

The Famennian global conodont zonation

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Ziegler (1962, 1969)	Ziegler & Sandberg (1990)	NEW GLOBAL ZONATION
<i>S. sulcata</i> - <i>Pr. kockeli</i>	<i>sulcata</i>	<i>Protognathodus kockeli</i>
<i>Low. Protogn. f.</i>	<i>Late praesulcata</i>	<i>Bispathodus ultimus</i>
<i>Upper costatus</i>	<i>Mid. praesulcata</i>	
<i>Middle costatus</i>	<i>Early praesulcata</i>	<i>Bispathodus costatus</i>
	<i>Late expansa</i>	
<i>Lower costatus</i>	<i>Middle expansa</i>	<i>Bispathodus ac. aculeatus</i>
<i>Upper styriacus</i>		<i>Early expansa</i>
<i>Middle styriacus</i>	<i>Late postera</i>	<i>Palmatolepis gr. manca</i>
<i>Lower styriacus</i>	<i>Early postera</i>	<i>Polygnathus styriacus</i>
<i>Upper velifer</i>	<i>Late trachytera</i>	<i>Pseudopolygnathus granulosus</i>
<i>Middle velifer</i>	<i>Early trachytera</i>	<i>Palmatolepis r. trachytera</i>
<i>Lower velifer</i>	<i>Latest marginifera</i>	<i>Scaphignathus v. velifer</i>
<i>Upper quadrantinodosa</i>	<i>Late marginifera</i>	<i>Palmatolepis marg. utahensis</i>
<i>Lower quadrantinodosa</i>	<i>Early marginifera</i>	<i>Palmatolepis marg. marginifera</i>
<i>rhomboidea</i>	<i>Late rhomboidea</i>	<i>Palmatolepis gr. gracilis</i>
	<i>Early rhomboidea</i>	<i>Palmatolepis rhomboidea</i>
<i>Upper crepida</i>	<i>Latest crepida</i>	<i>Palmatolepis gl. pectinata</i>
	<i>Late crepida</i>	<i>Palmatolepis gl. prima</i>
<i>Middle crepida</i>	<i>Middle crepida</i>	<i>Palmatolepis termini</i>
<i>Lower crepida</i>	<i>Early crepida</i>	<i>Palmatolepis crepida</i>
<i>Upper triangularis</i>	<i>Late triangularis</i>	<i>Palmatolepis min. minuta</i>
<i>Middle triangularis</i>	<i>Middle triangularis</i>	<i>Palmatolepis del. platys</i>
<i>Lower triangularis</i>	<i>Early triangularis</i>	<i>Palmatolepis triangularis</i>
		<i>Palmatolepis subperlobata</i>

The new Famennian global conodont zonation is the result of a revision of the Famennian part of the Late Devonian Standard Conodont Zonation of Ziegler & Sandberg (1990). This revision was mainly based on two different kinds of consideration. The first one is philosophical, and is based on rejecting: i) the equivalence between biozones and time, and ii) the presumed phyletic concept on which the zonation of Ziegler & Sandberg (1990) was based. The second one is practical, and concerns with: i) solving difficulties that arose in the recognition of some biozones defined by Last Appearance Datum (LAD), ii) simplifying the zonation eliminating the zonal groups named after only one taxon.

The new zonation is largely based on the zonation of Ziegler (1962, 1969) and the Late Devonian Standard Conodont Zonation of Ziegler & Sandberg (1990) using mostly the same zonal markers, therefore it is perfectly correlatable with them (Fig.1). Modifications have been only made when strictly necessary, as the aim of the revision was to maintain what of good was previously done, improving and simplifying the Famennian part of the Standard Conodont Zonation, and keeping stability over more than 50 years of conodont studies.

Figure 1. Correlation of the zonation of Ziegler (1962, 1969), and the Famennian Standard Conodont Zonation of Ziegler & Sandberg (1990) with the new global zonation.

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The 22 zones constituting the revised global zonation are defined by the First Appearance Datum (FAD) of species and subspecies that have a well-established stratigraphic range and wide geographic distribution, most of which have been already used as markers. Each zone is named after the taxon for which the FAD defines the lower boundary. The main changes regard the upper part of the Famennian, and take into account proposals already made by other authors, at least for regional zonation (Corradini, 2008; Kaiser et al., 2009; Hartenfels, 2011; Corradini et al., 2016).

The stratigraphic distribution of most Famennian conodont taxa has been updated on data available in literature, and unpublished information of the authors.

The lower boundary of the Famennian is identified as proposed by Klapper (2007). A revision of the current definition of the base of the Famennian is therefore suggested. The definition of the upper boundary (base of the Carboniferous System) being currently under discussion and study is left as an open problem.

Original Project title

The Famennian global conodont zonation.

Project leaders, funding agency, duration

Spalletta, C., University of Bologna, long-term project.

Scientific background

The Project is related to the activity of an informal group of SDS members with the aim of improving the Late Devonian stratigraphy and biozonation.

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