



ESSP-1: El Cretácico de Chile y Sudamérica

Paleobiogeography of Upper Jurassic and Lower Cretaceous from Central Chile

Christian Salazar¹, Wolfgang Stinnesbeck².

(1) Escuela de Geología, Facultad de Ingeniería, Universidad del Desarrollo, Santiago, Chile

(2) Biostratigraphie und Paläoökologie, Instituts für Geowissenschaften, Universität Heidelberg, Heidelberg, Deutschland

For decades the Late Jurassic – Lower Cretaceous ammonite assemblages in South America have been considered to be dominated by endemic taxa, complemented by a minor Tethyan influence. Our analysis of Middle Tithonian to Lower Valanginian ammonites of Central Chile also indicates a high degree of endemism, but Indo-Pacific, Caribbean, Tethyan and Boreal influences are much stronger than previously thought. Endemic and Indo-Pacific taxa dominated during the Tithonian, but connections with the Indo-Austral province, the Tethyan. In the Berriasian endemic ammonites decrease and cosmopolitan taxa dominate whereas the Indo-Pacific influence remains important. The Valanginian is characterised by a decrease in Cosmopolitan ammonites. During this time the Tethyan influence dominates in the region. Endemic, Indo-Pacific and Boreal influences are still present. The Hauterivian is not well represented; only three species are recorded with low abundances. Data shows that the Tithonian to Valanginian is dominated by Endemic species (33% Richness and 31% Abundance), followed by Indo-Pacific (21% Richness and 25% Abundance), and Tethyan affinities (14% Richness and 16% Abundance). A Boreal influence is less evident but is still represented by 9% species Richness and 13% Abundance. Taxa endemic to Central Chile and Argentina and Tethyan species are the dominant ammonites during the Tithonian, changing abruptly during the Berriasian where the Cosmopolitan and Indo-Pacific influences increase and these taxa form the dominant group, while Tethyan and Endemic ammonites dominate during the Valanginian. This abundance of endemic taxa during the Tithonian suggests that Central Chile may not have been well connected with the Tethyan region and that the Hispanic Corridor was closed. Indo-Pacific affinities, on the other hand, result from an open Indo-Austral seaway. During the Berriasian, the dominance of Cosmopolitan and increasing abundance of Indo-Pacific taxa suggests that new pathways opened between Antarctica and South America – Africa. These connections were likely established via the Indo-Austral seaway and the new connection through the Hispanic Corridor. Subsequently during the Valanginian, Tethyan, Indo-Pacific and Boreal taxa are present in Central Chile and Endemic ammonites are equally abundant. This may correspond to a similar grade of exchange through both the Hispanic Corridor and the Indo-Austral seaway.