



# 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		
		Neogene	Pliocene	Lower		1.806		
				Gelasian		2.588		
		Cenozoic	Neogene	Pliocene	Piacenzian		3.600	
					Zanclean		5.332	
			Miocene	Messinian		7.246		
				Tortonian		11.608		
				Serravallian		13.65		
	Langhian				15.97			
	Burdigalian				20.43			
	Aquitanian				23.03			
	Oligocene			Chattian		28.4 ± 0.1		
				Rupelian		33.9 ± 0.1		
	Paleogene	Eocene	Priabonian		37.2 ± 0.1			
			Bartonian		40.4 ± 0.2			
			Lutetian		48.6 ± 0.2			
		Paleocene	Ypresian		55.8 ± 0.2			
			Thanetian		58.7 ± 0.2			
			Selandian		61.7 ± 0.2			
	Mesozoic	Cretaceous	Upper	Danian		65.5 ± 0.3		
				Turonian		70.6 ± 0.6		
				Coniacian		83.5 ± 0.7		
				Santonian		85.8 ± 0.7		
				Campanian		89.3 ± 1.0		
				Maastrichtian		93.5 ± 0.8		
			Lower	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					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			
	Lower		Ladinian		228.0 ± 2.0			
			Anisian		237.0 ± 2.0			
			Olenekian		245.0 ± 1.5			
			Induan		249.7 ± 0.7			
			Changhsingian		251.0 ± 0.4			
	Paleozoic	Permian	Wuchiapingian		253.8 ± 0.7			
			Lopingian		258.0 ± 0.7			
			Wordian		260.4 ± 0.7			
			Roadian		265.8 ± 0.7			
			Guadalupian		268.0 ± 0.7			
		Carboniferous	Pennsylvanian	Kungurian		270.6 ± 0.7		
				Artinskian		275.6 ± 0.7		
			Mississippian	Sakmarian		284.4 ± 0.7		
				Asselian		294.6 ± 0.8		
				Gzhelian		299.0 ± 0.8		
	Paleozoic	Carboniferous	Pennsylvanian	Kasimovian		303.9 ± 0.9		
				Moscovian		306.5 ± 1.0		
			Mississippian	Bashkirian		311.7 ± 1.1		
Serpukhovian					318.1 ± 1.3			
Paleozoic			Carboniferous	Mississippian	Viséan		326.4 ± 1.6	
					Tournaisian		345.3 ± 2.1	
				Carboniferous	Pennsylvanian	Asselian		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		
			Ludlow		416.0 ± 2.8		
			Ludfordian		418.7 ± 2.7		
		Silurian	Llandovery	Gorstian		421.3 ± 2.6	
				Homerian		422.9 ± 2.5	
			Wenlock	Sheinwoodian		426.2 ± 2.4	
	Telychian				428.2 ± 2.3		
	Ordovician		Upper	Aeronian		436.0 ± 1.9	
				Rhuddanian		439.0 ± 1.8	
	Paleozoic	Cambrian	Ordovician	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	
			Lower	Furongian	Stage 2		471.8 ± 1.6
					Tremadocian		478.6 ± 1.7
				Cambrian	Stage 10		488.3 ± 1.7
					Stage 9		501.0 ± 2.0
					Stage 7		501.0 ± 2.0
	Paleozoic	Cambrian	Series 3	Stage 6		501.0 ± 2.0	
				Stage 5		501.0 ± 2.0	
			Series 2	Stage 4		501.0 ± 2.0	
				Stage 3		501.0 ± 2.0	
			Lower Series	Stage 2		501.0 ± 2.0	
				Stage 1		542.0 ± 1.0	

This chart was drafted by Gabi Ogg.

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Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP GSSA	
Precambrian	Proterozoic	Ediacaran	542		
			~630		
			850		
		Meso-proterozoic	Stenian	1000	
			Ectasian	1200	
			Calymmian	1400	
	Archean	Paleo-proterozoic	Statherian	1600	
			Orosirian	1800	
			Rhyacian	2050	
		Archean	Siderian	2300	
				2500	
				2800	
	Archean	Neoarchean	2800		
			3200		
			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