



# 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		
			Pliocene	Calabrian		1.806	↗	
		Gelasian			2.588	↗		
		Neogene	Pliocene	Piacenzian		3.600	↗	
				Zanclean		5.332	↗	
			Miocene	Messinian		7.246	↗	
				Tortonian		11.608	↗	
				Serravallian		13.82	↗	
				Langhian		15.97	↗	
				Burdigalian		20.43	↗	
				Aquitanian		23.03	↗	
			Paleogene	Oligocene	Chattian		28.4 ± 0.1	↗
					Rupelian		33.9 ± 0.1	↗
				Eocene	Priabonian		37.2 ± 0.1	↗
	Bartonian					40.4 ± 0.2	↗	
	Lutetian				48.6 ± 0.2	↗		
	Paleocene	Ypresian			55.8 ± 0.2	↗		
	Mesozoic	Cretaceous	Upper	Thanetian		58.7 ± 0.2	↗	
				Selandian		~ 61.1	↗	
			Lower	Danian		65.5 ± 0.3	↗	
				Maastrichtian		70.6 ± 0.6	↗	
				Campanian		83.5 ± 0.7	↗	
				Santonian		85.8 ± 0.7	↗	
		Carboniferous	Pennsylvanian	Coniacian		~ 88.6	↗	
				Turonian		93.6 ± 0.8	↗	
			Mississippian	Cenomanian		99.6 ± 0.9	↗	
				Albian		112.0 ± 1.0	↗	
	Paleozoic	Permian	Aptian		125.0 ± 1.0	↗		
			Barremian		130.0 ± 1.5	↗		
		Triassic	Hauterivian		~ 133.9	↗		
Valanginian				140.2 ± 3.0	↗			
Mesozoic	Jurassic	Berriasian		145.5 ± 4.0	↗			
		Tithonian		145.5 ± 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	↗	
			Rhaetian		199.6 ± 0.6	↗	
	Triassic	Upper	Norian		203.6 ± 1.5	↗	
			Carnian		216.5 ± 2.0	↗	
			Ladinian		~ 228.7	↗	
		Middle	Anisian		237.0 ± 2.0	↗	
			Olenekian		~ 245.9	↗	
			Induan		~ 249.5	↗	
	Paleozoic	Permian	Lopingian	Changhsingian		251.0 ± 0.4	↗
				Wuchiapingian		253.8 ± 0.7	↗
				Capitanian		260.4 ± 0.7	↗
			Guadalupian	Wordian		265.8 ± 0.7	↗
				Roadian		268.0 ± 0.7	↗
				Kungurian		270.6 ± 0.7	↗
Carboniferous		Cisuralian	Artinskian		275.6 ± 0.7	↗	
			Sakmarian		284.4 ± 0.7	↗	
			Asselian		294.6 ± 0.8	↗	
		Pennsylvanian	Gzhelian		299.0 ± 0.8	↗	
			Kasimovian		303.4 ± 0.9	↗	
			Moscovian		307.2 ± 1.0	↗	
Paleozoic	Mississippian	Bashkirian		311.7 ± 1.1	↗		
		Serpukhovian		318.1 ± 1.3	↗		
		Viséan		328.3 ± 1.6	↗		
	Carboniferous	Tournaisian		345.3 ± 2.1	↗		
		Induan		359.2 ± 2.5	↗		
		Induan		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	↗	
			Pridoli		416.0 ± 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	↗
				Aeronian		436.0 ± 1.9	↗
			Llandovery	Rhuddanian		439.0 ± 1.8	↗
	Hirnantian				443.7 ± 1.5	↗	
	Katian				445.6 ± 1.5	↗	
	Ordovician	Upper	Sandbian		455.8 ± 1.6	↗	
			Darriwilian		460.9 ± 1.6	↗	
			Dapingian		468.1 ± 1.6	↗	
		Middle	Floian		471.8 ± 1.6	↗	
			Tremadocian		478.6 ± 1.7	↗	
			Furongian		488.3 ± 1.7	↗	
	Cambrian	Series 10	Stage 10		~ 492 *	↗	
			Stage 9		~ 496 *	↗	
			Paibian		~ 499	↗	
			Stage 5		~ 503	↗	
			Drumian		~ 506.5	↗	
		Series 3	Stage 3		~ 510 *	↗	
			Stage 4		~ 515 *	↗	
			Stage 2		~ 521 *	↗	
Fortunian				~ 528 *	↗		
Terreneuvian				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	
Phanerozoic	Proterozoic	Ediacaran	542	↗	
			~635	↗	
			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	↗	
		Eoarchean	4000	↗	
			~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 (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.