pressure/depth-dependence can be reconstructed quite reliably from petrological constraints, so that realistic models of the magma rheology are feasible.
In fact, the rheology of the magma is one of the most important controls on the reaction of a volcanic system, making e.g. the difference between a scenic lava flow or a paroxysmal explosion. As a three-phase system of liquid melt, solid crystals and gaseous volatiles, magma exhibits significant deviations from ideal Newtonian behaviour, the effective viscosity easily spanning a few orders of magnitude within the scope of one model. Nonetheless, the good data basis is usually ignored and a constant Newtonian viscosity assumed.
A recipe for constructing a non-Newtonian rheology from published data is presented and applied to the strombolian scenario described above using an analytical and a CFD model. The results show a low-viscosity *aureole* forming around the slug and a pronounced drop in its overpressure prior to its burst. Both features are not observed in standard Newtonian models and highlight the importance of a realistic magma rheology. Finally, comparing the two independent modelling approaches presented here, shows the reliability and limitations of either of them.

S2.2-001
Numerical simulations of dike pathways below Etna and the Hyblean Plateau, Eastern Sicily

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Mt. Etna in Italy is an active intraplate volcano whose origin and melting source have been debated. The ideal model for the Etnean volcanism should adequately explain the location of Mt. Etna, offset by several tens of km from the proposed asthenospheric tear below the Malta Escarpment offshore Eastern Sicily and address the earlier Hyblean volcanism more to the south. We simulate numerically magma pathways in eastern Sicily from an assumed melt pooling region at the Moho, accounting for regional tectonics and crustal decompression due to the deepening of the ME. Our models show that the overall northward migration of volcanism and the shorter-term westward migration of the eruptive vents within the Hyblean and Etnean phases may arise from stress variations in the crust due to a combination of tectonic extension (or compression) and crustal decompression, both varying in time. Such stress changes cause bending and twisting of dike trajectories that reconcile a melt pooling region below the ME with the location of surface volcanism and orientation of feeder dikes in the field, once changes consistent with the stress history of Eastern Sicily are considered. Evaluating the variations in the stress history of the crust may be critical to explain intraplate volcanism and its wandering.

S2.2-002
The effect of giant flank collapses on magma pathways and location of volcanic vents

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Flank collapses have been identified at tall volcanoes and ocean islands worldwide. They are recurrent processes, significantly contributing to the morphological and structural evolution of volcanic edifices, and they often occur in interaction with magmatic activity. Moreover, it has been observed that the intrusion pathways and eruption's sites often differ before and