

**AAPG Annual Meeting
March 10-13, 2002
Houston, Texas**

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An example of continental upper unit in "Underfilled Trinity": the Anzano Molasse (Messinian southern Apennines peripheral foreland basin, Italy)

In Irpinia-Daunia area (southern Italy), diverse Messinian sedimentary sequences referred to the southern Apennines peripheral foreland basin crop out. The sequences have been interpreted in terms of 'underfilled trinity' and the *Anzano Molasse* represents the 'upper unit'.

Upper unit reflects sedimentation in the thrust wedge settings, which are usually dominated by thick successions of turbiditic sandstone and mudstone classically termed 'flysch'.

The *Anzano Molasse* is an upper Messinian post-evaporitic 350 m thick siliciclastic formation and it is subdivided into two members. The lower member is composed by granular to pebbly conglomerates and coarse-grained sandstones. The deposits are usually thick stratified, massive and poorly cemented, rich of continental mollusc shells fragments and of carbon-rich pelitic layers. The upper member is composed by medium to coarse grained and thin stratified sandstones and by marly or clayey organic-rich siltstones. Rare freshwater ostracods (*Candona* spp., etc.) are present; the depositional mechanism are grain flows and turbiditic flows with variable distality feature. It is argued that the deposits have been accumulated in a lacustrine basin.

The transition of southern Apennines foreland basin from an underfilled to a filled depositional state, characterized by a wide diffusion of continental facies, is recorded later in the Upper Pliocene/Lower Pleistocene. So the precocity presence of continental facies in an underfilled foreland basin is related to the interference between the Mediterranean Messinian 'salinity crisis', which caused the disappearance of marine basins and the presence of a wide diffusion of basin from iperhaline to fresh water conditions, and the tectonostratigraphic evolution.