

CONODONT PALEOBIOGEOGRAPHY OF THE IAPETUS OCEAN IN THE CAMBRIAN-ORDOVICIAN BOUNDARY INTERVAL

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Conodont evolution is critical through the Cambrian-Ordovician boundary interval. Euconodonts diversify in new ecospace, after their appearances in late Cambrian. New data from South America allow the recognition of a particular pattern of conodont paleobiogeography across the Iapetus Ocean.

Upper Cambrian-Lower Ordovician conodont records are known from three distinctive geological settings in north-western Argentina: the Precordillera, Famatina and Eastern Cordillera. Late Cambrian - earliest Ordovician conodonts are registered in the carbonate platform of the Precordillera, representing the typical warm-shallow water fauna of the Midcontinent Realm. Similar faunas are documented in Laurentia and Australia. During the first phase of conodont provincialism this fauna is dominated by euconodonts, while proto and paraconodonts become more restricted to deeper environments and to middle-high latitudes (e.g. Baltica). Siliciclastic platform deposits from Eastern Cordillera bear a typical composition from high latitudes with a significant contribution of paraconodonts and cordylodids. In contrast, the communities from outer-shelf siliciclastic-carbonate sequences of the Famatina include the same euconodont genera from correlative environments in peripheral areas of Laurentia and elsewhere. The euconodonts developed a new evolutionary cycle through the C/O boundary interval, while the partitioning between and within the Midcontinent and Atlantic realms became more severe.

Accepting the Precordillera as an allochthonous terrane derived from low latitudes, and the middle-high latitude Gondwanan positions of Famatina and Eastern Cordillera as well as the pattern of paleoceanographic currents, a complex interplay of the Iapetus conodont faunas can be documented.