

INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

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International Commission on Stratigraphy

v **2021**/05



	4/4	TA TA	, <u>E</u>			
\$00°	Erat.	System Era	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
			Holocene ML/E	Meghalayan Northgrippian Greenlandian	No.	present 0.0042 0.0082 0.0117
) Frn	U/L M	<i>Upper</i> Chibanian	~	0.129
		Quaternary	Pleistocene	Calabrian		0.774
				Gelasian	7	1.80
				Piacenzian	~	2.58
		4	Pliocene	Zanclean	<	3.600
				Messinian	1	5.333
) Ine	Miocene	Tortonian		7.246
		Neogene		Serravallian	1	11.63
		Jec			1	13.82
	Cenozoic	_		Langhian		15.97
)ZC			Burdigalian		20.44
	en(Aquitanian	3	23.03
	Ö		Oligocene	Chattian	<	27.82
				Rupelian	4	33.9
		Φ	Eocene	Priabonian	<	
		Paleogene		Bartonian		37.71 41.2
Phanerozoic				Lutetian	<	47.8
Jero				Ypresian	<	56.0
lar				Thanetian	<	59.2
占			Paleocene	Selandian	<	61.6
				Danian	<	66.0
		18	Upper	Maastrichtian	4	72.1 ±0.2
				Campanian		83.6 ±0.2
				Santonian	1	86.3 ±0.5
	Mesozoic			Coniacian	<	89.8 ±0.3
				Turonian	4	93.9
		eol		Cenomanian	<	
		Cretaceous		Albian	<	100.5
			Lower	Aptian		~ 113.0
				Barremian		~ 125.0
				Hauterivian		~ 129.4
					_	~ 132.6
				Valanginian		~ 139.8
				Berriasian		~ 145.0

Series / Epoch Stage / Age S numerical age (Ma)						
£005	Eratt Office	System	Se	ries / Epoch	Stage / Age	numerical age (Ma)
					Tithonian	~ 145.0
		Jurassic	Upper		Kimmeridgian	152.1 ±0.9
					Oxfordian	157.3 ±1.0
					Callovian	163.5 ±1.0 166.1 ±1.2
				Middle	Bathonian Bajocian	168.3 ±1.3 170.3 ±1.4
					Aalenian	170.3 ±1.4 174.1 ±1.0
					Toarcian	174.1 ± 1.0
					Pliensbachian	182.7 ±0.7
			Lo	Lower		190.8 ±1.0
	Sic				Sinemurian	199.3 ±0.3
	220				Hettangian	201.3 ±0.2
	Mesozoic				Rhaetian	~ 208.5
	Š	Triassic	Upper		Norian	
					Carnian	~ 227
					Ladinian	~ 237
O.			Middle		Anisian	~ 242
02				Lower	Olenekian	247.2 251.2
ne				LOWEI	Induan Changhsingian	251.902 ±0.024 254.14 ±0.07
Phanerozoic		Permian	L	opingian	Wuchiapingian	<
Д.			Guadalupian		Capitanian	259.1 ±0.5
					Wordian	265.1 ±0.4 268.8 ±0.5
					Roadian	272.95 ±0.11
					Kungurian	
			Cisuralian		Artinskian	283.5 ±0.6 290.1 ±0.26
	<u>C</u>				Sakmarian	
	020				Α Ι:	293.52 ±0.17 298.9 ±0.15
	Paleozoic		Pennsylvanian	Upper	Gzhelian	303.7 ±0.1
	Pa	Carboniferous		Opper	Kasimovian	307.0 ±0.1
			Isyl	Middle	Moscovian	315.2 ±0.2
			Pen	Lower	Bashkirian	323.2 ±0.4
			ПE	Upper	Serpukhovian	
			Mississippian	Middle	Visean	330.9 ±0.2
			Miss	Lower	Tournaisian	346.7 ±0.4 358.9 ±0.4

	ion /	m/ Era	Series / Epoch			
\$ CONS	10 tely		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	X	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
			Ludlow	Ludfordian	4	423.0 ±2.3 425.6 ±0.9
		Silurian	Manla als	Gorstian Homerian	1	427.4 ±0.5
	Paleozoic	in	Wenlock	Sheinwoodian	3	430.5 ±0.7 433.4 ±0.8
		Ordovician	Llandovery	Telychian	<	438.5 ±1.1
O				Aeronian	1	440.8 ±1.2
Zoi				Rhuddanian Hirnantian	1	443.8 ±1.5
Phanerozoic			Upper	Katian	<	445.2 ±1.4 453.0 ±0.7
ha				Sandbian	<	458.4 ±0.9
ф.			Middle	Darriwilian	X	467.3 ±1.1
				Dapingian	7	470.0 ±1.4
			Lower	Floian	1	477.7 ±1.4
				Tremadocian	<	485.4 ±1.9
		Cambrian	Furongian	Stage 10		
				Jiangshanian	<<	~ 489.5
				Paibian	1	~ 494 ~ 497
				Guzhangian	<	~ 500.5
			Miaolingian	Drumian	<	~ 504.5
				Wuliuan	<	
			Series 2	Stage 4		~ 509
				Stage 3		~ 514 ~ 521
			Terreneuvian	Stage 2		
				Fortunian	<<	~ 529
						541.0 ±1.0

		Eathen/Ea	Solom, Port	0.4		
	£0,00,	the 13	S S	O O age (Ma		
		Neo- proterozoic	Ediacaran	~ 635		
	Proterozoic		Cryogeniar			
			Tonian	1000		
		Meso- proterozoic	Stenian	1200		
			Ectasian	1400		
			Calymmian			
		Paleo- proterozoic	Statherian	1600 1800		
rian			Orosirian	2050		
amb			Rhyacian	2300		
Precambrian			Siderian	2500		
	Archean	Neo- archean				
		Meso- archean		2800		
		Paleo-		3200		
		archean		3600		
		Eo- archean		3000		
		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 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 (www.ccgm.org)



Chart drafted by K.M. Cohen, D.A.T. Harper, P.L. Gibbard, J.-X. Fan (c) International Commission on Stratigraphy, May 2021

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URL: http://www.stratigraphy.org/ICSchart/ChronostratChart2021-05.pdf