

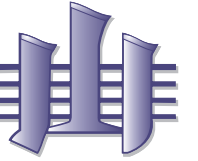


INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

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International Commission on Stratigraphy

v 2014/10



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
			Pliocene	Gelasian		1.80
		Piacenzian			2.58	
		Neogene	Miocene	Zanclean		3.600
				Messinian		5.333
			Eocene	Tortonian		7.246
				Serravallian		11.63
	Langhian				13.82	
	Burdigalian				15.97	
	Aquitanian				20.44	
	Chattian				23.03	
	Oligocene			Rupelian		28.1
				Priabonian		33.9
	Paleogene	Eocene	Bartonian		37.8	
			Lutetian		41.2	
			Ypresian		47.8	
		Paleocene	Thanetian		56.0	
			Selandian		59.2	
	Mesozoic	Cretaceous	Danian		61.6	
			Maastrichtian		66.0	
			Upper	Campanian		72.1 ± 0.2
				Santonian		83.6 ± 0.2
				Coniacian		86.3 ± 0.5
		Lower	Turonian		89.8 ± 0.3	
			Cenomanian		93.9	
			Albian		100.5	
			Aptian		~ 113.0	
			Barremian		~ 125.0	
	Paleozoic	Carboniferous	Hauterivian		~ 129.4	
			Valanginian		~ 132.9	
			Berriasian		~ 139.8	
			Tournaisian		~ 145.0	
Asselian				~ 145.0		

Eonothem / Eon	Erathem / Era	System / Period	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
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
		Lower	Bajocian		168.3 ± 1.3	
			Aalenian		170.3 ± 1.4	
		Triassic	Upper	Toarcian		174.1 ± 1.0
				Pliensbachian		182.7 ± 0.7
				Sinemurian		190.8 ± 1.0
	Middle		Hettangian		199.3 ± 0.3	
			Rhaetian		201.3 ± 0.2	
			Norian		~ 208.5	
			Carnian		~ 227	
			Ladinian		~ 237	
			Anisian		~ 242	
			Olenekian		247.2	
	Lower	Induan		251.2		
		Changhsingian		252.17 ± 0.06		
	Paleozoic	Permian	Wuchiapingian		254.14 ± 0.07	
			Lopingian		259.8 ± 0.4	
			Guadalupian		265.1 ± 0.4	
			Wordian		268.8 ± 0.5	
			Roadian		272.3 ± 0.5	
		Carboniferous	Cisuralian	Kungurian		283.5 ± 0.6
				Artinskian		290.1 ± 0.26
				Sakmarian		295.0 ± 0.18
			Pennsylvanian	Asselian		298.9 ± 0.15
				Gzhelian		303.7 ± 0.1
	Paleozoic	Carboniferous	Kasimovian		307.0 ± 0.1	
			Moscovian		315.2 ± 0.2	
			Bashkirian		323.2 ± 0.4	
			Serpukhovian		330.9 ± 0.2	
			Visean		346.7 ± 0.4	
	Paleozoic	Carboniferous	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	
		Paleozoic	Silurian	Pridoli		423.0 ± 2.3
				Ludlow		425.6 ± 0.9
				Wenlock		427.4 ± 0.5
	Homerian				430.5 ± 0.7	
	Sheinwoodian				433.4 ± 0.8	
	Ordovician		Llandovery		438.5 ± 1.1	
			Telychian		440.8 ± 1.2	
			Aeronian		443.8 ± 1.5	
			Rhuddanian		445.2 ± 1.4	
			Hirnantian		453.0 ± 0.7	
	Paleozoic	Ordovician	Katian		458.4 ± 0.9	
			Sandbian		470.0 ± 1.4	
			Darriwilian		477.7 ± 1.4	
			Dapingian		485.4 ± 1.9	
			Floian		~ 489.5	
	Paleozoic	Cambrian	Tremadocian		~ 494	
			Stage 10		~ 497	
			Furongian		~ 500.5	
			Jiangshanian		~ 504.5	
			Paibian		~ 509	
		Cambrian	Series 3	Guzhangian		~ 514
				Drumian		~ 521
				Stage 5		~ 529
			Series 2	Stage 4		~ 529
				Stage 3		~ 529
	Paleozoic	Cambrian	Terreneuvian		~ 529	
			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	
		Archean	Orosirian		1800
			Rhyacian		2050
			Siderian		2300
	Neo-archean			2500	
	Meso-archean			2800	
	Hadean	Hadean	Paleo-archean		3200
			Eo-archean		3600
					4000
				~ 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 'The 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, October 2014

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URL: <http://www.stratigraphy.org/ICSchart/ChronostratChart2014-10.pdf>

