

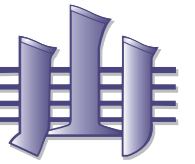


INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

www.stratigraphy.org

International Commission on Stratigraphy

v 2016/10



Eonothem / Eon	Erathem / Era	System / Period	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)	
Phanerozoic	Cenozoic	Quaternary	Holocene			present	
				Upper		0.0117	
				Middle		0.126	
				Lower		0.781	
		Pleistocene	Calabrian			1.80	
			Gelasian			2.58	
		Pliocene	Piacenzian			3.600	
			Zanclean			5.333	
		Neogene	Miocene	Messinian			7.246
				Tortonian			11.63
	Serravallian					13.82	
	Langhian		Burdigalian			15.97	
			Aquitanian			20.44	
			Chattian			23.03	
	Oligocene		Rupelian			28.1	
						33.9	
	Eocene		Priabonian			37.8	
			Bartonian			41.2	
		Lutetian			47.8		
		Ypresian			56.0		
		Thanetian			59.2		
	Paleocene	Selandian			61.6		
		Danian			66.0		
					72.1 ± 0.2		
	Mesozoic	Cretaceous	Upper	Maastrichtian			83.6 ± 0.2
				Campanian			86.3 ± 0.5
				Santonian			89.8 ± 0.3
				Coniacian			93.9
				Turonian			100.5
Lower			Albian			~ 113.0	
			Aptian			~ 125.0	
			Barremian			~ 129.4	
Hauterivian			Valanginian			~ 132.9	
						~ 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		
			Lower	Aalenian			170.3 ± 1.4		
				Toarcian			174.1 ± 1.0		
				Pliensbachian			182.7 ± 0.7		
				Sinemurian			190.8 ± 1.0		
		Hettangian				199.3 ± 0.3			
						201.3 ± 0.2			
		Triassic	Upper	Rhaetian			~ 208.5		
	Norian					~ 227			
	Carnian					~ 237			
	Ladinian					~ 242			
	Anisian					247.2			
	Olenekian					251.2			
	Induan					252.17 ± 0.06			
	Changhsingian					254.14 ± 0.07			
	Lower			Lopingian			259.8 ± 0.4		
			Wuchiapingian			259.8 ± 0.4			
			Capitanian			265.1 ± 0.4			
			Wordian			268.8 ± 0.5			
			Roadian			272.3 ± 0.5			
			Kungurian			283.5 ± 0.6			
			Artinskian			290.1 ± 0.26			
			Sakmarian			295.0 ± 0.18			
			Asselian			298.9 ± 0.15			
			Paleozoic	Carboniferous	Pennsylvanian	Upper	Gzhelian		
	Kasimovian							307.0 ± 0.1	
	Mississippian	Middle			Moscovian			315.2 ± 0.2	
Lower		Bashkirian					323.2 ± 0.4		
Upper		Serpukhovian					330.9 ± 0.2		
Permian	Cisuralian	Visean				346.7 ± 0.4			
		Tournaisian				358.9 ± 0.4			
	Guadalupian	Artinskian				265.1 ± 0.4			
		Wordian				268.8 ± 0.5			
		Roadian				272.3 ± 0.5			

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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
				Ludlow			425.6 ± 0.9
			Silurian	Wenlock	Gorstian		
		Homerian					430.5 ± 0.7
		Llandovery		Sheinwoodian			433.4 ± 0.8
				Telychian			438.5 ± 1.1
	Aeronian					440.8 ± 1.2	
	Ordovician	Upper	Rhuddanian			443.8 ± 1.5	
			Hirnantian			445.2 ± 1.4	
		Middle	Katian			453.0 ± 0.7	
			Sandbian			458.4 ± 0.9	
			Darriwilian			467.3 ± 1.1	
	Cambrian	Lower	Dapingian			470.0 ± 1.4	
			Floian			477.7 ± 1.4	
		Series 3	Tremadocian			485.4 ± 1.9	
			Stage 10			~ 489.5	
			Jiangshanian			~ 494	
		Terreneuvian	Paibian			~ 497	
			Guzhangian			~ 500.5	
	Drumian				~ 504.5		
	Stage 5				~ 509		
	Stage 4				~ 514		
	Stage 3			~ 521			
	Stage 2			~ 529			
	Fortunian			541.0 ± 1.0			

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Precambrian	Proterozoic	Neo-proterozoic	Ediacaran		541.0 ± 1.0
			Cryogenian		~ 635
			Tonian		~ 720
		Meso-proterozoic	Stenian		1000
			Ectasian		1200
			Calymmian		1400
	Paleo-proterozoic		Statherian		1600
		Orosirian		1800	
		Rhyacian		2050	
		Siderian		2300	
		Neo-archean		2500	
		Meso-archean		2800	
		Paleo-archean		3200	
	Archean	Eo-archean		3600	
				4000	
				~ 4600	
		Hadean			

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

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

Chart drafted by K.M. Cohen, D.A.T. Harper, P.L. Gibbard (c) International Commission on Stratigraphy, October 2016



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URL: <http://www.stratigraphy.org/ICChart/ChronostratChart2016-10.pdf>