

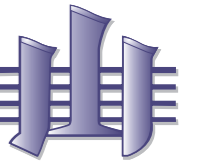


INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

www.stratigraphy.org

International Commission on Stratigraphy

v 2016/12



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	
			Pleistocene	Calabrian		0.781	
				Gelasian		1.80	
		Neogene	Pliocene	Piacenzian		3.600	
				Zanclean		5.333	
			Miocene	Messinian		7.246	
		Tortonian			11.63		
		Serravallian			13.82		
	Langhian			15.97			
	Burdigalian			20.44			
	Paleogene	Oligocene	Aquitanian		23.03		
			Chattian		28.1		
			Rupelian		33.9		
			Eocene	Priabonian		37.8	
				Bartonian		41.2	
		Lutetian			47.8		
		Paleocene	Ypresian		56.0		
			Thanetian		59.2		
			Selandian		61.6		
			Danian		66.0		
			Maastrichtian		72.1 ± 0.2		
		Mesozoic	Cretaceous	Upper	Campanian		83.6 ± 0.2
					Santonian		86.3 ± 0.5
					Coniacian		89.8 ± 0.3
					Turonian		93.9
	Cenomanian					100.5	
	Lower			Albian		~ 113.0	
				Aptian		~ 125.0	
				Barremian		~ 129.4	
				Hauterivian		~ 132.9	
				Valanginian		~ 139.8	
	Berriasian		~ 145.0				

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Phanerozoic	Mesozoic	Jurassic	Upper	Tithonian		~ 145.0	
				Kimmeridgian		152.1 ± 0.9	
			Middle	Oxfordian		157.3 ± 1.0	
				Calloviaian		163.5 ± 1.0	
				Bathonian		166.1 ± 1.2	
				Bajocian		168.3 ± 1.3	
				Aalenian		170.3 ± 1.4	
			Lower	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		
		Lower	Olenekian		251.2		
			Induan		251.902 ± 0.024		
			Changhsingian		254.14 ± 0.07		
			Wuchiapingian		259.1 ± 0.5		
			Lopingian		259.1 ± 0.5		
	Paleozoic	Permian	Capitanian		265.1 ± 0.4		
			Wordian		268.8 ± 0.5		
			Roadian		272.95 ± 0.11		
			Kungurian		283.5 ± 0.6		
			Artinskian		290.1 ± 0.26		
		Carboniferous	Cisuralian	Sakmarian		295.0 ± 0.18	
				Asselian		298.9 ± 0.15	
				Gzhelian		303.7 ± 0.1	
			Pennsylvanian	Upper	Kasimovian		307.0 ± 0.1
				Middle	Moscovian		315.2 ± 0.2
	Paleozoic	Carboniferous	Mississippian	Lower	Bashkirian		323.2 ± 0.4
				Upper	Serpukhovian		330.9 ± 0.2
			Middle	Visean		346.7 ± 0.4	
				Lower	Tournaisian		358.9 ± 0.4

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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
			Lower	Pragian		410.8 ± 2.8
				Lochkovian		419.2 ± 3.2
				Pridoli		423.0 ± 2.3
				Ludlow		425.6 ± 0.9
				Wenlock		427.4 ± 0.5
	Paleozoic	Silurian	Upper	Homerian		430.5 ± 0.7
				Sheinwoodian		433.4 ± 0.8
				Llandovery		438.5 ± 1.1
			Middle	Aeronian		440.8 ± 1.2
				Rhuddanian		443.8 ± 1.5
				Hirnantian		445.2 ± 1.4
				Katian		453.0 ± 0.7
			Lower	Sandbian		458.4 ± 0.9
				Darriwilian		467.3 ± 1.1
				Dapingian		470.0 ± 1.4
	Floian			477.7 ± 1.4		
	Tremadocian			485.4 ± 1.9		
	Furongian			~ 489.5		
	Stage 10			~ 494		
	Paleozoic	Cambrian	Series 3	Jiangshanian		~ 497
				Paibian		~ 500.5
				Drumian		~ 504.5
			Series 2	Stage 5		~ 509
				Stage 4		~ 514
			Terreneuvian	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	
		Archean	Archean	Siderian		2300
	Neo-archean				2500	
	Meso-archean				2800	
	Paleo-archean				3200	
	Eo-archean				3600	
	Hadean	Hadean			~ 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 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/ICSChart/ChronostratChart2016-12.pdf>