

INTERNATIONAL STRATIGRAPHIC CHART

International Commission on Stratigraphy

Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP
Phanerozoic	Cenozoic	Neogene	Holocene		0.0115	
			Pleistocene	Upper	0.126	
				Middle	0.781	
				Lower	1.806	🔪
			Pliocene	Gelasian	2.588	🔪
		Piacenzian		3.600	🔪	
		Zanclean		5.332	🔪	
		Miocene	Messinian	7.246	🔪	
			Tortonian	11.608	🔪	
			Serravallian	13.65		
			Langhian	15.97		
			Burdigalian	20.43	🔪	
			Aquitanian	23.03		
			Oligocene	Chattian	28.4 ± 0.1	🔪
				Rupelian	33.9 ± 0.1	🔪
	Eocene		Priabonian	37.2 ± 0.1		
			Bartonian	40.4 ± 0.2		
		Lutetian	48.6 ± 0.2	🔪		
		Ypresian	55.8 ± 0.2			
	Paleocene	Thanetian	58.7 ± 0.2			
		Selandian	61.7 ± 0.2	🔪		
		Danian	65.5 ± 0.3	🔪		
	Cretaceous	Upper	Maastrichtian	70.6 ± 0.6	🔪	
			Campanian	83.5 ± 0.7		
			Santonian	85.8 ± 0.7		
			Coniacian	89.3 ± 1.0	🔪	
			Turonian	93.5 ± 0.8	🔪	
		Lower	Cenomanian	99.6 ± 0.9		
			Albian	112.0 ± 1.0		
			Aptian	125.0 ± 1.0		
			Barremian	130.0 ± 1.5		
			Berriasian	145.5 ± 4.0		

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Phanerozoic	Mesozoic	Jurassic	Upper	Tithonian	145.5 ± 4.0	
				Kimmeridgian	150.8 ± 4.0	
			Middle	Oxfordian	155.0 ± 4.0	
				Callovian	161.2 ± 4.0	
				Bathonian	164.7 ± 4.0	
			Lower	Bajocian	167.7 ± 3.5	
				Aalenian	171.6 ± 3.0	🔪
				Toarcian	175.6 ± 2.0	🔪
				Pliensbachian	183.0 ± 1.5	🔪
				Hettangian	189.6 ± 1.5	🔪
		Triassic	Upper	Rhaetian	199.6 ± 0.6	
				Norian	203.6 ± 1.5	
			Middle	Carnian	216.5 ± 2.0	
				Ladinian	228.0 ± 2.0	
			Lower	Anisian	237.0 ± 2.0	
	Permian	Guadalupian	Olenekian	245.0 ± 1.5		
			Induan	249.7 ± 0.7	🔪	
			Changhsingian	251.0 ± 0.4		
			Wuchiapingian	253.8 ± 0.7	🔪	
			Capitanian	260.4 ± 0.7	🔪	
		Cisuralian	Wordian	265.8 ± 0.7	🔪	
			Roadian	268.0 ± 0.7	🔪	
			Kungurian	270.6 ± 0.7		
			Artinskian	275.6 ± 0.7		
			Sakmarian	284.4 ± 0.7		
	Carboniferous	Pennsylvanian	Asselian	299.0 ± 0.8	🔪	
			Gzhelian	303.9 ± 0.9		
			Kasimovian	306.5 ± 1.0		
		Mississippian	Moscovian	309.9 ± 0.9		
			Bashkirian	311.7 ± 1.1	🔪	
	Serpukhovian	Serpukhovian	318.1 ± 1.3	🔪		
		Viséan	326.4 ± 1.6			
		Tournaisian	345.3 ± 2.1	🔪		

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Phanerozoic	Paleozoic	Devonian	Upper	Famennian	359.2 ± 2.5	
				Frasnian	374.5 ± 2.6	🔪
			Middle	Givetian	385.3 ± 2.6	🔪
				Eifelian	391.8 ± 2.7	🔪
				Emsian	397.5 ± 2.7	🔪
			Lower	Pragian	407.0 ± 2.8	🔪
				Lochkovian	411.2 ± 2.8	🔪
				Pridoli	416.0 ± 2.8	🔪
				Ludlow	418.7 ± 2.7	🔪
			Silurian	Wenlock	Ludfordian	421.3 ± 2.6
		Gorstian			422.9 ± 2.5	🔪
		Llandovery		Homerian	426.2 ± 2.4	🔪
				Telychian	428.2 ± 2.3	🔪
		Aeronian		436.0 ± 1.9	🔪	
		Ordovician	Upper	Rhuddanian	439.0 ± 1.8	🔪
	Hirnantian			443.7 ± 1.5	🔪	
	Middle			445.6 ± 1.5	🔪	
				455.8 ± 1.6	🔪	
				460.9 ± 1.6	🔪	
	Lower		468.1 ± 1.6	🔪		
			471.8 ± 1.6	🔪		
			478.6 ± 1.7	🔪		
	Cambrian	Furongian		488.3 ± 1.7	🔪	
			Paibian	501.0 ± 2.0	🔪	
		Middle		513.0 ± 2.0	🔪	
				542.0 ± 1.0	🔪	

Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP GSSA	
Precambrian	Proterozoic	Ediacaran	542		
			600		
		Cryogenian	850	🔪	
			1000	🔪	
		Tonian	1200	🔪	
			1400	🔪	
			1600	🔪	
		Meso-proterozoic	Statherian	1800	🔪
				2050	🔪
			Orosirian	2300	🔪
	2500			🔪	
	2800			🔪	
	Archean	Neoproterozoic	Siderian	3200	🔪
				3600	🔪
		Neoproterozoic	Lower limit is not defined		🔪
				🔪	
				🔪	

Subdivisions of the global geologic record are formally defined by their lower boundary. Each unit of the Phanerozoic interval (~542 Ma to Present) and the base of the Ediacaran is defined by a Global Standard Section and Point (GSSP) at its base, whereas the Precambrian Interval is formally subdivided by absolute age, Global Standard Stratigraphic Age (GSSA).

This chart gives an overview of the international chronostratigraphic units, their rank, their names and formal status. These units are approved by the International Commission on Stratigraphy (ICS) and ratified by the International Union of Geological Sciences (IUGS).

The Guidelines of ICS (Remane et al., 1996, Episodes, 19: 77-81) regulate the selection and

definition of the international units of geologic time. Many GSSP's actually have a 'golden' spike (🔪) and Stage and/or System name plaque mounted at the boundary level in the boundary stratotype section, whereas a GSSA is an abstract age without reference to a specific level in a rock section on Earth. Descriptions of each GSSP and GSSA are summarized in *Episodes*, 25: 204-208 (2002) and posted on the ICS website (www.stratigraphy.org).

Some stages within the Ordovician and Cambrian will be formally named upon international agreement on their GSSP limits. Most intra-stage boundaries (e.g., Middle and Upper Aptian) are not formally defined. Numerical ages of the unit boundaries in the Phanerozoic are subject to revision. 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 Gradstein, Ogg, Smith, et al. (2004; Cambridge University Press).

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