



## **Consistency in CSS phase correlation: Application to CARIBE NORTE data set**

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The region of Caribbean Sea and Hispaniola Island has been subject of different studies in the last years due to tectonic and geological interest related with subduction, strike-slip and collision processes. A recent combined onshore-offshore survey, CARIBE NORTE project (2009), was carried out in Dominican Republic area. The most important aims of this project are to determine the deep structure across and along Hispaniola and Beata Ridge (general mapping of subsurface structures) and to explore the possible correlations between the onshore structures on Hispaniola Island and the offshore structures in Muertos margin.

In the frame of CARIBE NORTE seismic experiment, a set of 340 portable seismic stations were deployed at the Dominican Republic along four main onshore seismic profiles of 200-300 km length, with a ratio of 1 station/3 km. These land stations recorded three land shots of 1000 kg explosive detonated in three points selected at the Central and Oriental Cordilleras. Individual seismograms in our record sections contain one or more different seismic phase onsets identified as Pg, Sg, S to P conversions and various unidentified P or S phases. A striking feature in these record sections is the absence of the reflected phase from the Moho (PmP) that only appears in a few seismograms.

The strength of refraction seismology is to obtain phase correlations along seismic arrays. For this reason, we have developed a methodology of estimating the extracted seismic information quality by combining the determination of individual timing uncertainties in every trace with the determination of phase correlations uncertainties. This procedure allows us to obtain a more consistent phase correlation combined with a more consistent uncertainty estimate of the resulting seismic model. We document the potential of such methodology with an application to the CARIBE NORTE data set. We show several 2D crustal velocity models with variable quality resolution in the region of the Dominican Republic.