Abstract ID: 249

Title: ONE LESSON FROM THE TEHYAN REALM FOR GLOBAL GEOLOGY
Student: No
Topic: Tectonics
Medium: Invited Oral Presentation

Author 1 (CONTACT AUTHOR)
Name: A.M.C. Sengor
Org: Istanbul Technical University, Maden Fakültesi Jeoloji Bölümü and Avrasya yerbilimleri Enstitüsü
Country: Turkey
Author 2
Name: Boris A. Natal'in
Org: Istanbul Technical University, Maden Fakültesi Jeoloji Bölümü and Avrasya yerbilimleri Enstitüsü
Country: Turkey
Email:
Author 3
Name: Sinan Özeren
Org: Istanbul Technical University, Maden Fakültesi Jeoloji Bölümü and Avrasya yerbilimleri Enstitüsü
Country: Turkey
Email:
Author 4
Name: Y. Sinan Hüsrevoğlu
Org: Istanbul Technical University, Maden Fakültesi Jeoloji Bölümü and Avrasya yerbilimleri Enstitüsü
Country: Turkey
Email:
Author 5
Name: Saniye Güven
Org: Istanbul Technical University, Maden Fakültesi Jeoloji Bölümü and Avrasya yerbilimleri Enstitüsü
Country: Turkey
Email:

Keywords:

Abstract: The Tethyan realm stretches across the Old World from the Atlantic to the Pacific Ocean along the Alpine-Himalayan mountain ranges and extends into their fore- and hinterlands as far as the old continental margins of the now-vanished Tethyan oceans reach. It contains the Tethyside superorogenic complex including the orogenic complexes of the Cimmerides and the Alpides, the products of the closure of the Palaeo- and the Neo-Tethyan oceans, respectively. Palaeo-Tethys was the oceanic realm that originated when the late Palaeozoic Pangaea was assembled by the final Uralide/Scythide/Hercynide/Appalachide collisions. It was a composite ocean and was

already being destroyed along both Laurasia- and Gondwana-Land flanking subduction zones when it formed. Especially the Gondwana-Land-flanking subduction systems created mostly extensional arc systems that successively led to various Palaeo-Tethyan marginal basins, the last group of which was the oceans that united to form the Neo-Tethys. The Palaeo-Tethys may have become an entirely continent-locked ocean during the latest Permian inhibiting any deep-sea connexion between it and the Panthalassa. This seems to have encouraged the formation of anoxic conditions earlier in the Palaeo-Tethys than outside it. In fact it seems that the major extinctions began in the Palaeo-Tethys earlier than elsewehere. This isolated setting of the Palaeo-Tethys we refer to as a Ptolemaic condition, in reference to the isolated oceans Ptolemy had depicted in his world map. Ptolemaic conditions are not common in the history of the earth. Today such a condition is represented by the Mediterranean and its smaller dependencies such as the Black sea and the South Caspian Ocean. Para-Tethys in the Neogene had a similar but even more isolated setting. As we see in all these late Cainozoic cases, such Ptolemaic oceans have a major influence on the evolution of the Biosphere. The Palaeo-Tethys seems to have had a much larger impact than any of its successors owing to its immense size and may have been the key player in the Permo-Triassic extinction. The eastern Palao-Tethyan Gondwana-Land/Laurasia land bridge may have been responsible for the peculiarities of the distribution of the latest Permian(?) early Triassic *Lystrosaurus* taxa. What these considerations suggest is that when considering the causes of past events regional geology must always form the foundation of all other considerations. Many speculations concerning the end Permian extinction events cannot be adequately assessed without placing their implications on the geography of the times to which they are relevant. A purely "process-orientated" research that downplays or ignores regional geology, as is now prevalent in the United States and western Europe and regrettably encouraged by the funding organisations, is doomed to failure.