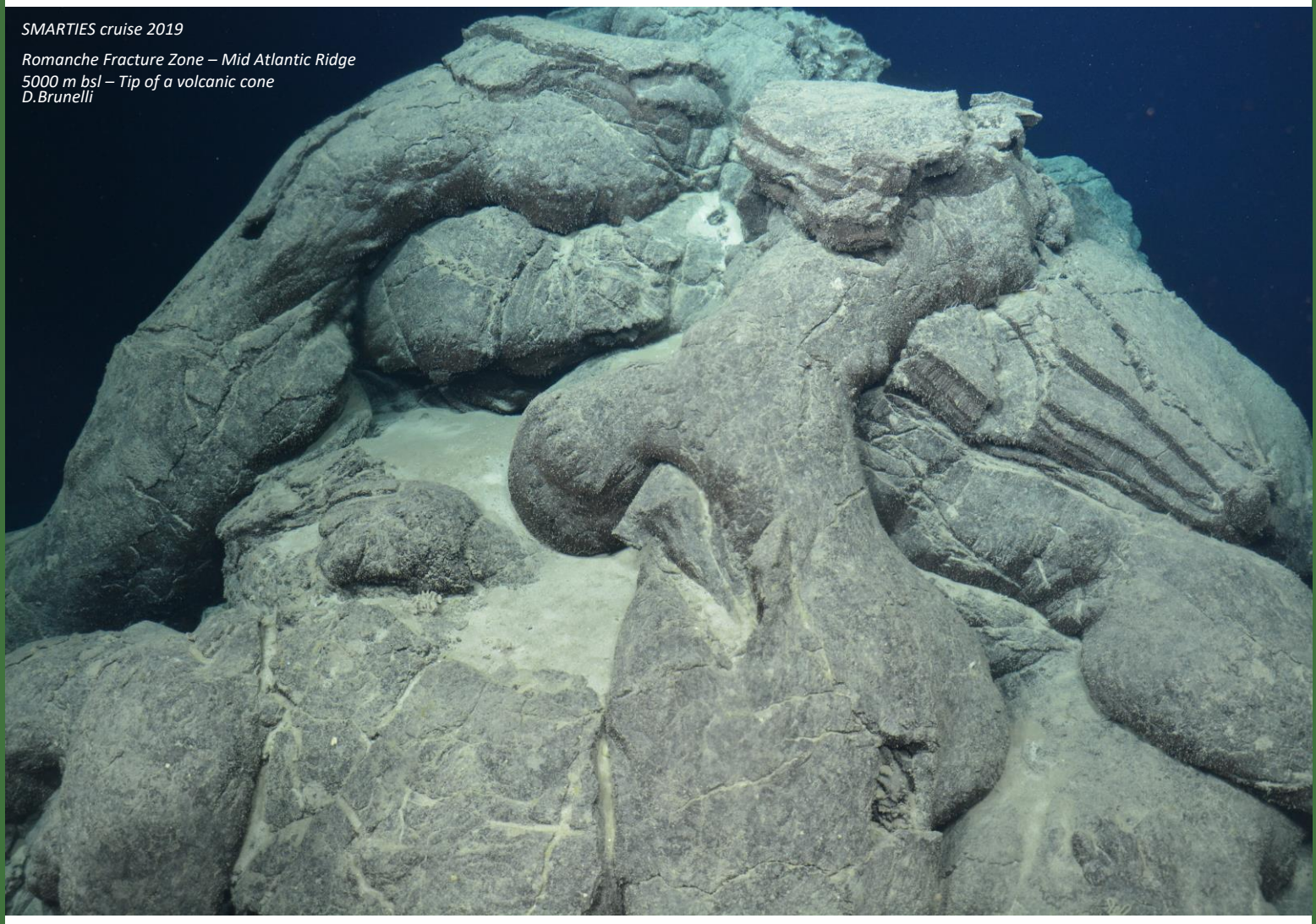
Ofioliti

An International Journal
On Ophiolites and Modern Oceanic Lithosphere

GLOM 2022

GLOM Gruppo di Lavoro sulle Ofioliti Mediterranee - Working group on Mediterranean Ophiolites



Virtual Winter meeting - February 4th, 2022

ABSTRACTS VOLUME

STRATIGRAPHIC AND PETROLOGICAL DATA ON THE LATE CRETACEOUS DURKAN COMPLEX (NORTH MAKRAN DOMAIN, SE IRAN): AN EXAMPLE OF PLUME-TYPE OPHIOLITE

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Keywords: *Makran Accretionary Prism, Late Cretaceous, plume-type ophiolite.*

Ophiolitic basaltic and metabasaltic rocks are widespread within accretionary and collisional belts and their tectono-stratigraphic setting and petrological features are sensitive to different geodynamic settings of formation. Among these different basaltic rocks, those with oceanic island basalt (OIB) chemical affinity are of special interest as they may represent remnants of deformed oceanic seamounts or, in other words, plume-type ophiolites (sensu Dilek and Furnes, 2011). It follows that multidisciplinary studies including stratigraphic and petrological data are fundamental to constraint the tectono-magmatic setting of formation and the geodynamic significance of the basaltic rocks within accretionary and collisional belts.

In the Makran Accretionary Prism (SE Iran), the North Makran domain consists of distinct tectonic units representing remnants of the Cretaceous-Paleocene accretionary-subduction complex formed in response to the northward subduction of the Neo-Tethys oceanic lithosphere. Among these units, the Durkan Complex shows abundant basaltic and meta-basaltic rocks as well as volcaniclastic rocks. We present here a summary of the results of geological and stratigraphic studies, as well as petrological investigations of the volcanic rocks forming the Durkan Complex. The latter is composed by distinct tectonic slices showing either non-metamorphic or slightly metamorphosed successions, which record volcanic activity and sedimentation during the Late Cretaceous in a seamount cap, seamount slope, and nascent seamount. Basaltic and metabasaltic rocks display transitional chemical affinity with compositions resembling those of plume-type mid-oceanic ridge basalts and within-plate OIB compositions with a clear alkaline affinity. Trace element and REE petrogenetic models show that the Durkan basaltic rocks were generated from the partial melting of depleted sub-oceanic mantle source that was metasomatized by OIB-type chemical components in a within-plate oceanic setting.

Collectively, these multidisciplinary data indicate that the Durkan Complex include fragments of oceanic seamount and can be regarded as a plume-type ophiolite, possibly formed in association to a Late Cretaceous mantle plume activity in the Neo-Tethys Ocean.

REFERENCES

Dilek Y., Furnes H., 2011. Ophiolite genesis and global tectonics: geochemical and tectonic fingerprinting of ancient oceanic lithosphere. Geol. Soc. Am. Bull., 123: 387–411.