



Should Unit-stratotypes and Chronozones be formally defined? A proposal.

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The Global Stratotype Section and Point (GSSP) approach to define stage boundaries leaves the unit or body of the stage undefined. At the same time, arguments against the use of unit-stratotypes have been invalidated for the younger Cenozoic part of the geological record through the revolutionary advance in integrated high-resolution stratigraphy and astronomical dating. Combined these provide unprecedented age control and ensure continuity of sedimentary successions, at least within the time scales of the tuned astronomical-forced climate oscillations, and offer the possibility to introduce amended unit-stratotypes for global stages. Here we propose that such unit-stratotypes should comprise the entire stage in an astronomically age calibrated deep-marine succession, preferably containing the GSSP and used to age calibrate the standard Geological Time Scale (GTS). Cycles used for tuning can be formally defined as chronozones, i.e. chronostratigraphic units of either unspecified rank or of a smaller scale than the stage, and independent of the standard hierarchy in global chronostratigraphy. In this way, the standard GTS and Global Chronostratigraphic Scale (GCS) can be brought in line with the progress in integrated high-resolution stratigraphy and astronomical dating.