



# INTERNATIONAL STRATIGRAPHIC CHART

International Commission on Stratigraphy



Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP	
Phanerozoic	Cenozoic	Quaternary*	Holocene		0.0118		
			Pleistocene	Upper		0.126	
				Middle		0.781	
		Pliocene	Gelasian		1.806		
			Piacenzian		2.588		
		Neogene	Miocene	Zanclean		3.600	
				Messinian		5.332	
			Pliocene	Tortonian		7.246	
				Serravallian		11.608	
				Langhian		13.65	
	Oligocene		Burdigalian		15.97		
			Aquitanian		20.43		
			Chattian		23.03		
			Rupelian		28.4 ± 0.1		
			Priabonian		33.9 ± 0.1		
	Paleogene	Eocene	Lutetian		37.2 ± 0.1		
			Bartonian		40.4 ± 0.2		
			Ypresian		48.6 ± 0.2		
		Paleocene	Thanetian		55.8 ± 0.2		
			Selandian		58.7 ± 0.2		
		Cretaceous	Upper	Danian		61.7 ± 0.2	
				Maastrichtian		65.5 ± 0.3	
				Campanian		70.6 ± 0.6	
				Santonian		83.5 ± 0.7	
				Coniacian		85.8 ± 0.7	
	Lower	Turonian		89.3 ± 1.0			
		Cenomanian		93.5 ± 0.8			
		Albian		99.6 ± 0.9			
		Aptian		112.0 ± 1.0			
		Barremian		125.0 ± 1.0			
Hauterivian			130.0 ± 1.5				
Valanginian			136.4 ± 2.0				
Berriasian			140.2 ± 3.0				
				145.5 ± 4.0			

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Phanerozoic	Mesozoic	Jurassic	Upper	Tithonian		145.5 ± 4.0
				Kimmeridgian		150.8 ± 4.0
				Oxfordian		155.7 ± 4.0
			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
		Triassic	Upper	Sinemurian		189.6 ± 1.5
				Hettangian		196.5 ± 1.0
				Rhaetian		199.6 ± 0.6
			Middle	Norian		203.6 ± 1.5
				Carnian		216.5 ± 2.0
				Ladinian		228.0 ± 2.0
	Lower	Anisian		237.0 ± 2.0		
		Olenekian		245.0 ± 1.5		
		Induan		249.7 ± 0.7		
	Paleozoic	Permian	Lopingian	Changhsingian		251.0 ± 0.4
				Wuchiapingian		253.8 ± 0.7
				Capitanian		253.8 ± 0.7
			Guadalupian	Wordian		260.4 ± 0.7
				Roadian		265.8 ± 0.7
				Kungurian		268.0 ± 0.7
			Cisuralian	Artinskian		270.6 ± 0.7
				Sakmarian		275.6 ± 0.7
				Asselian		284.4 ± 0.7
		Carboniferous	Pennsylvanian	Gzhelian		294.6 ± 0.8
				Kasimovian		299.0 ± 0.8
				Moscovian		303.9 ± 0.9
Mississippian			Bashkirian		306.5 ± 1.0	
			Serpukhovian		311.7 ± 1.1	
			Viséan		318.1 ± 1.3	
Paleozoic	Permian	Tournaisian		318.1 ± 1.3		
		Asselian		326.4 ± 1.6		
		Artinskian		326.4 ± 1.6		
	Carboniferous	Viséan		345.3 ± 2.1		
		Serpukhovian		345.3 ± 2.1		
		Tournaisian		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
		Silurian	Wenlock	Gorstian		418.7 ± 2.7
				Homerian		421.3 ± 2.6
				Sheinwoodian		422.9 ± 2.5
			Llandovery	Telychian		426.2 ± 2.4
				Aeronian		436.0 ± 1.9
				Rhuddanian		439.0 ± 1.8
	Ordovician	Upper	Hirnantian		443.7 ± 1.5	
			Stage 6		445.6 ± 1.5	
			Stage 5		455.8 ± 1.6	
		Middle	Darriwilian		460.9 ± 1.6	
			Stage 3		468.1 ± 1.6	
			Stage 2		471.8 ± 1.6	
		Lower	Tremadocian		478.6 ± 1.7	
			Furongian		488.3 ± 1.7	
			Stage 10		488.3 ± 1.7	
	Cambrian	Series 3	Paibian		501.0 ± 2.0	
			Stage 7		501.0 ± 2.0	
			Stage 6		501.0 ± 2.0	
		Series 2	Stage 5		501.0 ± 2.0	
			Stage 4		501.0 ± 2.0	
			Stage 3		501.0 ± 2.0	
Lower Series	Stage 1	Stage 2		542.0 ± 1.0		
		Stage 2		542.0 ± 1.0		
		Stage 2		542.0 ± 1.0		
		Stage 2		542.0 ± 1.0		
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This chart was drafted by Gabi Ogg.

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Precambrian	Proterozoic	Ediacaran	542			
			~630			
			850			
		Meso-proterozoic	Stenian	1000		
			Ectasian	1200		
			Calymmian	1400		
		Paleo-proterozoic	Statherian	1600		
			Orosirian	1800		
		Archean	Neoarchean	Rhyacian	2050	
				Siderian	2300	
	2500					
	Mesoarchean		2800			
			3200			
	Eoarchean	3600				
			Lower limit is not defined			

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)).

International chronostratigraphic units, rank, names and formal status are approved by the International Commission on Stratigraphy (ICS) and ratified by the International Union of Geological Sciences (IUGS).

Numerical ages of the unit boundaries in the Phanerozoic are subject to revision. Some stages within the Ordovician and 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).

\* proposed by ICS