



# 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	Turonian		~ 88.6	🔪
				Cenomanian		93.6 ± 0.8	🔪
				Aptian		99.6 ± 0.9	🔪
				Albian		112.0 ± 1.0	🔪
		Triassic	Upper	Barremian		125.0 ± 1.0	🔪
				Hauterivian		130.0 ± 1.5	🔪
				Valanginian		~ 133.9	🔪
Berriasian					145.2 ± 4.0	🔪	
Middle			Visean		140.2 ± 3.0	🔪	
			Moscovian		125.0 ± 1.0	🔪	
			Kasimovian		307.2 ± 1.0	🔪	
			Gzhelian		303.4 ± 0.9	🔪	
Lower	Tournaisian		359.2 ± 2.5	🔪			
	Asselian		299.0 ± 0.8	🔪			
	Sakmarian		294.6 ± 0.8	🔪			
	Artinskian		275.6 ± 0.7	🔪			

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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		~ 245.9	
			Olenekian		~ 249.5	
	Lower		Induan		~ 249.5	
			Changhsingian		251.0 ± 0.4	
	Paleozoic	Permian	Lopingian	Wuchiapingian		253.8 ± 0.7
				Changhsingian		253.8 ± 0.7
				Wuchiapingian		260.4 ± 0.7
				Capitanian		265.8 ± 0.7
			Guadalupian	Wordian		268.0 ± 0.7
				Roadian		270.6 ± 0.7
				Kungurian		275.6 ± 0.7
				Artinskian		284.4 ± 0.7
			Cisuralian	Sakmarian		294.6 ± 0.8
				Asselian		299.0 ± 0.8
		Artinskian			275.6 ± 0.7	
		Kungurian			270.6 ± 0.7	
		Carboniferous	Pennsylvanian	Upper	Gzhelian	
Middle				Kasimovian		307.2 ± 1.0
Lower				Moscovian		311.7 ± 1.1
Bashkirian					318.1 ± 1.3	
Mississippian			Upper	Serpukhovian		318.1 ± 1.3
			Middle	Visean		328.3 ± 1.6
	Lower		Tournaisian		345.3 ± 2.1	
					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		418.7 ± 2.7	
			Gorstian		421.3 ± 2.6	
			Homerian		422.9 ± 2.5	
		Silurian	Wenlock	Sheinwoodian		426.2 ± 2.4
				Telychian		428.2 ± 2.3
			Llandovery	Aeronian		436.0 ± 1.9
	Rhuddanian				439.0 ± 1.8	
	Ordovician	Upper	Hirnantian		443.7 ± 1.5	
			Katian		445.6 ± 1.5	
			Sandbian		455.8 ± 1.6	
			Darriwilian		460.9 ± 1.6	
		Middle	Dapingian		468.1 ± 1.6	
			Floian		471.8 ± 1.6	
		Lower	Tremadocian		478.6 ± 1.7	
			Stage 10		488.3 ± 1.7	
	Cambrian	Furongian	Stage 9		~ 492 *	
			Paibian		~ 496 *	
			Stage 8		~ 499	
			Guzhangian		~ 503	
		Series 3	Drumian		~ 506.5	
			Stage 5		~ 510 *	
		Series 2	Stage 4		~ 515 *	
			Stage 3		~ 521 *	
		Terreneuvian	Stage 2		~ 528 *	
Fortunian				542.0 ± 1.0		

This chart was drafted by Gabi Ogg. Intra Cambrian unit ages with \* are informal, and awaiting ratified definitions. Copyright © 2008 International Commission on Stratigraphy

Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP GSSA	
Precambrian	Proterozoic	Neo-proterozoic	Ediacaran	542	🔪
			Cryogenian	~635	🔪
			Tonian	850	🔪
		Meso-proterozoic	Stenian	1000	🔪
			Ectasian	1200	🔪
			Calymmian	1400	🔪
	Archean	Paleo-proterozoic	Statherian	1600	🔪
			Orosirian	1800	🔪
			Rhyacian	2050	🔪
		Neoarchean	Siderian	2300	🔪
				2500	🔪
				2800	🔪
	Hadean (informal)	Mesoarchean		3200	🔪
				3600	🔪
				4000	🔪
		Eoarchean		~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](http://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](http://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 (in press)

\* The status of the Quaternary is not yet decided. Its base may be assigned as the base of the Gelasian and extend the base of the Pleistocene to 2.6 Ma. The "Tertiary" comprises the Paleogene and Neogene and has no official rank.