



# INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

www.stratigraphy.org

International Commission on Stratigraphy

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Eonothem / Eon	Erathem / Era	System / Period	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
Phanerozoic	Cenozoic	Quaternary	Holocene			present
			Pleistocene	Upper		0.0117
				Middle		0.126
				Calabrian		0.781
			Neogene	Pliocene	Gelasian	
		Piacenzian				2.58
		Miocene		Zanclean		3.600
				Messinian		5.333
				Tortonian		7.246
		Paleogene	Oligocene	Serravallian		11.62
	Langhian				13.82	
	Burdigalian				15.97	
	Aquitanian				20.44	
	Chattian				23.03	
	Eocene		Rupelian		28.1	
			Priabonian		33.9	
			Bartonian		38.0	
			Lutetian		41.3	
			Ypresian		47.8	
	Paleocene		Thanetian		56.0	
			Selandian		59.2	
			Danian		61.6	
			Maastrichtian		66.0	
			Mesozoic	Cretaceous	Upper	Campanian
	Santonian					83.6 ±0.2
	Coniacian					86.3 ±0.5
	Turonian					89.8 ±0.3
	Cenomanian					93.9
	Lower	Albian				100.5
		Aptian				~ 113.0
		Barremian				~ 125.0
		Hauterivian				~ 129.4
		Valanginian				~ 132.9
	Berriasian		~ 139.8			
						~ 145.0

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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	
			Lower	Toarcian		174.1 ±1.0	
				Pliensbachian		182.7 ±0.7	
				Sinemurian		190.8 ±1.0	
	Triassic	Upper	Hettangian		199.3 ±0.3		
			Rhaetian		201.3 ±0.2		
			Norian		~ 208.5		
			Carnian		~ 227		
			Ladinian		~ 237		
		Middle	Anisian		~ 242		
			Olenekian		247.2		
			Induan		251.2		
			Changhsingian		252.17 ±0.06		
			Wuchiapingian		254.14 ±0.07		
		Lower	Lopingian		259.8 ±0.4		
			Capitanian		265.1 ±0.4		
			Wordian		268.8 ±0.5		
			Roadian		272.3 ±0.5		
			Kungurian		283.5 ±0.6		
	Paleozoic	Permian	Cisuralian	Artinskian		290.1 ±0.26	
				Sakmarian		295.0 ±0.18	
				Asselian		298.9 ±0.15	
				Gzhelian		303.7 ±0.1	
				Kasimovian		307.0 ±0.1	
			Carboniferous	Pennsylvanian	Upper		315.2 ±0.2
					Middle		315.2 ±0.2
					Lower		323.2 ±0.4
				Mississippian	Upper		330.9 ±0.2
					Lower		346.7 ±0.4
					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
				Gorstian		427.4 ±0.5
	Silurian	Wenlock	Homerian		430.5 ±0.7	
			Sheinwoodian		433.4 ±0.8	
		Llandovery		438.5 ±1.1		
		Aeronian		440.8 ±1.2		
		Rhuddanian		443.4 ±1.5		
	Paleozoic	Ordovician	Upper	Hirnantian		445.2 ±1.4
				Katian		453.0 ±0.7
				Sandbian		458.4 ±0.9
				Darriwilian		467.3 ±1.1
				Dapingian		470.0 ±1.4
			Lower	Floian		477.7 ±1.4
				Tremadocian		485.4 ±1.9
				Stage 10		~ 489.5
				Jiangshanian		~ 494
				Paibian		~ 497
	Cambrian	Series 3	Guzhangian		~ 500.5	
			Drumian		~ 504.5	
			Stage 5		~ 509	
		Series 2	Stage 4		~ 514	
			Stage 3		~ 521	
	Terreneuvian	Stage 2		~ 529		
						541.0 ±1.0

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Precambrian	Proterozoic	Neo-proterozoic	Ediacaran		~ 541.0 ±1.0
			Cryogenian		~ 635
			Tonian		850
		Meso-proterozoic	Stenian		1000
			Ectasian		1200
			Calymmian		1400
			Paleo-proterozoic	Statherian	
		Orosirian			1800
		Rhyacian			2050
		Archean	Neo-archean	Siderian	
	2500				
	2800				
	Meso-archean		3200		
			3600		
	Paleo-archean	4000			
Eo-archean			~ 4600		
					~ 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, Permian, Triassic, Cretaceous and Precambrian are taken from 'A Geologic Time Scale 2012' by Gradstein et al. (2012); those for the Lower Pleistocene, 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.C. Finney, P.L. Gibbard (c) International Commission on Stratigraphy, February 2014

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URL: <http://www.stratigraphy.org/ICSchart/ChronostratChart2014-02.pdf>

