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Brazilian Equatorial Margin: evidences of magmatic intrusion and alteration of host rock from well data

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The mechanisms of magmatic intrusion is very complex and are commonly associated to pristine unconformities (weak spots) on the crust that ease its emplacement on the form of sills or dikes. When occurring on the Oceanic crust these weak spots may led to the formation of volcanic islands (such as Fernando de Noronha, on the Brazilian Equatorial Margin-BEM), submarine highs. Alignment of such features are related to Plate motion and the set of volcanos of Fernando de Noronha Ridge are considered a consequence of the westward motion of the South American Plate. Occurrence of magmatic rocks were found on a set of offshore wells at different depths and away of submarine highs. These magmatic emplacement suggests be related to a deep plume-fed mechanism which is the source of all sills found on the wells, as well as the volcanic highs occurring of the BEM. The lateral extents of the sills is greatly influenced by the presence of faults when preceding the intrusion, during which also occurred incorporation of parts of the host rock as xenoliths. On the well logs it is possible to observe changes on sonic slowness for the same lithotype when close to the sills, which indicates rock alteration due to the magmatic intrusion.