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# Ratification of the base of the ICS Geological Time Scale: the Global Standard Stratigraphic Age (GSSA) for the Hadean lower boundary

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The base of the ICS (International Commission on Stratigraphy) Geological Time Scale was ratified in 2022 by defining a new Global Stratigraphic Standard Age (GSSA) for the lower boundary of the Hadean Eon (formerly 4000–3600 Ma); the age of the Solar System based on the oldest solids, calcium-aluminium inclusions (CAIs), generated in the protoplanetary disk. The formal GSSA for the Hadean base is the oldest reliable, weighted mean U-corrected Pb–Pb age of  $4567.30 \pm 0.16$  Ma obtained for CAIs in primitive meteorites Allende and Efremovka. This age is supported by the 4568–4567 Ma U-corrected Pb–

Pb ages of chondrules in Northwest African meteorites. The boundary sets an upper lifetime for the protoplanetary disk and timing of planet formation. The Hadean Eon encloses the accretion and differentiation of the Earth and other planets, the Moon-forming Giant Impact, the beginning of the suggested Late Heavy Bombardment, and the formation of the Earth's protocrust. Due to the Moon-forming Giant Impact that occurred after the differentiation of the proto-Earth and the fact that Earth's first crust has been destroyed, the age of the planet Earth itself remains an open question. However, many pieces of astronomical,