quartz + sericite + albite + chlorite ± paragonite ± biotite

Indications of high pressure are lacking within this sequence.

Succession 2 contains metaquartzites, micaschists and metavolcanics with the characteristic prograde mineral paragenesis quartz + muscovite/phengite + glaucophane + chloritoid (metaclastics) and epidote + albite + glaucophane/crossite ± chlorite ± calcite (metavolcanics).

Succession 3 consists of garnetiferous micashists and metaquartzites with the characteristic prograde mineral paragenesis quartz + muscovite/phengite + garnet + glaucophane ± chloritoid.

These different mineral paregeneses can be found in almost all sections of the respective successions.

Normally the contact between the different successions of the PQS are steeply dipping fault zones. They continue upward into the Tripolitza Series resp. The Tyros Beds, which have been thrusted over the PQS. The throw within the Tripolitza Series is smaller than within the PQS, however.

In some sections it can be demonstrated, that parts of the hp/lt-metamorphic successions 2 and 3 rest on succession 1, which has suffered lower metamorphic conditions, with a subhorizontal tectonic contact.

This inverse piling of metamorphic rocks is coused by the uplift of the hp/lt-metamorphics from deeper crustal levels and consequent thrusting upon parts of the PQS, which show no parageneses typical of hp-metamorphism. Processes responsible for this uplift should be localized at the base of the overriding crustal sleb.

According to geophysical results and the plate tectonic situation the external Hellenides are underthrusted by a subducting crustal slab in the aree of the Peloponnesus. Extension and simultaneous uplift and exhumation of lower crust may be due to a growing wedge at the base of the upper plate. Uplift is controlled by underplating connected with mechanisms which can be described in analogy to the conception presented by PLATT (1986).

NEW DATA ON THE HELLENIC TROUGH STRUCTURE

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The analysis of geological-geophysical results obtained during the 10th leg of R/V "Antares" within the Hellenic Through south of the Kithira Island, Greece, together with previous data allows us to draw the following conclusions:

1. The trough structure differs significantly from the structure of typical deep-water Pacific-type trenches case-shaped in crossection and complicated with well-expressed rises along its axis. The axial zone of the trough is filled in with thick (up to 600 m) unconsolidated Quaternary sediments which along with the absence of accretionary wedge indicetes that the subduction suggested by seismic data and development of volcanic arc with calc-alkaline magmatism is expressed here in form of tectonic erosion, not in form of accretion.

2. Lithology and microfossils in the upper Miocene-Pleistocene sediments dredged here and absence of the Messinian evaporites within the trough leads us to suggest that during the Messinian this area underwent absolute or relative uplifting as a result of doformations affected Hellenids including Peloponnes and Crete in pre-Messinian time. Differential movements of the blocks tock place simultaneously with the deposition of upper Miocene-Pleistocene sediments.

3. The general structure formed by longitudinal and transverse normal faults with an amplitude of 3-4 km visible on recent seismic profiles, is rather young being of Quaternary age.

4. Significant role in the formation of scarps within the northern slope of the trough belongs to gravity processes. This allows us to consider the blocks of the Lower Cretaceous limostones encountered in the trough by DSDP Hole 127 below the Quaternary sediments, as olistoplates, not as fragments of tectonic melange. These processes appear to be responsible for the origin of some transverse rises within the axial area of the trough which may be considered as exotic blocks from the continental margin.

5. The nature of the trough remains unclear. Most likely it is composed of thrust complexes of the outer zone of hellenides deformed during the late Miocene (Attic) tectonic epoch, which was followed by extension increased during the Pleistocene.

QUALITY CHECKS FOR GEOPHYSICAL BOREHOLE LOGGING RESULTS

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Proper quality control of geophysical well logging equipment is essential if they are to be used for accurate determinations of physical parameters in the boreholes. It is necessary to determine the calibration constants and the response characteristics of