

The redefinition of the Devonian/Carboniferous Boundary: state of the art

Markus ARETZ¹ & Carlo CORRADINI²

¹Université Paul Sabatier, Géosciences Environnement Toulouse (OMP), 14 Avenue Edouard Belin, 31400 Toulouse, France, markus.aretz@get.omp.eu

²Dipartimento di Scienze Chimiche e Geologiche, Università di Cagliari, via Trentino 51, 09127 Cagliari, Italy

After the discovery of the marker fossil for the base of the Carboniferous, the conodont *Siphonodella sulcata*, below the boundary just above a facies change in the GSSP section at La Serre, southern France (KAISER 2009), the definition of the base of the Carboniferous has been back on the agendas of the Devonian and Carboniferous subcommissions.

A joined SDS/ISCS Task group was established in 2009 to redefine the base of the Carboniferous and thus to regain stratigraphical stability in this critical interval of Earth history. Task group members have been active in various aspects related to the boundary definition and a wealth of new data has become available (e.g., CORRADINI et al. 2016; KAISER et al. 2015; PRESTIANNI et al. 2016). Characteristic for many studies are multi-disciplinary approaches, which combine palaeontological, sedimentological, geochemical and petrophysical methods and data (e.g., BÁBEK et al. 2016; KUMPAN et al. 2014; MATYJA et al. 2015). The task group met several times at various international meetings (e.g., Strati, IPC, ICCP), and a dedicated workshop with two days of discussions and a field trip to the classical sections in the Montagne Noire, where the present GSSP is located, was organized in Montpellier in September 2016.

On that occasion it was decided to test a possible position of the Devonian/Carboniferous Boundary based on a timeline defined by “the base of the *Protognathodus kockeli* conodont Zone, the end of the Devonian mass extinction and beginning of the Carboniferous radiation, and the top of a major regression (top of Hangenberg Sandstone)”. This timeline is based on different criteria, which should increase the potential of placing the boundary in different facies realms and provinces, and increase the practicability of global correlations. Another advantage of this timeline is its position near the timeline defined by the current GSSP level, which would help to maintain stratigraphic stability (BECKER et al. 2016). The proposed timeline is in accordance to the approach of the task group to reduce the dependence of the boundary definition based on the presence or absence of a single marker. This is not only done by characterising the boundary timeline by different criteria, but also by the development of a robust framework of well-defined timelines below and above. Task group members and other scientists are currently checking the suitability of that boundary position in sections all over the world, and the new boundary definition should be voted most likely during this 19th International Congress on the Carboniferous and Permian at Cologne. Only after acceptance of a new criterion, the search for the new GSSP will start.

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