

## Dive 45600, 25 March 2010 Dive Summary

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This dive visited a cluster of overlapping volcanic mounds called El Dragón, situated in the GSC axial graben near 2° 36.5'N and between 94° 58'W and 59'W. We collected 15 lava samples. The group of volcanic mounds is located in the central and southern portion of the graben, forming a local high point in the graben, to the west of the frioles/Canadians volcanic fields and east of Herradura.

Observations on the dive indicate that El Dragón is a series of volcanic mounds constructed mostly of pillow lavas on their sides, and in some cases with lobate lavas at their summits. Many mounds are steep-sided. As we ascended them, we typically encountered intact pillow tubes, some highly elongate, flowing down slope. These pillows frequently transitioned into more flattened, lobate flows on the plateau-like summits of the mounds. Some of the mounds were cut by faults on their southern faces (see map) and others were cross cut by <1 to 2m wide fissures, mostly trending roughly ESE-WNW (see map). The sediment cover was roughly constant throughout the traverse of the mounds, when ground slope and lava morphology are accounted for (i.e., sediment dusted upper flow surfaces and filled the pockets between pillows and pillow tubes, with greater accumulations on the lobate flows). However, we had an impression that sediment cover was a bit less on the northerly (tallest) mounds, perhaps by 0.5 less Van Andel units. El Dragón lavas are very mildly altered plagioclase phyric basalts.

The dive started near a low-lying circular feature east of El Dragón that appeared to be a lava shield with a pit crater on its summit in Sentry bathymetry. The dive first visited a channelized sheet/lobate lava flow slopping away from the mound, and then traversed to the summit of this feature, which had a small pit crater floored in talus, and in whose walls lobate lavas were observed. The top of the lava shield was also predominantly lobate flows. The lava rise/channel and shield summit both appeared to be slightly less sedimented than the dragon mounds themselves (about 0.5 van Andel units). The two samples taken of this lava shield are mineralogically distinct from El Dragón lavas (the shield is composed of very sparsely ol+ pl phyric basalts).

The rest of the dive was dedicated to hopping from mound to mound on a semi-clockwise spiral gaining altitude through the complex to take samples and to evaluate intermound contact relationships. There were no clear cut distinctions between sediment cover or alteration extent between the various mounds of El Dragón, other than our perception that sediment cover was somewhat less on the northerly mounds. The dive traversed multiple fissures spread throughout the complex, and climbed over one ESE-WNW trending, ~15m offset normal fault that cut the southern face of the most southerly mound visited on the dive. Truncated pillows were seen in the fault scarp.

Our hypothesis is that El Dragón is a single eruptive complex, probably composed of multiple individual flow units that were built successively one atop the other. The low lava shield appears to post date the complex.

