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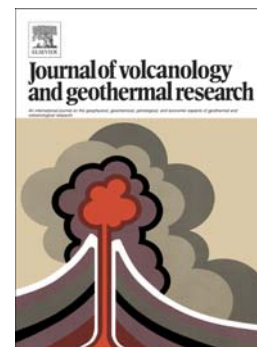
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## Volcano-tectonics of the Al Haruj Volcanic Province, Central Libya

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### Abstract

The Al Haruj intra-continental Volcanic Province (AHVP), located at the south-western margin of the Sirt Basin, hosts the most extensive and recent volcanic activity in Libya - which is considered typical for plate interiors. From north to south the AHVP is divided into two subprovinces, namely Al Haruj al Aswad and Al Haruj al Abiyad. The total area of the AHVP is around 42,000 km<sup>2</sup>. Despite the great size of the AHVP, its volcano-tectonic evolution and activity have received very little attention and are poorly documented and understood. Here we present new field data, and analytical and numerical results, on the volcano-tectonics of the AHVP. The length/thickness ratio of 47 dykes and volcanic fissures were measured to estimate magmatic overpressure at the time of eruption. The average dyke (length/thickness) ratio of 421 indicates magmatic overpressures during the associate fissure eruptions of 8-19 MPa (depending on host-rock elastic properties). Spatial distributions of 432 monogenetic eruptions sites/points (lava shields, pyroclastic cones) in the AHVP reveal two main clusters, one in the south and another in the north. Aligned eruptive vents show the dominating strike of volcanic fissures/feeder-dykes as WNW-ESE to NW-SE, coinciding with the orientation of one of main fracture/fault zones. Numerical modelling and field

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