

INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

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International Commission on Stratigraphy

v **2022**/02



	Sh / K	T TE	9			
404	tion the	System Fra	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
		ary	Holocene M L/E	Meghalayan Northgrippian Greenlandian	No.	present 0.0042 0.0082 0.0117
		I	U/L	Upper	1	0.129
		Quaternary	Pleistocene	Colobrian	1	0.774
				Calabrian	1	1.80
				Gelasian	1	2.58
			Pliocene L/E	Piacenzian Zanclean	1	3.600
				Messinian	1	5.333
		ne	Miocene M		-	7.246
		Neogene		Tortonian	1	11.63
	ပ	60		Serravallian	1	13.82
	ZOİ	Z		Langhian		15.97
	20,			Burdigalian		20.44
	Cenozoic		2/2	Aquitanian	1	23.03
			Oligocene	Chattian	<	27.82
				Rupelian	<	33.9
		Φ	Eocene	Priabonian	<	27.71
		en		Bartonian		37.71 41.2
Phanerozoic		Paleogene		Lutetian	<	47.8
ero				Ypresian	<	56.0
<u>a</u>			Paleocene	Thanetian	<	59.2
문				Selandian	1	61.6
				Danian	<	
	Mesozoic	Cretaceous	Upper	Maastrichtian	1	66.0 72.1 ±0.2
				Campanian		83.6 ±0.2
				Santonian	1	86.3 ±0.5
				Coniacian	1	89.8 ±0.3
				Turonian	<	93.9
				Cenomanian	<	100.5
				Albian	<	~ 113.0
			Lower	Aptian		~ 121.4
				Barremian		
				Hauterivian	<	~ 129.4
				Valanginian		~ 132.6
				Berriasian		~ 139.8 ~ 145.0

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₹000°	Erath	System Fra	Se	ries / Epoch	Stage / Age	numerical G age (Ma)
					Tithonian	~ 145.0
			Upper		Kimmeridgian s	152.1 ±0.9
					Oxfordian	157.3 ±1.0
		O		Middle	Callovian	163.5 ±1.0 166.1 ±1.2
		Jurassic			Bathonian Sajocian	168.3 ±1.3 170.3 ±1.4
					Aalenian :	174.1 ±1.0
		J			Toarcian	
	Mesozoic			Lower	Pliensbachian ,	182.7 ±0.7 190.8 ±1.0
					Sinemurian	4
					Hettangian ¹	199.3 ±0.3 201.3 ±0.2
	les				Rhaetian	
	N	Friassic	Upper		Norian	~ 208.5
					Carnian	~ 227 ~ 237
O		F		4: 1 11	Ladinian	~ 242
Z0.			Middle		Anisian	247.2
0				Lower	Olenekian Induan	251.2
ane		Permian			Changhsingian ³	251.902 ±0.024 254.14 ±0.07
Phanerozoic			L	pingian	Wuchiapingian s	
ъ.			Guadalupian		Capitanian ;	264.28 ±0.16
					Wordian	266.9 ±0.4
					Roadian	273.01 ±0.14
	oic				Kungurian	
			Cisuralian		Artinskian	283.5 ±0.6 290.1 ±0.26
					Sakmarian s	293.52 ±0.17
	Paleozoic					298.9 ±0.15
	alec		ian	Upper	Gzhelian	303.7 ±0.1
	Pa	Sno	Ivan		Kasimovian	307.0 ±0.1
			nsy	Middle	Moscovian	315.2 ±0.2
		fero	Pennsylvanian	Lower	Bashkirian ,	323.2 ±0.4
		oni	an	Upper	Serpukhovian	330.9 ±0.2
		Carboniferous	Mississippian	Middle	Visean	346.7 ±0.4
			Miss	Lower	Tournaisian	358.9 ±0.4

	ion /	m/ Era	Series / Epoch			
\$00°5	10 1/e/y		Series / Epoch	Stage / Age	GSSP	numerical age (Ma) 358.9 ±0.4
		Devonian	Upper	Famennian	<	
				Frasnian	<<	372.2 ±1.6 382.7 ±1.6
			Middle	Givetian	<	
				Eifelian	<<	387.7 ±0.8
				Emsian	<	393.3 ±1.2 407.6 ±2.6
			Lower	Pragian	<	407.6 ±2.6 410.8 ±2.8
				Lochkovian	4	440.0 +0.0
			Pridoli		<	419.2 ±3.2 423.0 ±2.3
	Paleozoic	_	Ludlow	Ludfordian Gorstian	1	425.6 ±0.9
		Silurian	Wenlock	Homerian	3	427.4 ±0.5 430.5 ±0.7
		ilu	VVEITIOGK	Sheinwoodian	<	433.4 ±0.8
		(0)	Llandovery	Telychian	1	438.5 ±1.1
<u>Ö</u> .				Aeronian Rhuddanian	1	440.8 ±1.2
020		Ordovician	Upper	Hirnantian	<	443.8 ±1.5 445.2 ±1.4
Phanerozoic				Katian	<	453.0 ±0.7
har				Sandbian	<	458.4 ±0.9
<u>С</u>			Middle	Darriwilian	<	467.3 ±1.1
				Dapingian	1	470.0 ±1.4
			Lower	Floian	<	477.7 ±1.4
				Tremadocian	4	
		Cambrian	Furongian	Stage 10		485.4 ±1.9
				Jiangshanian	<	~ 489.5
				Paibian	<	~ 494 ~ 497
				Guzhangian	1	~ 500.5
			Miaolingian	Drumian	<	~ 504.5
				Wuliuan	<	~ 509
			Series 2	Stage 4		~ 514
				Stage 3		
			Terreneuvian	Stage 2		~ 521
				Fortunian	<<	~ 529
						538.8 ±0.2

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	¢000th	Erahem/Era	System / Pen	O O age (Ma)		
Precambrian			Ediacaran	538.8 ±0.2 ~ 635		
	Proterozoic	Neo- proterozoic	Cryogeniar			
			Tonian	1000		
		Meso- proterozoic	Stenian	1200		
			Ectasian	1400		
			Calymmian			
		Paleo- proterozoic	Statherian	1800		
			Orosirian			
			Rhyacian	2050		
			Siderian	2300		
	Archean	Neo- archean		2500		
				2800		
		Meso- archean				
		Paleo-		3200		
		archean		3600		
		Eo- archean	lalalalalalalal			
		4000				
	Ha	ndean		~ 4600		
Units of all ranks are in the process of being defined by Global Boundary						

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, 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, 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, February 2022

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URL: http://www.stratigraphy.org/ICSchart/ChronostratChart2022-02.pdf