# SIGNIFICANE OF OPHIOLITE-BEARING TERRAINS OF THE LUCANIAN APENNINE (SOUTHERN ITALY)

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The southern Apennine is an orogeic belt in which ophiolite-bearing allochtonous terrains. Known as "Liguride Complex" (Ogniben, 1969) occur. These units cropping out as well in northern Calabria where they are overlain by thrust-nappes of continental basement rocks of the "Calabride Complex" (Ogniben, 1969), represent the southrnmost relics of the Tethyan oceanic domain. Subduction and continental history taking place between Calabrian and Apulian blocks, is therefore recorded in these tearrains. In the lucanian Apennine the Liguride Complex is composed of sedimentary and metasedimentary sequences containing blocks of oceanic and basement rocks materials of late Jurassic-middle Eocene (Marcucci et al., 1987; Bonardi, 1988) overlain by two torbiditic sequences of late Eocene-early Miocene age (De Blasio et al., 1978; Bonardi et al., 1985). These terrains firstly have been considered as an unique stratigraphic succession (Ogniben, 1969; Vezzani, 1969) in which the different ophiolite-bearing sequences were called Frido and Crete Nere formations. Later on (Bousquet, 1973) this succession has been subdived in two main tectonic units in which metamorphosed (Frido Unit of Amodio-Morelli et al., 1976) and un-metamorphosed (Cilento Units of Amodio-Morelli at al., 1976 or Calabro-Lucano Flysch Unit of Monaco et al., 1991) terrains were respectively grouped.

At present there are two main interpretations about the significance of the liguride Complex. The first considers the Liguride Complex to be the suture zone between African (Apulian) and European (Calabrian) blocks (Ogniben, 1969; 1985; Boullin et al., 1986; Monaco at al., 1991). The second hypothesis regards the metamorphosed terrains of the Liguride Complex (Frido Unit) as a remnant of the "Europe verging eo-alpine chain" involved in Neogene time in the building of the Apennine orogenic belt (Alvarez, 1976; Amodio-Morelli et al., 1976; Bonardi et al., 1962). According to this hypothesis the crystalline nappes of the Calabride Complex are considered to be part of the African paleomargin (Austroalpine domain) upon which sedimentary sequences of the Cilento Units were deposited.

New data carried out on the ophiolite-bearing terrains outoropping in the lucanian Apennine here presented give insight for a better understanding of the role and tectonic significance of these units.

The Frido unit is a deformed low grade metamorphic sequence of these units.

The Frido unit is a deformed low grade metamorphic sequence composed of two tectonic subunits of prevailing shales and calcachists respectively containing blocks of

ophiolites, garnet gneiss, amphibolites and granitoids. The Frido Unit overthrust the un-metamorphosed terrains (here called Calabro-Lucano Flysch Unit) consisting of a broken formation which contains blocks of ophiolites with their sedimentary cover of Late Jurassic (Marcucci et al., 1987), pelagic sediments of Cretaceous-Eocene (Bonardi, 1988) and volcanoclastic deposits of Late Oligocene (Monaco, 1992).

Petrological data show that the Frido Unit has been undergone a HP/IT metamorphism (p=9.10 kb T=400-500) which gave glaucophane and lawsonite assemblages in the ophiolita rocks and aragonita in the calcschists, followed by a green schists facies metamorphism (P= 4 kb; T=300-350).

From structural point of view the Frido Unit show structures developed at differant structural levels indicating a progressive non-coaxial deformation. Kinematic indicators show a NNE tectonic. transport.

Our studies suggest that ophiolite-bearing terrains of the Liguride Complex outcropping in the lucanian Apennine can be considered as a remnant of an accretionary complex in which the Calabro lucann Flysch Unit represents the toe of the wedge where frontal accretion processes occur, whereas the Frido Unit is explained as due to deep duplex structures developing during continental collision processes. The polarity of tectonic transport excludes for this area the occurrence of the Europe vergining co-Alpine chain giving new evidences to consider the Liguride Complex as a suture zona between Apulian and Calabrian blocks. About the age of collision it has to be considered not older than late Oligocene. This implie that revision of the extension in space and time of the oceanic domain of the Tethys has to be done.

## PALAEOTETHYAN SUBDUCTION-ACCRETION: EVIDENCE FROM THE KARAKAYA COMPLEX, NW TURKEY

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Palaeotethyan ocean crust of Permo-Triassic age was destroyed by subduction prior to Mid Jurassic time. Currently one interpretation suggests southward subduction leading to suturing of Palaeotethys and the formation of a marginal basin, while another postulates mainly northward subduction beneath the Eurasian continental margin and the opening of younger Neotethyan oceanic basins to the south.

The Permo-Triassic karakaya Complex is critical to distinguish between alternative hypotheses of Palaeotethyan evolution: in a southward subduction model it is interpreted as a Palaeotethyan marginal basin, whereas in a northerly subduction model it could represent a Franciscan-type subduction-accretion complex.