

INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

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International Commission on Stratigraphy

v **2022**/10



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40	1,0the	System Fra	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
,		_	Holocene M L/E	Meghalayan Northgrippian Greenlandian	No.	present 0.0042 0.0082
		LI S	U/L	- , ,		0.0117 0.129
		Quaternary	Pleistocene Calabrian Gelasian	Chibanian	1	0.774
				Calabrian	<	1.80
				1	2.58	
			Pliocene U/L	Piacenzian	1	3.600
			_{L/E} Zanclean	1	5.333	
		ம	Miocene M	Messinian	1	7.246
		Neogene		Tortonian	1	11.63
	O	Ŏ O		Serravallian	1	13.82
	Ö	ž		Langhian		15.97
	Cenozoic			Burdigalian		
	e		L/E	Aquitanian	<	20.44
	O			Chattian	4	23.03 27.82
			Oligocene	Rupelian	<	
		Ð		Priabonian	<	33.9
		Paleogene	Eocene	Bartonian		37.71 41.2
Phanerozoic				Lutetian	<	47.8
ero				Ypresian	<	
a				Thanetian	<	56.0 59.2
는				Selandian	4	
				Danian	~	61.6
			Upper	Maastrichtian	1	66.0
				Campanian	1	72.1 ±0.2
				Campanian	1	83.6 ±0.2
				Santonian	1	86.3 ±0.5
		Cretaceous		Coniacian	<	89.8 ±0.3
	ပ			Turonian	1	93.9
	ozo			Cenomanian	1	100.5
	Mesozoic			Albian	<	~ 113.0
			Lower	Aptian		~ 121.4
				Barremian		~ 121.4
				Hauterivian	<	
				Valanginian		~ 132.6
				Berriasian	~ 139.8 ~ 145.0	

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Fonos	Eratt	System Fra	Sei	ries / Epoch	Stage / Age	GSSP	numerical age (Ma)
					Tithonian		~ 145.0
			Upper	Kimmeridgian	<u> </u>	149.2 ±0.7	
					Oxfordian		154.8 ±0.8
		O	Middle		Callovian		161.5 ±1.0 165.3 ±1.1
		Jurassic		Bathonian Bajocian	3	168.2 ±1.2	
					Aalenian	<	170.9 ±0.8 174.7 ±0.8
		7			Toarcian	~	174.7 ±0.0
					Dlienshachian		184.2 ±0.3
	ပ			Lower	ower Pliensbachian	1	192.9 ±0.3
	Mesozoic				Sinemurian	1	199.5 ±0.3
	SO.				Hettangian	-	201.4 ±0.2
	Me				Rhaetian		~ 208.5
		Triassic	Upper		Norian		
					Carnian	<	~ 227 ~ 237
O		⊢	Mi	Middle	Ladinian 🔇	<	~ 242
Zoi			Mildale		Anisian		247.2
CO				Lower	Olenekian Induan	<u> </u>	251.2
ane		Permian			Changhsingian	1	251.902 ±0.024 254.14 ±0.07
Phanerozoic	oic		L	opingian	Wuchiapingian		259.51 ±0.21
_			Guadalupian		Capitanian	<	264.28 ±0.16
					Wordian	<	266.9 ±0.4
					Roadian	<	273.01 ±0.14
					Kungurian		
			С	isuralian	Artinskian	<	283.5 ±0.6 290.1 ±0.26
					Sakmarian	<	293.52 ±0.17
	OZO				Asselian	<	298.9 ±0.15
	Paleozoic		nian	Upper	Gzhelian		303.7 ±0.1
		Carboniferous	Ilvai	Middle	Kasimovian		307.0 ±0.1
			Pennsylvanian	Middle	Moscovian		315.2 ±0.2
				Lower	Bashkirian	<	323.2 ±0.4
		oni	an	Upper	Serpukhovian		330.9 ±0.2
		Carb	Mississippian	Middle	Visean	<	346.7 ±0.4
			Miss	Lower	Tournaisian	4	358.9 ±0.4

200	othen/E	ster Fra	Series / Epoch		GSSP	numerical
47	¥	\(\sigma^2\)	Series / Epoch	Stage / Age	ő	age (Ma) 358.9 ±0.4
		Devonian	Upper	Famennian	<	272.2 14.6
				Frasnian	4	372.2 ±1.6 382.7 ±1.6
			Middle Givetian Eifelian	<		
		0\e		Eifelian	<	387.7 ±0.8
		De		Emsian	4	393.3 ±1.2 407.6 ±2.6
			Lower	Pragian	<	407.6 ±2.6 410.8 ±2.8
				Lochkovian	<	440.0 +0.0
			Pridoli		<	419.2 ±3.2 423.0 ±2.3
		_	Ludlow	Ludfordian Gorstian	1	425.0 ±2.3 425.6 ±0.9
		jar	Wenlock	Homerian	3	427.4 ±0.5 430.5 ±0.7
		Silurian	vverliock	Sheinwoodian	1	430.5 ±0.7 433.4 ±0.8
	Paleozoic	တ	Llandovery	Telychian	<	438.5 ±1.1
ပ			Liandovery	Aeronian	<u> </u>	440.8 ±1.2
ZOİ				Rhuddanian Hirnantian	<u> </u>	443.8 ±1.5
Phanerozoic		Ordovician	Upper	Katian	<	445.2 ±1.4 453.0 ±0.7
ha				Sandbian	<	458.4 ±0.9
<u>.</u>			Middle	Darriwilian	4	467.3 ±1.1
				Dapingian	-	470.0 ±1.4
			Lower	Floian	<	477.7 ±1.4
				Tremadocian	<	485.4 ±1.9
		Cambrian		Stage 10		~ 489.5
			Furongian	Jiangshanian	<	~ 494
				Paibian	1	~ 497
				Guzhangian	1	~ 500.5
			Miaolingian	Drumian	<	~ 504.5
				Wuliuan	<	~ 509
			Series 2	Stage 4		~ 514
				Stage 3		
				Stage 2		~ 521
			Terreneuvian	Fortunian	<<	~ 529
						538.8 ±0.2

	Moule	Eathem/Es	System/Perio	GSSP GSSA	numeric		
	47	4	<u>େ "</u>	őő	age (Ma 538.8 ±0.		
		NI.	Ediacaran	3	~ 635		
		Neo- proterozoic	Cryogenian		~ 720		
		'	Tonian		1000		
		Meso- proterozoic	Stenian				
	O		Ectasian		1200		
	ozoi		Calymmian	—(1)	1400		
	Proterozoic		Statherian		1600		
an	Pro	Paleo- proterozoic	Orosirian		1800		
indr			Physica	-	2050		
San			Rhyacian		2300		
Precambrian			Siderian		2500		
		Neo- archean			2000		
	_ ا			-	2800		
	ear	Meso- archean					
	Archean	Paleo-		—	3200		
	$ $ \triangleleft	archean			2000		
		Eo- archean			3600		
					4000		
	Ha	dean					
<u> </u>			<u>Lalalalalalal</u>		4567		
	Units of all ranks are in the process of being defined by Global Boundary Stratotype Section and Points (GSSP) for their lower boundaries, including						

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). Italic fonts indicate informal units and placeholders for unnamed units. Versioned 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, Jurassic, Triassic, Permian, Cambrian and Precambrian are taken from 'A Geologic Time Scale 2012' by Gradstein et al. (2012), those for the Quaternary, upper Paleogene, Cretaceous, Jurassic, Triassic, Permian, Cambrian and Precambrian were provided by the relevant ICS subcommissions.

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



Chart drafted by K.M. Cohen, D.A.T. Harper, P.L. Gibbard, N. Car (c) International Commission on Stratigraphy, October 2022

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URL: http://www.stratigraphy.org/ICSchart/ChronostratChart2022-10.pdf