Paper Number: 5195

Concise Geologic Time Scale 2016: a partial update of GTS2012

Ogg, J.G.[1,2], Ogg, G.M.[1], and Gradstein, F.[3]

[1]Department of Earth, Atmospheric and Planetary Sciences, Purdue University, West Lafayette, Indiana, 47907 USA, Email: jogg@purdue.edu;
[2]State Key Laboratory of Biogeology and Environmental Geology, School of Earth Sciences, China University of Geosciences, Wuhan 430074, Hubei, P.R. China
[3]Geological Museum, University of Oslo, P.O. Box 1172 Blindern, N-0318 Oslo, Norway

---

Earth's surface history is a complex interplay of climate, evolution and other processes framed within a geologic timescale with numerical ages. The two-volume (ca. 1100 page) *Geologic TimeScale 2012* [1] compilation had involved over 60 geoscientists, including officers of most subcommissions of the International Commission on Stratigraphy, who integrated paleontology, radio-isotopic dating, cycle stratigraphy, geochemical trends, and other stratigraphic information. That GTS2012 synthesis included detailed summaries of each geologic period with full-page graphics (map, section, photos) of each GSSP (international stage boundary) and age scales derived from a re-evaluation of radio-isotopic ages (including new monitor standards for Ar-Ar) coupled with astronomical cycle tuning.

The new handbook "The Concise Geologic Time Scale 2016" (ca. 200 pages) [2] encapsulates the main stratigraphic columns and series-level GSSP imagery from GTS2012, but has incorporated selected advances in defining some geological stages (new GSSPs and status of pending ones), in revised correlations or definitions of biostratigraphic zonations, in enhanced carbon- and oxygen-isotope trends, and in enhanced constraints on age models from cycle stratigraphy and radio-isotopic dating. These and many other global and regional stratigraphic columns with embedded documentation can be accessed and viewed with the free TimeScale Creator visualization packages (*www.tscreator.org*).

Some periods are still lacking international agreement on all stage definitions and reliable high-precision age models. An international team is being assembled for the next major multi-volume GTS2020 synthesis, and contributions are welcome.

References:

[1] Gradstein, F. et al. (2012) *The Geologic Time Scale 2012*: Elsevier Publ., 2 volumes.
[2] Ogg, J.G. et al. (2016) *The Concise Geologic Time Scale 2016*: Elsevier Publ., ca. 200 pages.