



INTERNATIONAL STRATIGRAPHIC CHART

International Commission on Stratigraphy



Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP		
Phanerozoic	Cenozoic	Quaternary	Holocene			↗		
			Pleistocene	Upper		0.0117	↗	
				"Ionian"		0.126	↗	
				Calabrian		0.781	↗	
			Pliocene	Gelasian		1.806	↗	
				Piacenzian		2.588	↗	
		Zanclean			3.600	↗		
		Neogene		Miocene	Messinian		5.332	↗
			Tortonian			7.246	↗	
			Serravallian			11.608	↗	
			Langhian			13.82	↗	
			Oligocene	Burdigalian		15.97	↗	
				Aquitanian		20.43	↗	
				Chattian		23.03	↗	
				Rupelian		28.4 ± 0.1	↗	
		Paleogene	Eocene	Priabonian		33.9 ± 0.1	↗	
	Bartonian				37.2 ± 0.1	↗		
	Lutetian				40.4 ± 0.2	↗		
	Ypresian				48.6 ± 0.2	↗		
	Paleocene		Thanetian		55.8 ± 0.2	↗		
			Selandian		58.7 ± 0.2	↗		
			Danian		~ 61.1	↗		
			Mesozoic	Cretaceous	Maastrichtian		65.5 ± 0.3	↗
					Campanian		70.6 ± 0.6	↗
					Santonian		83.5 ± 0.7	↗
	Coniacian				85.8 ± 0.7	↗		
	Turonian				~ 88.6	↗		
	Cenomanian				93.6 ± 0.8	↗		
	Albian				99.6 ± 0.9	↗		
	Aptian				112.0 ± 1.0	↗		
	Paleozoic	Carboniferous	Pennsylvanian	Barremian		125.0 ± 1.0	↗	
				Hauterivian		130.0 ± 1.5	↗	
Valanginian					~ 133.9	↗		
Berriasian					140.2 ± 3.0	↗		
Mississippian				Upper		145.5 ± 4.0	↗	
				Middle			↗	
			Lower			↗		

Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP	
Phanerozoic	Mesozoic	Jurassic	Upper	Tithonian		145.5 ± 4.0	↗
				Kimmeridgian		150.8 ± 4.0	↗
				Oxfordian		~ 155.6	↗
				Callovian		161.2 ± 4.0	↗
			Middle	Bathonian		164.7 ± 4.0	↗
				Bajocian		167.7 ± 3.5	↗
				Aalenian		171.6 ± 3.0	↗
				Toarcian		175.6 ± 2.0	↗
		Lower	Pliensbachian		183.0 ± 1.5	↗	
			Sinemurian		189.6 ± 1.5	↗	
			Hettangian		196.5 ± 1.0	↗	
			Rhaetian		199.6 ± 0.6	↗	
		Triassic	Upper	Norian		203.6 ± 1.5	↗
				Carnian		216.5 ± 2.0	↗
				Ladinian		~ 228.7	↗
				Anisian		237.0 ± 2.0	↗
	Middle		Olenekian		~ 245.9	↗	
			Induan		~ 249.5	↗	
			Lower	Induan		251.0 ± 0.4	↗
				Changhsingian		253.8 ± 0.7	↗
	Wuchiapingian			260.4 ± 0.7	↗		
	Lopingian			260.4 ± 0.7	↗		
	Paleozoic	Permian	Guadalupian	Capitanian		265.8 ± 0.7	↗
				Wordian		268.0 ± 0.7	↗
				Roadian		270.6 ± 0.7	↗
				Kungurian		275.6 ± 0.7	↗
				Artinskian		284.4 ± 0.7	↗
				Sakmarian		294.6 ± 0.8	↗
			Cisuralian	Asselian		299.0 ± 0.8	↗
				Gzhelian		303.4 ± 0.9	↗
				Kasimovian		307.2 ± 1.0	↗
				Moscovian		311.7 ± 1.1	↗
Bashkirian					318.1 ± 1.3	↗	
Serpukhovian					328.3 ± 1.6	↗	
Carboniferous	Pennsylvanian	Upper		345.3 ± 2.1	↗		
		Middle		345.3 ± 2.1	↗		
		Lower		345.3 ± 2.1	↗		
		Tournaisian		359.2 ± 2.5	↗		

Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP	
Phanerozoic	Paleozoic	Devonian	Upper	Famennian		359.2 ± 2.5	↗
				Frasnian		374.5 ± 2.6	↗
				Givetian		385.3 ± 2.6	↗
				Eifelian		391.8 ± 2.7	↗
			Middle	Emsian		397.5 ± 2.7	↗
				Pragian		407.0 ± 2.8	↗
				Lochkovian		411.2 ± 2.8	↗
				Pridoli		416.0 ± 2.8	↗
		Silurian	Ludlow	Ludfordian		418.7 ± 2.7	↗
				Gorstian		421.3 ± 2.6	↗
				Homerian		422.9 ± 2.5	↗
				Sheinwoodian		426.2 ± 2.4	↗
			Wenlock	Telychian		428.2 ± 2.3	↗
				Aeronian		436.0 ± 1.9	↗
				Rhuddanian		439.0 ± 1.8	↗
				Hirnantian		443.7 ± 1.5	↗
	Ordovician	Upper	Katian		445.6 ± 1.5	↗	
			Sandbian		455.8 ± 1.6	↗	
			Darriwilian		460.9 ± 1.6	↗	
			Dapingian		468.1 ± 1.6	↗	
		Middle	Floian		471.8 ± 1.6	↗	
			Tremadocian		478.6 ± 1.7	↗	
			Furongian		488.3 ± 1.7	↗	
			Stage 10		~ 492 *	↗	
	Cambrian	Series 3	Stage 9		~ 496 *	↗	
			Paibian		~ 499	↗	
			Guzhangian		~ 503	↗	
			Drumian		~ 506.5	↗	
		Series 2	Stage 5		~ 510 *	↗	
			Stage 4		~ 515 *	↗	
			Stage 3		~ 521 *	↗	
			Stage 2		~ 528 *	↗	
Terreneuvian	Fortunian		542.0 ± 1.0	↗			

Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP	GSSA		
Precambrian	Proterozoic	Ediacaran	542	↗			
			~ 635	↗			
			850	↗			
		Meso-proterozoic	Tonian		1000	↗	
			Stenian		1200	↗	
			Ectasian		1400	↗	
			Calymmian		1600	↗	
			Satherian		1800	↗	
	Paleo-proterozoic	Orosirian		2050	↗		
		Rhyacian		2300	↗		
		Siderian		2500	↗		
		Archean	Neoarchean		2800	↗	
			Mesoarchean		3200	↗	
	Paleoarchean			3600	↗		
	Eoarchean			4000	↗		
	Hadean (informal)			~ 4600			

Subdivisions of the global geologic record are formally defined by their lower boundary. Each unit of the Phanerozoic (~542 Ma to Present) and the base of Ediacaran are defined by a basal Global Boundary Stratotype Section and Point (GSSP), whereas Precambrian units are formally subdivided by absolute age (Global Standard Stratigraphic Age, GSSA). Details of each GSSP are posted on the ICS website (www.stratigraphy.org).

Numerical ages of the unit boundaries in the Phanerozoic are subject to revision. Some stages within the Cambrian will be formally named upon international agreement on their GSSP limits. Most sub-Series boundaries (e.g., Middle and Upper Aptian) are not formally defined.

Colors are according to the Commission for the Geological Map of the World (www.cgmw.org).

The listed numerical ages are from 'A Geologic Time Scale 2004', by F.M. Gradstein, J.G. Ogg, A.G. Smith, et al. (2004; Cambridge University Press) and 'The Concise Geologic Time Scale' by J.G. Ogg, G. Ogg and F.M. Gradstein (2008).

This chart was drafted by Gabi Ogg. Intra Cambrian unit ages with * are informal, and awaiting ratified definitions.

Copyright © 2009 International Commission on Stratigraphy