



INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

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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
			Pliocene	Calabrian		0.781
				Gelasian		1.806
		Piacenzian			2.588	
		Neogene	Miocene	Zanclean		3.600
				Messinian		5.333
			Oligocene	Tortonian		7.246
				Serravallian		11.62
	Langhian				13.82	
	Burdigalian				15.97	
	Aquitanian				20.44	
	Chattian				23.03	
	Rupelian				28.1	
	Paleogene			Eocene	Priabonian	
		Bartonian			38.0	
		Lutetian			41.3	
		Paleocene	Ypresian		47.8	
			Thanetian		56.0	
			Selandian		59.2	
			Danian		61.6	
			Maastrichtian		66.0	
					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	
				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	
						~ 208.5	
						~ 227	
	Triassic	Upper	Norian		~ 227		
			Carnian		~ 237		
			Ladinian		~ 242		
		Middle	Anisian		247.2		
			Olenekian		251.2		
			Induan		252.17 ± 0.06		
			Changhsingian		254.14 ± 0.07		
			Lopingian		259.8 ± 0.4		
			Wuchiapingian		259.8 ± 0.4		
			Capitanian		265.1 ± 0.4		
	Permian	Guadalupian	Wordian		268.8 ± 0.5		
			Roadian		272.3 ± 0.5		
			Kungurian		283.5 ± 0.6		
		Cisuralian	Artinskian		290.1 ± 0.26		
			Sakmarian		295.0 ± 0.18		
			Asselian		298.9 ± 0.15		
			Pennsylvanian	Upper	Gzhelian		303.7 ± 0.1
				Middle	Kasimovian		307.0 ± 0.1
				Lower	Moscovian		315.2 ± 0.2
	Carboniferous	Mississippian	Upper	Bashkirian		323.2 ± 0.4	
Lower			Serpukhovian		330.9 ± 0.2		
Permian		Upper	Visean		346.7 ± 0.4		
		Middle	Tournaisian		358.9 ± 0.4		
		Lower				~ 208.5	
						~ 227	

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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	
				Gorstian		427.4 ± 0.5	
				Homerian		430.5 ± 0.7	
				Sheinwoodian		433.4 ± 0.8	
			Silurian	Llandovery	Telychian		438.5 ± 1.1
					Aeronian		440.8 ± 1.2
	Rhuddanian				443.4 ± 1.5		
	Ordovician	Upper		Hirnantian		445.2 ± 1.4	
				Katian		453.0 ± 0.7	
		Middle		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	
	Furongian			~ 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		
			Stage 2		~ 529		
			Terreneuvian		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		1600
				Orosirian		1800
				Rhyacian		2050
				Siderian		2300
	Archean	Neo-archean			2500	
					2800	
					3200	
		Meso-archean			3600	
					4000	
					~ 4600	
		Paleo-archean			~ 4600	
					~ 4600	
		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 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>