

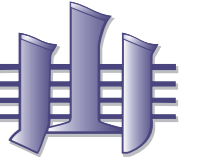


INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

www.stratigraphy.org

International Commission on Stratigraphy

v 2013/01



Eonothem / Eon	Erathem / Era	System / Period	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
Phanerozoic	Cenozoic	Quaternary	Holocene		present	0.0117
			Pleistocene	Upper		0.126
				Middle		0.781
				Calabrian		1.806
		Neogene	Pliocene	Gelasian		2.588
				Piacenzian		3.600
			Miocene	Zanclean		5.333
				Messinian		7.246
				Tortonian		11.62
				Serravallian		13.82
	Langhian				15.97	
	Burdigalian				20.44	
	Aquitania				23.03	
	Paleogene			Oligocene	Chattian	
		Rupelian			33.9	
		Eocene	Priabonian		38.0	
			Bartonian		41.3	
			Lutetian		47.8	
			Ypresian		56.0	
		Paleocene	Thanetian		59.2	
			Selandian		61.6	
	Danian		66.0			
	Mesozoic	Cretaceous	Upper	Maastrichtian		72.1 ± 0.2
				Campanian		83.6 ± 0.2
				Santonian		86.3 ± 0.5
				Coniacian		89.8 ± 0.3
				Turonian		93.9
			Lower	Cenomanian		100.5
Albian					~ 113.0	
Aptian					~ 125.0	
Barremian					~ 129.4	
Hauterivian					~ 132.9	
Valanginian		~ 139.8				
Berriasian		~ 145.0				

Eonothem / Eon	Erathem / Era	System / Period	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
Phanerozoic	Mesozoic	Jurassic	Upper	Tithonian		~ 145.0
				Kimmeridgian		152.1 ± 0.9
			Middle	Oxfordian		157.3 ± 1.0
				Callovian		163.5 ± 1.0
				Bathonian		166.1 ± 1.2
				Bajocian		168.3 ± 1.3
				Aalenian		170.3 ± 1.4
				Toarcian		174.1 ± 1.0
			Lower	Pliensbachian		182.7 ± 0.7
				Sinemurian		190.8 ± 1.0
	Hettangian			199.3 ± 0.3		
	Rhaetian			201.3 ± 0.2		
	Triassic	Upper	Norian		~ 208.5	
			Carnian		~ 227	
			Ladinian		~ 237	
		Middle	Anisian		~ 242	
			Olenekian		247.2	
			Induan		251.2	
			Changhsingian		252.17 ± 0.06	
		Lower	Wuchiapingian		254.14 ± 0.07	
			Capitanian		259.8 ± 0.4	
			Wordian		265.1 ± 0.4	
	Paleozoic	Permian	Roadian		268.8 ± 0.5	
			Kungurian		272.3 ± 0.5	
			Artinskian		283.5 ± 0.6	
			Sakmarian		290.1 ± 0.26	
			Asselian		295.0 ± 0.18	
		Carboniferous	Pennsylvanian	Gzhelian		298.9 ± 0.15
				Kasimovian		303.7 ± 0.1
				Moscovian		307.0 ± 0.1
Mississippian			Bashkirian		315.2 ± 0.2	
			Serpukhovian		323.2 ± 0.4	
Paleozoic	Cambrian	Visean		330.9 ± 0.2		
		Tournaisian		346.7 ± 0.4		
		Fortunian		~ 521		
		Stage 2		~ 529		
		Stage 3		~ 514		

Eonothem / Eon	Erathem / Era	System / Period	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)	
Phanerozoic	Paleozoic	Devonian	Upper	Famennian		372.2 ± 1.6	
				Frasnian		382.7 ± 1.6	
			Middle	Givetian		387.7 ± 0.8	
				Eifelian		393.3 ± 1.2	
				Emsian		407.6 ± 2.6	
				Pragian		410.8 ± 2.8	
			Lower	Lochkovian		419.2 ± 3.2	
				Pridoli		423.0 ± 2.3	
			Silurian	Ludlow	Ludfordian		425.6 ± 0.9
					Gorstian		427.4 ± 0.5
	Wenlock	Homerian			430.5 ± 0.7		
		Sheinwoodian			433.4 ± 0.8		
	Llandovery	Telychian			438.5 ± 1.1		
		Aeronian			440.8 ± 1.2		
		Rhuddanian			443.4 ± 1.5		
		Hirnantian			445.2 ± 1.4		
	Paleozoic	Ordovician		Upper	Katian		453.0 ± 0.7
					Sandbian		458.4 ± 0.9
			Middle	Darriwilian		467.3 ± 1.1	
				Dapingian		470.0 ± 1.4	
				Floian		477.7 ± 1.4	
		Lower	Tremadocian		485.4 ± 1.9		
			Stage 10		~ 489.5		
			Jiangshanian		~ 494		
			Paibian		~ 497		
			Guzhangian		~ 500.5		
	Paleozoic	Cambrian	Series 3	Drumian		~ 504.5	
				Stage 5		~ 509	
			Series 2	Stage 4		~ 514	
				Stage 3		~ 521	
Stage 2					~ 529		
Terreneuvian		Fortunian		541.0 ± 1.0			

Eonothem / Eon	Erathem / Era	System / Period	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
Precambrian	Proterozoic	Neo-proterozoic	Ediacaran		~ 541.0 ± 1.0	
			Cryogenian		~ 635	
			Tonian		850	
		Meso-proterozoic	Stenian		1000	
			Ectasian		1200	
			Calymmian		1400	
			Paleo-proterozoic	Statherian		1600
				Orosirian		1800
		Archean	Neo-archean	Rhyacian		2050
				Siderian		2300
	Meso-archean				2500	
	Paleo-archean				2800	
	Eo-archean				3200	
					3600	
					4000	
					~ 4600	

Units of all ranks are in the process of being defined by Global Boundary Stratotype Section and Points (GSSP) for their lower boundaries, including those of the Archean and Proterozoic, long defined by Global Standard Stratigraphic Ages (GSSA). Charts and detailed information on ratified GSSPs are available at the website <http://www.stratigraphy.org>. The URL to this chart is found below.

Numerical ages are subject to revision and do not define units in the Phanerozoic and the Ediacaran; only GSSPs do. For boundaries in the Phanerozoic without ratified GSSPs or without constrained numerical ages, an approximate numerical age (~) is provided.

Numerical ages for all systems except Permian, Triassic, Cretaceous and Precambrian are taken from 'A Geologic Time Scale 2012' by Gradstein et al. (2012); those for the Permian, Triassic and Cretaceous were provided by the relevant ICS subcommissions.

Coloring follows the Commission for the Geological Map of the World. <http://www.ccgw.org>



Chart drafted by K.M. Cohen, S. Finney, P.L. Gibbard (c) International Commission on Stratigraphy, January 2013

<http://www.stratigraphy.org/ICSchart/ChronostratChart2013-01.pdf>