



INTERNATIONAL STRATIGRAPHIC CHART

International Commission on Stratigraphy



Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP	
Phanerozoic	Cenozoic	Quaternary*	Holocene		0.0117	🔪	
			Pleistocene	Upper		0.126	
				"Ionian"		0.781	
				Calabrian		1.806	🔪
		Pliocene	Gelasian		2.588	🔪	
			Piacenzian		3.600	🔪	
		Neogene	Miocene	Zanclean		5.332	🔪
				Messinian		7.246	🔪
			Oligocene	Tortonian		11.608	🔪
				Serravallian		13.82	🔪
				Langhian		15.97	🔪
				Burdigalian		20.43	🔪
				Aquitanian		23.03	🔪
				Eocene	Chattian		28.4 ± 0.1
	Rupelian					33.9 ± 0.1	🔪
	Paleocene			Priabonian		37.2 ± 0.1	🔪
		Bartonian		40.4 ± 0.2	🔪		
		Lutetian		48.6 ± 0.2	🔪		
		Ypresian		55.8 ± 0.2	🔪		
	Mesozoic	Cretaceous	Upper	Thanetian		58.7 ± 0.2	🔪
				Selandian		~ 61.1	🔪
				Danian		65.5 ± 0.3	🔪
				Maastrichtian		70.6 ± 0.6	🔪
				Campanian		83.5 ± 0.7	🔪
				Santonian		85.8 ± 0.7	🔪
			Lower	Coniacian		~ 88.6	🔪
				Turonian		93.6 ± 0.8	🔪
				Cenomanian		99.6 ± 0.9	🔪
				Albian		112.0 ± 1.0	🔪
		Triassic	Upper	Aptian		125.0 ± 1.0	🔪
				Barremian		130.0 ± 1.5	🔪
				Hauterivian		~ 133.9	🔪
Valanginian					140.2 ± 3.0	🔪	
Lower			Berriasian		145.2 ± 4.0	🔪	

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Phanerozoic	Mesozoic	Jurassic	Upper	Tithonian		145.5 ± 4.0	🔪	
				Kimmeridgian		150.8 ± 4.0	🔪	
				Oxfordian		~ 155.6	🔪	
			Middle	Callovian		161.2 ± 4.0	🔪	
				Bathonian		164.7 ± 4.0	🔪	
				Bajocian		167.7 ± 3.5	🔪	
		Lower	Aalenian		171.6 ± 3.0	🔪		
			Toarcian		175.6 ± 2.0	🔪		
			Pliensbachian		183.0 ± 1.5	🔪		
			Sinemurian		189.6 ± 1.5	🔪		
			Hettangian		196.5 ± 1.0	🔪		
		Triassic	Upper	Rhaetian		199.6 ± 0.6	🔪	
				Norian		203.6 ± 1.5	🔪	
				Carnian		216.5 ± 2.0	🔪	
	Ladinian				~ 228.7	🔪		
	Middle		Anisian		237.0 ± 2.0	🔪		
			Olenekian		~ 245.9	🔪		
	Lower		Induan		~ 249.5	🔪		
			Changhsingian		251.0 ± 0.4	🔪		
	Paleozoic	Permian	Lopingian	Wuchiapingian		253.8 ± 0.7	🔪	
				Changhsingian		260.4 ± 0.7	🔪	
			Guadalupian	Wordian		265.8 ± 0.7	🔪	
				Roadian		268.0 ± 0.7	🔪	
				Kungurian		270.6 ± 0.7	🔪	
			Cisuralian	Artinskian		275.6 ± 0.7	🔪	
				Sakmarian		284.4 ± 0.7	🔪	
				Asselian		294.6 ± 0.8	🔪	
				Gzhelian		299.0 ± 0.8	🔪	
				Kasimovian		303.4 ± 0.9	🔪	
		Carboniferous	Pennsylvanian	Upper	Moscovian		307.2 ± 1.0	🔪
				Middle	Bashkirian		311.7 ± 1.1	🔪
				Lower	Serpukhovian		318.1 ± 1.3	🔪
Viséan					328.3 ± 1.6	🔪		
Mississippian			Upper	Tournaisian		345.3 ± 2.1	🔪	
			Middle			359.2 ± 2.5	🔪	

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Phanerozoic	Paleozoic	Devonian	Upper	Famennian		359.2 ± 2.5	🔪
				Frasnian		374.5 ± 2.6	🔪
				Givetian		385.3 ± 2.6	🔪
			Middle	Eifelian		391.8 ± 2.7	🔪
				Emsian		397.5 ± 2.7	🔪
				Pragian		407.0 ± 2.8	🔪
		Lower	Lochkovian		411.2 ± 2.8	🔪	
			Ludlow		416.0 ± 2.8	🔪	
			Ludfordian		416.0 ± 2.8	🔪	
			Gorstian		418.7 ± 2.7	🔪	
			Homerian		421.3 ± 2.6	🔪	
		Silurian	Wenlock	Sheinwoodian		422.9 ± 2.5	🔪
				Telychian		426.2 ± 2.4	🔪
			Llandovery	Aeronian		428.2 ± 2.3	🔪
	Rhuddanian				436.0 ± 1.9	🔪	
	Ordovician	Upper	Hirnantian		439.0 ± 1.8	🔪	
			Katian		443.7 ± 1.5	🔪	
			Sandbian		445.6 ± 1.5	🔪	
			Darriwilian		455.8 ± 1.6	🔪	
			Tremadocian		460.9 ± 1.6	🔪	
		Middle	Floian		468.1 ± 1.6	🔪	
			Furongian		471.8 ± 1.6	🔪	
		Lower	Stage 10		478.6 ± 1.7	🔪	
			Stage 9		488.3 ± 1.7	🔪	
			Stage 8		~ 492 *	🔪	
	Stage 7			~ 496 *	🔪		
	Stage 6			~ 499	🔪		
	Cambrian	Series 3	Guzhangian		~ 503	🔪	
			Drumian		~ 506.5	🔪	
			Stage 5		~ 510 *	🔪	
		Series 2	Stage 4		~ 515 *	🔪	
			Stage 3		~ 521 *	🔪	
Terreneuvian		Stage 2		~ 528 *	🔪		
		Fortunian		542.0 ± 1.0	🔪		

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Precambrian	Proterozoic	Ediacaran	542	🔪	
			~635	🔪	
			850	🔪	
		Meso-proterozoic	Stenian	1000	🔪
			Ectasian	1200	🔪
			Calymmian	1400	🔪
			Statherian	1600	🔪
		Paleo-proterozoic	Orosirian	1800	🔪
			Rhyacian	2050	🔪
			Siderian	2300	🔪
	Neoarchean		2500	🔪	
	Mesoarchean		2800	🔪	
	Archean	Paleoarchean	3200	🔪	
		Eoarchean	3600	🔪	
		Hadean (informal)	~4600	🔪	

Subdivisions of the global geologic record are formally defined by their lower boundary. Each unit of the Phanerozoic (~542 Ma to Present) and the base of Ediacaran are defined by a basal Global Standard Section and Point (GSSP 🔪), whereas Precambrian units are formally subdivided by absolute age (Global Standard Stratigraphic Age, GSSA). Details of each GSSP are posted on the ICS website (www.stratigraphy.org).

Numerical ages of the unit boundaries in the Phanerozoic are subject to revision. Some stages within the Cambrian will be formally named upon international agreement on their GSSP limits. Most sub-Series boundaries (e.g., Middle and Upper Aptian) are not formally defined.

Colors are according to the Commission for the Geological Map of the World (www.cgmw.org).

The listed numerical ages are from 'A Geologic Time Scale 2004', by F.M. Gradstein, J.G. Ogg, A.G. Smith, et al. (2004; Cambridge University Press) and "The Concise Geologic Time Scale" by J.G. Ogg, G. Ogg and F.M. Gradstein (2008).

* Definition of the Quaternary and revision of the Pleistocene are under discussion. Base of the Pleistocene is at 1.81 Ma (base of Calabrian), but may be extended to 2.59 Ma (base of Gelasian). The historic "Tertiary" comprises the Paleogene and Neogene, and has no official rank.

This chart was drafted by Gabi Ogg. Intra Cambrian unit ages with * are informal, and awaiting ratified definitions.

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