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 U/L	Meghalayan		present
			Holocene M	Northgrippian		0.0042
			Holocene L/E	Greenlandian		0.0082
			Pleistocene	*Upper*		0.0117
				Middle		0.126
				Calabrian		0.781
				Gelasian		1.80
		Neogene	Pliocene	Piacenzian		2.58
				Zanclean		3.600
			Miocene	Messinian		5.333
				Tortonian		7.246
				Serravallian		11.63
				Langhian		13.82
				Burdigalian		15.97
				Aquitanian		20.44
		Paleogene	Oligocene	Chattian		23.03
				Rupelian		27.82
			Eocene	Priabonian		33.9
				Bartonian		37.8
				Lutetian		41.2
				Ypresian		47.8
			Paleocene	Thanetian		56.0
				Selandian		59.2
				Danian		61.6
	Mesozoic	Cretaceous	Upper	Maastrichtian		66.0
				Campanian		72.1 ±0.2
				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
				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
				Hettangian		199.3 ±0.3
		Triassic	Upper	Rhaetian		201.3 ±0.2
				Norian		~ 208.5
				Carnian		~ 227
			Middle	Ladinian		~ 237
				Anisian		~ 242
			Lower	Olenekian		247.2
				Induan		251.2
	Paleozoic	Permian	Lopingian	Changhsingian		251.902 ±0.024
				Wuchiapingian		254.14 ±0.07
			Guadalupian	Capitanian		259.1 ±0.5
				Wordian		265.1 ±0.4
				Roadian		268.8 ±0.5
			Cisuralian	Kungurian		272.95 ±0.11
				Artinskian		283.5 ±0.6
				Sakmarian		290.1 ±0.26
				Asselian		295.0 ±0.18
		Carboniferous	Pennsylvanian	Gzhelian		298.9 ±0.15
				Kasimovian		303.7 ±0.1
			Middle	Moscovian		307.0 ±0.1
			Lower	Bashkirian		315.2 ±0.2
			Mississippian	Serpukhovian		323.2 ±0.4
			Middle	Visean		330.9 ±0.2
			Lower	Tournaisian		346.7 ±0.4
						358.9 ±0.4

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Phanerozoic	Paleozoic	Devonian	Upper	Famennian		358.9 ± 0.4
				Frasnian		372.2 ±1.6
			Middle	Givetian		382.7 ±1.6
				Eifelian		387.7 ±0.8
			Lower	Emsian		393.3 ±1.2
				Pragian		407.6 ±2.6
				Lochkovian		410.8 ±2.8
		Silurian	Pridoli			419.2 ±3.2
			Ludlow	Ludfordian		423.0 ±2.3
				Gorstian		425.6 ±0.9
			Wenlock	Homerian		427.4 ±0.5
				Sheinwoodian		430.5 ±0.7
			Llandovery	Telychian		433.4 ±0.8
				Aeronian		438.5 ±1.1
				Rhuddanian		440.8 ±1.2
		Ordovician	Upper	Hirnantian		443.8 ±1.5
				Katian		445.2 ±1.4
				Sandbian		453.0 ±0.7
			Middle	Darriwilian		458.4 ±0.9
				Dapingian		467.3 ±1.1
			Lower	Floian		470.0 ±1.4
				Tremadocian		477.7 ±1.4
		Cambrian	Furongian	*Stage 10*		485.4 ±1.9
				Jiangshanian		~ 489.5
				Paibian		~ 494
			Miaolingian	Guzhangian		~ 497
				Drumian		~ 500.5
				Wuliuan		~ 504.5
			Series 2	*Stage 4*		~ 509
				Stage 3		~ 514
			Terreneuvian	*Stage 2*		~ 521
				Fortunian		~ 529
						541.0 ±1.0

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Precambrian	Proterozoic	Neoproterozoic	Ediacaran		541.0 ±1.0
			Cryogenian		~ 635
			Tonian		~ 720
		Mesoproterozoic	Stenian		1000
			Ectasian		1200
			Calymmian		1400
		Paleoproterozoic	Statherian		1600
			Orosirian		1800
			Rhyacian		2050
			Siderian		2300
	Archean	Neoarchean			2500
		Mesoarchean			2800
		Paleoarchean			3200
		Eoarchean			3600
		Hadean			4000
					~ 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.

Ratified Subseries/Subepochs are abbreviated as U/L (Upper/Late), M (Middle) and L/E (Lower/Early). Numerical ages for all systems except Quaternary, upper Paleogene, Cretaceous, Triassic, Permian and Precambrian are taken from 'A Geologic Time Scale 2012' by Gradstein et al. (2012), those for the Quaternary, upper Paleogene, Cretaceous, Triassic, Permian and Precambrian were provided by the relevant ICS subcommissions.

Colouring follows the Commission for the Geological Map of the World (http://www.ccgm.org)

CCGM CGMW

Chart drafted by K.M. Cohen, D.A.T. Harper, P.L. Gibbard, J.-X. Fan

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