



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	↗	
		Miocene		5.332	↗	
		Paleogene	Oligocene	Tortonian	7.246	↗
				Serravallian	11.608	↗
			Eocene	Langhian	13.82	↗
				Burdigalian	15.97	↗
				Aquitanian	20.43	↗
				Chattian	23.03	↗
				Rupelian	28.4 ± 0.1	↗
				Priabonian	33.9 ± 0.1	↗
	Paleocene		Bartonian	37.2 ± 0.1	↗	
			Lutetian	40.4 ± 0.2	↗	
		Ypresian	48.6 ± 0.2	↗		
		Thanetian	55.8 ± 0.2	↗		
	Mesozoic	Cretaceous	Upper	Selandian	58.7 ± 0.2	↗
				Danian	~ 61.1	↗
				Maastrichtian	65.5 ± 0.3	↗
				Campanian	70.6 ± 0.6	↗
			Lower	Santonian	83.5 ± 0.7	↗
				Coniacian	85.8 ± 0.7	↗
				Turonian	~ 88.6	↗
				Cenomanian	93.6 ± 0.8	↗
		Jurassic	Upper	Albian	99.6 ± 0.9	↗
				Aptian	112.0 ± 1.0	↗
				Barremian	125.0 ± 1.0	↗
				Hauterivian	130.0 ± 1.5	↗
Lower			Valanginian	~ 133.9	↗	
			Berriasian	140.2 ± 3.0	↗	
			Tithonian	145.5 ± 4.0	↗	
			Kimmeridgian	145.5 ± 4.0	↗	

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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	↗
		Triassic	Lower	Pliensbachian	183.0 ± 1.5	↗
				Sinemurian	189.6 ± 1.5	↗
				Hettangian	196.5 ± 1.0	↗
				Rhaetian	199.6 ± 0.6	↗
			Upper	Norian	203.6 ± 1.5	↗
				Carnian	216.5 ± 2.0	↗
				Ladinian	~ 228.7	↗
				Anisian	237.0 ± 2.0	↗
	Paleozoic	Permian	Middle	Olenekian	~ 245.9	↗
				Induan	~ 249.5	↗
				Lopingian	251.0 ± 0.4	↗
				Changhsingian	253.8 ± 0.7	↗
			Lower	Wuchiapingian	253.8 ± 0.7	↗
				Guadalupian	260.4 ± 0.7	↗
				Wordian	265.8 ± 0.7	↗
				Roadian	268.0 ± 0.7	↗
		Carboniferous	Cisuralian	Kungurian	270.6 ± 0.7	↗
				Artinskian	275.6 ± 0.7	↗
				Sakmarian	284.4 ± 0.7	↗
				Asselian	294.6 ± 0.8	↗
			Pennsylvanian	Gzhelian	299.0 ± 0.8	↗
				Kasimovian	303.4 ± 0.9	↗
				Moscovian	307.2 ± 1.0	↗
				Bashkirian	311.7 ± 1.1	↗
Carboniferous	Mississippian	Serpukhovian	318.1 ± 1.3	↗		
		Visean	328.3 ± 1.6	↗		
		Tournaisian	345.3 ± 2.1	↗		
		Induan	359.2 ± 2.5	↗		

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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	Lower	Ludfordian	418.7 ± 2.7	↗
				Gorstian	421.3 ± 2.6	↗
				Homerian	422.9 ± 2.5	↗
				Sheinwoodian	426.2 ± 2.4	↗
			Upper	Telychian	428.2 ± 2.3	↗
				Aeronian	436.0 ± 1.9	↗
				Rhuddanian	439.0 ± 1.8	↗
				Hirnantian	443.7 ± 1.5	↗
	Ordovician	Middle	Katian	445.6 ± 1.5	↗	
			Sandbian	455.8 ± 1.6	↗	
			Darriwilian	460.9 ± 1.6	↗	
			Dapingian	468.1 ± 1.6	↗	
		Lower	Floian	471.8 ± 1.6	↗	
			Tremadocian	478.6 ± 1.7	↗	
			Stage 10	488.3 ± 1.7	↗	
			Stage 9	~ 492 *	↗	
	Cambrian	Furongian	Paibian	~ 496 *	↗	
			Guzhangian	~ 499	↗	
			Drumian	~ 503	↗	
			Stage 5	~ 506.5	↗	
		Series 3	Stage 4	~ 510 *	↗	
			Stage 3	~ 515 *	↗	
			Stage 2	~ 521 *	↗	
			Fortunian	~ 528 *	↗	
Cambrian	Terreneuvian	Fortunian	542.0 ± 1.0	↗		

Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP	GSSA
Precambrian	Proterozoic	Eoarchean	Ediacaran	542	↗
			Cryogenian	~ 635	↗
			Tonian	850	↗
		Meso-proterozoic	Stenian	1000	↗
			Ectasian	1200	↗
			Calymmian	1400	↗
			Satherian	1600	↗
			Orosirian	1800	↗
	Paleo-proterozoic	Rhyacian	2050	↗	
		Siderian	2300	↗	
		Neoproterozoic	2500	↗	
	Archean	Neoproterozoic	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.

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