

CSPG-SEPM 1997 JOINT CONVENTION JUNE 1-6 CALGARY, CANADA
Abstract book

Some Aspects of Global Change after the end of Permian Mass Extinction.

By BAUD, AYMON, Geological Museum, UNIL-BFSH2, CH-1015 Lausanne, Switzerland

During the Upper Permian, the Tethys sea was characterized by the growth of giant shallow carbonate platforms. They were widespread along the Gondwanian margin, the west end of the Tethys and on the P/Tr Transit Tethys (or Cimmerian) blocks. High diversity marine fauna and flora with proliferation of calcareous algae, foraminifera, echinoderms, bryozoan, brachiopods, bivalves characterize the skeletal carbonate factory. The latest Permian second order T-R cycle is well recorded on the NW Cimmerian margin in S Armenia (Vedi, Sovetachen), adjacent NW Iran (Dorasham, Dzhulfa, Ali Bashi), and in central Iran (Abadeh). The natural boundary between Permian and Triassic corresponds to the maximum regression, that is the maximum basinward shifts of coastal onlap. Large shallow shelf exposure which dramatically reduced the habitat area, oxidation of a great amount of organic carbon, release of gas hydrates gave way to a hyper-weakening of the ecosystem and a devastating extinction. These events and global change, recorded in the large $\delta^{13}\text{C}$ shift, strongly affected the carbonate productivity, stratal patterns and biofacies. A bloom of disaster forms: -fungi, -cyanobacteria, -blue-green algae was the intrinsic biotic response to the mass extinction.

During the first step of the very rapid and large scale lowest Triassic transgression, we note in different areas (S Alps, Taurus, Turkey, S Armenia, E Elburz, Iran, Central Iran and Central Afghanistan) the growth of domal stromatolites, thrombolites and other microbial structures. At the dawn of Triassic time, the carbonate factory was dominated by non-skeletal species and by microorganisms able to precipitate carbonate. True reef communities were absent in the earliest Triassic strata and they were locally substituted by microbialite mounds.

In part of the Arctic sea (Sverdup basin) skeletal siliceous (sponges) and carbonate factories were active during the Upper Permian, until the mass-extinction. With the large, fine terrigenous input during the Lower Triassic transgression (Blind Fiord Formation), the high productive spiculites factory disappeared completely. The skeletal carbonate factory produced only sporadic ammonoids and bivalves while the non-skeletal carbonate factory produced some concretion levels. Not until the end of the Dienerian time was the skeletal carbonate factory again able to produce continuous dm thick carbonate deposits (bryozoan packstone) within shales (Upper Confederation Point Member).