



INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

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International Commission on Stratigraphy

v 2013/01



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	
				Tortonian		↘	11.62	
	Serravallian				↘	13.82		
	Langhian				↘	15.97		
	Burdigalian				↘	20.44		
	Aquitanian				↘	23.03		
	Paleogene			Oligocene	Chattian			28.1
					Rupelian		↘	33.9
				Eocene	Priabonian			38.0
					Bartonian			41.3
		Lutetian			↘	47.8		
		Ypresian			↘	56.0		
		Paleocene	Thanetian			↘	59.2	
			Selandian			↘	61.6	
	Mesozoic	Cretaceous	Upper	Danian		↘	66.0	
				Maastrichtian		↘	72.1 ± 0.2	
			Lower	Campanian			83.6 ± 0.2	
				Santonian		↘	86.3 ± 0.5	
				Coniacian			89.8 ± 0.3	
				Turonian		↘	93.9	
Cenomanian					↘	100.5		
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		
				Triassic	Upper	Norian			~ 208.5
						Carnian			~ 227
	Ladinian					~ 237			
	Middle	Anisian					~ 242		
		Olenekian					247.2		
	Lower	Induan				↘	251.2		
		Changhsingian			↘	252.17 ± 0.06			
		Wuchiapingian			↘	254.14 ± 0.07			
		Capitanian			↘	259.8 ± 0.4			
		Guadalupian	Wordian			↘	265.1 ± 0.4		
			Roadian			↘	268.8 ± 0.5		
		Permian	Kungurian				272.3 ± 0.5		
			Artinskian				283.5 ± 0.6		
			Cisuralian		Sakmarian			290.1 ± 0.26	
					Asselian		↘	295.0 ± 0.18	
					Artinskian			298.9 ± 0.15	
			Paleozoic		Carboniferous	Pennsylvanian	Upper	Gzhelian	
	Kasimovian						↘	307.0 ± 0.1	
	Middle	Moscovian					315.2 ± 0.2		
		Bashkirian				↘	323.2 ± 0.4		
Lower	Serpukhovian					330.9 ± 0.2			
	Visean					346.7 ± 0.4			
Mississippian	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	
				Pragian		↘	410.8 ± 2.8	
			Lower	Lochkovian		↘	419.2 ± 3.2	
				Pridoli		↘	423.0 ± 2.3	
				Ludlow		↘	425.6 ± 0.9	
				Wenlock	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			
	Hirnantian			↘	445.2 ± 1.4			
	Ordovician	Upper		Katian		↘	453.0 ± 0.7	
				Sandbian		↘	458.4 ± 0.9	
		Middle		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		
	Cambrian	Series 3	Paibian		↘	~ 497		
			Guzhangian		↘	~ 500.5		
		Series 2	Drumian		↘	~ 504.5		
			Stage 5			~ 509		
Series 1		Stage 4			~ 514			
		Stage 3			~ 521			
Terreneuvian	Stage 2			~ 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		
		Meso-archean			3200		
					3600		
		Paleo-archean			4000		
					4000		
					4000		
					4000		
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>