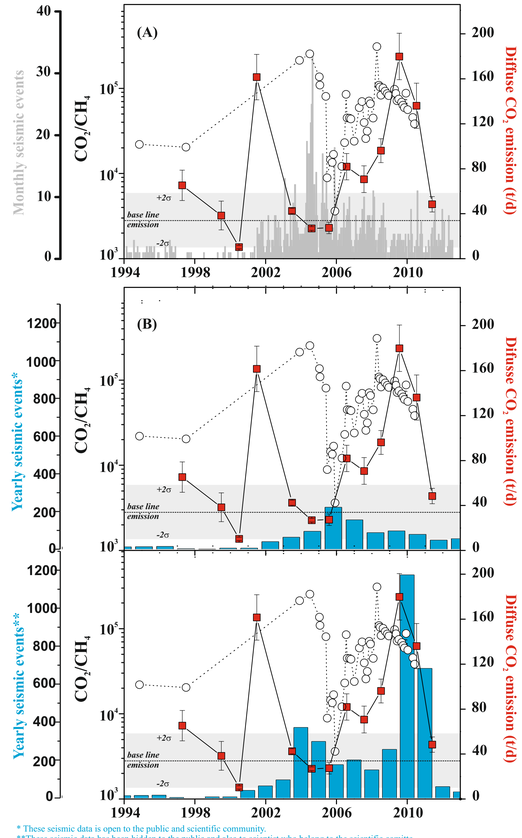

Figure 3. (A) Temporal evolution of CO_2 output at summit cone of Teide for the 1997-2011 surveys (black squares) published in Pérez et al., 2013. CO_2/CH_4 ratio measured at Teide fumaroles is also displayed (Melian et al. 2012) (open circles). Grey bars represent the number of earthquakes per month during the period 1997-2011 (http://www.ign.es). Dashed horizontal line indicates the mean value of the 'normal' CO_2 emission rate from summit cone of Teide; transparent grey band indicates the standard deviation of this mean value. (B) Idem when the number of seismic event per year is open to the public and scientific community (UP) and (DOWN) when has been hidden to the public and also to scientist who belong to the scientific comitte (DOWN).

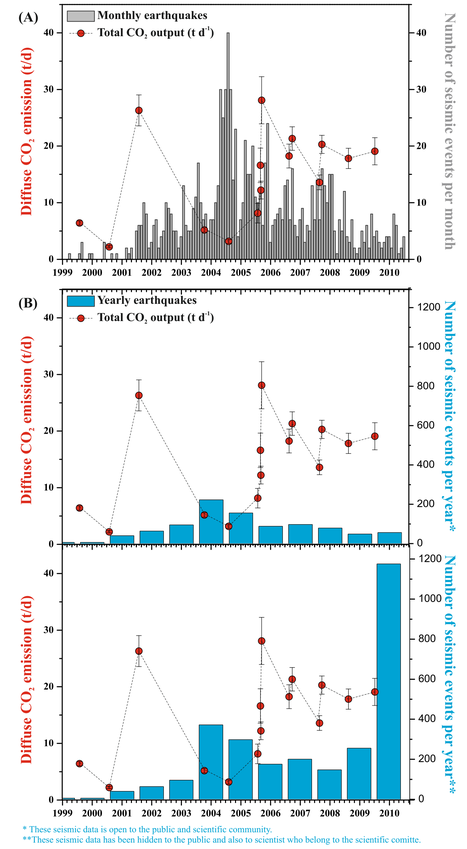

Figure 4. (A) Time series of total CO_2 output from Teide crater during the period 1999-2010. Histogram represents the number of earthquakes per month during the period 1999-2010. (B) Idem when the histogram represents the number of seismic events per year in and around Tenerife island registered by Spanish IGN during the period 1999-2010. UP: These seismic data is open to the public and scientific community; DOWN: These seismic data has been hidden to the public and also to scientist who belong to the scientific comitte.

References

Melián et al., 2012. Bull Volcanol, DOI: 10.1007/s00445-012-0613-1
Pérez et al., 2013. J. Geol. Soc., DOI: 10.1144/jgs2012-125.