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Abstract
Nuove idee per la perforazione scientifica

Deep Stratigraphic Drilling in the Mediterranean

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Abstract (max 4000 caratteri)

The stratigraphy of the deep Mediterranean Basins surrounding the Italian Peninsula (Ionian basin, West Sardinia margin, Tyrrhenian Sea) is unknown. Previous scientific drilling addressed essentially upper Miocene to Recent successions, because for safety reasons DSDP and ODP have limited the penetration to the Late Miocene evaporites only by a few tens of metres. Deep seismic reflections and refraction exploration (mainly the CROP Project and some industry exploration projects), and inferences from geophysical studies result in different and often contrasting hypotheses that can only be resolved with ground thruthing.

In particular, the Ionian basin may represent the oldest oceanic basin of the Planet, if the Triassic nature of the inferred oceanic crust is confirmed (Speranza et al., 20123, *JGR*), with the potential of containing a unique, likely continuous stratigraphic record of the deep sea Thetis ocean (Erba 2003, *Chikyu+10 Symposium, Tokyo*), from the birth of the ocean to its end in the present incipient continental collision.

The geological evolution of the Algero- Balearic basin on the West Sardinia margin, a much younger back-arc basin (Granado et al.; Dal Cin et al., 2016, *Petr. Geosc.*), is mostly unknown, as the evidences of rifting and oceanic spreading are hidden below the thick evaporitic layer. The situation of a hot, young, oceanic crust sealed by salts is unique on Earth (with comparable setting only in the Red Sea), and may hide the evidence of high-temperature rock-fluid interaction and of the deep biosphere in a sealed geological environment.

The Tyrrhenian Sea evolution is already addressed by an IODP pre-proposal (Zitellini et al.).

As a result, the scientific community is facing a long-lasting gap of knowledge on the structure of the Mediterranean basin affecting the understanding of the geological evolution of the Mediterranean, the tectonic evolution and the origin of seismicity, the deep bio-geo-chemistry.

The idea that I want to share is that the Italian scientific community becomes the promoter of a big scientific project with the scope of performing deep stratigraphic drilling with a shared-funding scheme similar to the outstanding CROP Project, the last big scientific project in the field of Earth Science in Italy.