Late Jurassic paleogeography and paleotectonics of Eastern Black Sea-Caucasus-Crimea region

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Upper Jurassic sequences were studied within a wide area including Crimea (Ukraine), Caucasus (Russia, Georgia and Abkhazia), and Eastern Pontides (Turkey). Seismic data for the eastern Black Sea region have been analysed. The newly obtained balanced restoration of the Great Caucasus reveals the geometry of the east-to-west directed Late Jurassic trough, bordered to the south and north by shelf areas of carbonate sedimentation, which comprise isolated build-ups and isolated platforms.

Following units of Callovian (Middle Jurassic) to Berriasian (Early Cretaceous) age have been distinguished, indicative for major changes in paleogeographic and paleotectonic environments:

1. Rifted deep-water trough which stretches from the present-day location of the Sudak town (Crimea) to the Greater Caucasus. This basin was infilled by shales, conglomerates, olistostroma, turbidites (both calsiclastic and silisiclastic). For the Western Caucasus area, the estimated width of the basin was nearly 200 km, and the proposed water depth of 1-2 km.
2. Reef belt of a marginal shelf, located between the deep-water trough and the shelf area (mainly carbonate platform). The typical examples of sequences accumulated in such an environment are: the Ai-Petry section and units penetrated by Videnskaya and Yugno-Videnskaya wells (Crimea), Khadyzhensk reef belt of the Northern Caucasus, and the reef belt of the Abkhazia area.
3. North Shatsky deep-shelf terrace (with a proposed depth of up to 500 m), which included some isolated carbonate build-ups and isolated carbonate platforms and patch reefs. Strata deposited in such environments compose, for example, the Maria structure of the Shatsky Ridge.
4. Shelf carbonate platforms located around the deep-water basin. The typical examples are the sections penetrated by Mramornyi, Staryi Krym and Balaklava quarries (Crimea), as well as the carbonate platforms of Abkhazia, Northern Caucasus, Central Shatsky area (South Adler carbonate platform), and Eastern Pontides.
5. Shelf to deep shelf conglomerate sequences related with the syn-rift uplift of rift shoulders. The Demerdzhi sequence of southern Crimea may be considered as a case unit.
6. Kuban Basin deposits, dominated by shallow-marine carbonate to evaporite rocks.
7. Rioni Basin filled with continental to shallow-marine shales and clastics, evaporites, and basalts.

For the Late Jurassic time span, some aspects of paleogeography and sedimentation environments are being discussed.

During the Berriasian age, the paleogeography of the eastern Black Sea region has suffered a major change related with a tectonic event.