



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
				Lower		0.781
		Neogene	Pliocene	Calabrian		1.806
				Gelasian		2.588
			Miocene	Piacenzian		3.600
				Zanclean		5.333
				Messinian		7.246
			Paleogene	Oligocene	Tortonian	
	Serravallian					13.82
	Langhian					15.97
	Eocene			Burdigalian		20.44
				Aquitanian		23.03
				Chattian		28.1
				Rupelian		33.9
				Priabonian		38.0
				Bartonian		41.3
				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
				Oxfordian		157.3 ± 1.0
			Middle	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
				Anisian		~ 242
			Lower	Olenekian		247.2
	Induan				251.2	
	Changhsingian				252.17 ± 0.06	
	Wuchiapingian				254.14 ± 0.07	
	Capitanian				259.8 ± 0.4	
	Wordian				265.1 ± 0.4	
	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			
	Paleozoic	Permian	Lopingian	Gzhelian		298.9 ± 0.15
				Kasimovian		303.7 ± 0.1
				Moscovian		307.0 ± 0.1
				Bashkirian		315.2 ± 0.2
				Serpukhovian		323.2 ± 0.4
			Guadalupian	Viséan		330.9 ± 0.2
Tournaisian					346.7 ± 0.4	
Artinskian					358.9 ± 0.4	
Wordian					~ 208.5	
Roadian					~ 227	
Carboniferous		Pennsylvanian	Changhsingian		~ 237	
			Lopingian		~ 242	
			Wuchiapingian		247.2	
		Mississippian	Induan		251.2	
			Changhsingian		252.17 ± 0.06	
			Wuchiapingian		254.14 ± 0.07	

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Phanerozoic	Paleozoic	Devonian	Upper	Famennian		372.2 ± 1.6
				Frasnian		382.7 ± 1.6
				Givetian		387.7 ± 0.8
			Middle	Eifelian		393.3 ± 1.2
				Emsian		407.6 ± 2.6
				Pragian		410.8 ± 2.8
				Lochkovian		419.2 ± 3.2
			Lower	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	
		Llandovery			438.5 ± 1.1	
		Aeronian			440.8 ± 1.2	
		Silurian	Rhuddanian		443.4 ± 1.5	
			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		
	Floian			477.7 ± 1.4		
	Cambrian	Ordovician	Upper	Tremadocian		485.4 ± 1.9
				Stage 10		~ 489.5
				Jiangshanian		~ 494
			Middle	Paibian		~ 497
				Guzhangian		~ 500.5
				Drumian		~ 504.5
			Lower	Stage 5		~ 509
				Stage 4		~ 514
				Stage 3		~ 521
			Paleozoic	Furongian	Stage 2	
		Stage 1				~ 529
		Fortunian				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	
					~ 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>