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The Stratigraphic Table of Germany revisited: 2016

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For the occasion of the “Year of Geosciences” in Germany 2002 the German Stratigraphic Commission created the “Stratigraphic Table of Germany 2002” (STD 2002) [1]. It presents more than 1 000 geological units, beds, formations, groups, regional stages, and regional series of the Regional Stratigraphic Scale (RSS) of Central Europe in relation to the Global Stratigraphic Scale (GSS). Alongside the recent stratigraphic terms are also some historical names like Wealden (now Bückeberg Formation, Early Cretaceous) and Wellenkalk (now Jena Formation, Muschelkalk Group, Middle Triassic) [1] (http://www.stratigraphie.de/std2002/download/STD2002_large.pdf).

The numerical ages in the table have been estimated using all available time indicators including (1) radio-isotopic ages, (2) sedimentary cycles of the Milankovich-band of about 0.1 Ma and 0.4 Ma duration for the Middle Permian to Middle Triassic (Rotliegend, Zechstein, Buntsandstein, Muschelkalk, and Keuper groups), and (3) average weighted thicknesses for the Late Carboniferous of the Central European Namurian, Westphalian, and Stephanian regional stages. Significant uncertainties are indicated by arrows instead of error bars as in the Global Time Scales 1989 and 2012 (GTS 1989, Harland et al. 1990 [2], GTS 2012, Gradstein et al. 2012 [3]). Those errors were underestimated in the GTS 2012 [3] because they were calculated using too much emphasis on laboratory precision of dating and less on the uncertainty of geological factors.



Figure 1: Buntsandstein and Muschelkalk in the Stratigraphic Table of Germany 2016 (part)

In 2015 und 2016 the German Stratigraphic Commission updated the entire STD 2002 [1]. Significant enlargements and improvements concern particularly the Quaternary, Tertiary and Cretaceous (STD 2016) [4]. A main topic is the inauguration of "Folgen" from the Middle Permian to the Late Triassic. Folgen are bundles of sedimentary cycles. Thus, the 7 Folgen z1 to z7 of the Zechstein Group with its 50 cycles z1.1 to z7.8 indicate a duration of about 5 Ma. The 7 Folgen s1 to s7 of the Buntsandstein with its 63 cycles s1.1 to s7.12 results in a span of about 6.3 Ma (Fig. 1). For the ca. 38 Ma-long Keuper Group two alternatives are shown: with and without large gaps.

On the 35th IGC the STD 2016 (Stratigraphic Table of Germany 2016) [4] will be available. Explanations to the STD 2016 in German and English are in progress (www.stratigraphie.de).

References:

[1] STD 2002 (Deutsche Stratigraphische Kommission, ed, coordination and lay out Menning M and Hendrich A 2002) *Stratigraphische Tabelle von Deutschland 2002*: GeoForschungsZentrum Potsdam and Forschungs-Institut Senckenberg Frankfurt a. M.

[2] GTS 1989 (HARLAND W B, ARMSTRONG R L, COX A V, CRAIG L E, SMITH A G AND SMITH D G 1990): *A geologic time scale 1989*: Cambridge Univ. Press, 263 p

[3] GTS 2012 (Gradstein F M., Ogg J G, Schmitz M and Ogg G 2012) *A geologic time scale 2012*: Elsevier, 1176 p

[4] STD 2016 (Deutsche Stratigraphische Kommission, ed, coordination and lay out Menning M and Hendrich A 2016) *Stratigraphische Tabelle von Deutschland 2016*: GeoForschungsZentrum Potsdam

