

INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

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International Commission on Stratigraphy

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40	9410, 57, 67, 67, 67, 67, 67, 67, 67, 67, 67, 6	(19), (8) Syley	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
	_		Holocene M	Meghalayan Northgrippian	3	present 0.0042 0.0082
		na	L/E	Greenlandian Upper		0.0117
		Quaternary	Pleistocene	Middle		0.126 0.773
				Calabrian	<	1.80
				Gelasian	<	2.58
		Neogene	Pliocene	Piacenzian	<	3.600
				Zanclean	1	5.333
			Miocene	Messinian	1	7.246
				Tortonian	4	11.63
				Serravallian	1	13.82
	ပ			Langhian		15.97
	ZOİ			Burdigalian		20.44
	no			Aquitanian	<	
	Cenozoic			Chattian	4	23.03 27.82
		Paleogene	Oligocene	Rupelian	<	
			Eocene	Priabonian		33.9 37.8
45				Bartonian		41.2
Phanerozoic				Lutetian	<	47.8
ero				Ypresian	<	
a			Paleocene	Thanetian	<	56.0 59.2
J-				Selandian	4	
				Danian	4	61.6
	Mesozoic	Cretaceous	Upper	Maastrichtian		66.0
					1	72.1 ±0.2
				Campanian		83.6 ±0.2
				Santonian	1	86.3 ±0.5
				Coniacian		89.8 ±0.3
				Turonian	<	93.9
				Cenomanian	<	100.5
				Albian	<	~ 113.0
			Lower	Aptian		
				Barremian		~ 125.0
				Hauterivian		~ 129.4
				Valanginian		~ 132.9
				Berriasian		~ 139.8
				Domadan		~ 145.0

	Series / Epoch Stage / Age S numerical age (Ma)							
\$00°	Erath	System S.	Se	ries / Epoch	Stage / Age	numerical og (Ma)		
					Tithonian	~ 145.0		
			Upper		Kimmeridgian	152.1 ±0.9		
					Oxfordian	157.3 ±1.0		
		Jurassic			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	<u> </u>		
					Pliensbachian	182.7 ±0.7		
	Si.		L	Lower		190.8 ±1.0		
					Sinemurian	199.3 ±0.3		
	SZC				Hettangian	201.3 ±0.2		
	Mesozoic				Rhaetian	~ 208.5		
	Me	Triassic		Upper	Norian			
					Carnian	~ 227		
O				NA: al all a	lle Ladinian s	~ 242		
ZOi				Middle		247.2		
0				Lower	Olenekian Induan	251.2		
ane	Paleozoic	Permian			Changhsingian	251.902 ±0.024 254.14 ±0.07		
Phanerozoic			L	opingian	Wuchiapingian			
_			Guadalupian		Capitanian	265.1 ±0.4		
					Wordian	268.8 ±0.5		
					Roadian	272.95 ±0.11		
					Kungurian	000 5 10 5		
				Nourelie e	Artinskian	283.5 ±0.6		
			Cisuralian		Sakmarian	290.1 ±0.26		
					Asselian	293.52 ±0.17		
			Pennsylvanian	Llanas	Gzhelian	298.9 ±0.15		
				Upper	Kasimovian	303.7 ±0.1 307.0 ±0.1		
		Carboniferous	Isylv	Middle	Moscovian	315.2 ±0.2		
			Penr	Lower	Bashkirian	313.2 ±0.2 323.2 ±0.4		
			an	Upper	Serpukhovian	330.9 ±0.2		
		Carb	Mississippian	Middle	Visean	330.9 ±0.2		
			Miss	Lower	Tournaisian	358.9 ±0.4		

	ion/E	'm' Fra	Series / Epoch			
Fono	10 4 te 13		Series / Epoch	Stage / Age	GSSP	numerical age (Ma) 358.9 ±0.4
		Devonian	Upper	Famennian	<	
				Frasnian	4	372.2 ±1.6 382.7 ±1.6
			Middle Givetian Eifelian	<	387.7 ±0.8	
				Eifelian	1	393.3 ±1.2
				Emsian	<	407.6 ±2.6
			Lower	Pragian	1	410.8 ±2.8
				Lochkovian	1	419.2 ±3.2
	Paleozoic		Pridoli		1	423.0 ±2.3
		_	Ludlow	Ludfordian Gorstian	1	425.6 ±0.9
		Ordovician Silurian	Wenlock	Homerian Sheinwoodian	N	427.4 ±0.5 430.5 ±0.7
			Llandovery	Telychian	7	433.4 ±0.8
				Aeronian	3	438.5 ±1.1 440.8 ±1.2
201				Rhuddanian Hirnantian	S	443.8 ±1.5
Phanerozoic			Upper	Katian	<	445.2 ±1.4 453.0 ±0.7
ha				Sandbian	<	458.4 ±0.9
			Middle	Darriwilian	4	467.3 ±1.1
			Lower Tremadocian		470.0 ±1.4	
				<u> </u>	477.7 ±1.4	
		Cambrian	Furongian _{Jia}	Stage 10		485.4 ±1.9
				Jiangshanian	<	~ 489.5
				Paibian	1	~ 494 ~ 497
			Miaolingian	Guzhangian	1	~ 500.5
				Drumian	1	~ 504.5
				Wuliuan	1	~ 509
			Series 2	Stage 4		~ 514
				Stage 3 Stage 2		~ 521
			Terreneuvian	Fortunian		~ 529
					1	541.0 ±1.0

		The state of the s	, Q00			
	£000th	Eathem/Ea	System, Perio	GSSP	numerica age (Ma)	
			Ediacaran	4	541.0 ±1.0 ~ 635	
	Proterozoic	Neo- proterozoic	Cryogeniar	1	~ 720	
			Tonian			
		Meso- proterozoic	Stenian		1000	
			Ectasian	-	1200	
			Calymmian		1400	
					1600	
,	rote	Paleo- proterozoic	Statherian		1800	
Precambrian	Р		Orosirian		2050	
			Rhyacian		2050	
			Siderian	— ②	2300	
	Archean	Neo-		—	2500	
		archean			2800	
		Meso-			2000	
		archean			3200	
		Paleo- archean Eo-				
				—	3600	
		archean		-		
				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 2019

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URL: http://www.stratigraphy.org/ICSchart/ChronostratChart2019-05.pdf