A POSSIBLE IMPACT CRATER AMONG CRATERS: THE LLICA STRUCTURE IN BOLIVIA

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The discovery of a possible impact crater in Bolívia is reported. It is located close to the NW edge of the Salar de Uyuni, in the vicinities of the Llica village, Potosi province, at 19º49'S and 68º19'W. It has an oval shape, 2.8 x 2.5 km in diameter, elongated in the N-S direction. This bowl-shaped structure, with flat bottom and very steep inner walls, resembles the Barringer (Meteor) Crater in Arizona. The image below is a Landsat ETM+ panchromatic enhanced image (15m resolution) showing the Llica structure.

The geologic setting of this crater would suggest a volcanic origin, since it is located among several volcanic cones, part of the volcanic chain of the Andean Cordillera. A careful examination of the digital elevation model for the region reveals that, contrary to all other volcanic craters in the surrounding region, this crater is located at a very distinct topographic low, right at the basis of a large volcano, surrounded by volcanic flows coming from the large volcano. The image below in a DEM derived from the Shuttle Radar Topographic Mapping (SRTM) showing the topographic low that marks this crater (round blue area at the center). All the volcanoes, and their conspicuous explosion craters, correspond to high elevations – the round red areas mark the top of the volcanoes and their craters.
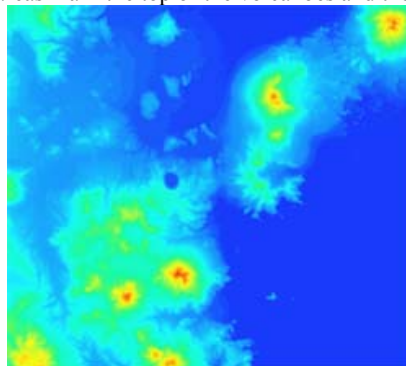
Integrated interpretation of the Landsat and SRTM images shows that the crater has a raised external rim, possibly formed by overturned strata of volcanic flows. There is also a younger flow, probably post-impact, going downslope around the raised rim, circulating the structure.

No specific geological information about this crater was found and the region is very remote and of difficult access. We therefore interpret this feature as a possible impact crater, based on the above mentioned geomorphologic characteristics.