



# 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	🔪	
	Paleocene	Lutetian		48.6 ±0.2	🔪		
		Ypresian		55.8 ±0.2	🔪		
		Thanetian		58.7 ±0.2	🔪		
	Mesozoic	Cretaceous	Upper	Selandian		61.7 ±0.2	🔪
				Danian		65.5 ±0.3	🔪
				Maastrichtian		70.6 ±0.6	🔪
				Campanian		83.5 ±0.7	🔪
			Lower	Santonian		85.8 ±0.7	🔪
				Coniacian		89.3 ±1.0	🔪
				Turonian		93.5 ±0.8	🔪
				Cenomanian		99.6 ±0.9	🔪
		Triassic	Upper	Albian		112.0 ±1.0	🔪
				Aptian		125.0 ±1.0	🔪
				Barremian		130.0 ±1.5	🔪
				Hauterivian		136.4 ±2.0	🔪
Lower			Valanginian		140.2 ±3.0	🔪	
			Berriasian		145.5 ±4.0	🔪	

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Phanerozoic	Mesozoic	Jurassic	Upper	Tithonian		145.5 ±4.0	🔪	
				Kimmeridgian		150.8 ±4.0	🔪	
				Oxfordian		155.0 ±4.0	🔪	
			Middle	Callovian		161.2 ±4.0	🔪	
				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	🔪		
			Induan		251.0 ±0.4	🔪		
		Triassic	Upper	Rhaetian		199.6 ±0.6	🔪	
				Norian		203.6 ±1.5	🔪	
				Carnian		216.5 ±2.0	🔪	
			Middle	Ladinian		228.0 ±2.0	🔪	
	Anisian				237.0 ±2.0	🔪		
	Lower		Olenekian		245.0 ±1.5	🔪		
			Induan		249.7 ±0.7	🔪		
			Changhsingian		251.0 ±0.4	🔪		
	Paleozoic	Permian	Lopingian	Wuchiapingian		253.8 ±0.7	🔪	
				Changhsingian		253.8 ±0.7	🔪	
			Guadalupian	Wordian		260.4 ±0.7	🔪	
				Roadian		268.0 ±0.7	🔪	
				Kungurian		270.6 ±0.7	🔪	
			Cisuralian	Artinskian		275.6 ±0.7	🔪	
				Sakmarian		284.4 ±0.7	🔪	
				Asselian		294.6 ±0.8	🔪	
		Gzhelian			299.0 ±0.8	🔪		
		Kasimovian			303.9 ±0.9	🔪		
		Carboniferous	Pennsylvanian	Upper	Moscovian		306.5 ±1.0	🔪
					Bashkirian		311.7 ±1.1	🔪
Lower				Serpukhovian		318.1 ±1.3	🔪	
				Visean		326.4 ±1.6	🔪	
Mississippian			Upper	Tournaisian		345.3 ±2.1	🔪	
				Frasnian		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	🔪
			Middle	Eifelian		391.8 ±2.7	🔪
				Emsian		397.5 ±2.7	🔪
				Pragian		407.0 ±2.8	🔪
			Lower	Lochkovian		411.2 ±2.8	🔪
				Ludfordian		416.0 ±2.8	🔪
		Gorstian			418.7 ±2.7	🔪	
		Homerian			422.9 ±2.5	🔪	
		Silurian	Wenlock	Sheinwoodian		426.2 ±2.4	🔪
				Telychian		428.2 ±2.3	🔪
			Llandovery	Aeronian		436.0 ±1.9	🔪
				Rhuddanian		439.0 ±1.8	🔪
			Pridoli	Pragian		443.7 ±1.5	🔪
				Pragian		443.7 ±1.5	🔪
	Pragian				443.7 ±1.5	🔪	
	Pragian				443.7 ±1.5	🔪	
	Ordovician	Upper	Darriwilian		450.2 ±1.6	🔪	
			Tremadocian		460.9 ±1.6	🔪	
		Middle	Tremadocian		468.1 ±1.6	🔪	
			Tremadocian		468.1 ±1.6	🔪	
		Lower	Furongian		471.8 ±1.6	🔪	
			Furongian		478.6 ±1.7	🔪	
			Furongian		488.3 ±1.7	🔪	
			Furongian		488.3 ±1.7	🔪	
	Cambrian	Upper	Paibian		501.0 ±2.0	🔪	
			Paibian		501.0 ±2.0	🔪	
		Middle	Paibian		513.0 ±2.0	🔪	
			Paibian		513.0 ±2.0	🔪	
		Lower	Paibian		542.0 ±1.0	🔪	

Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP	GSSA	
Precambrian	Proterozoic	Neo-proterozoic	Ediacaran	542	🔪	🔪
			Cryogenian	600	🔪	🔪
			Tonian	850	🔪	🔪
		Meso-proterozoic	Stenian	1000	🔪	🔪
			Ectasian	1200	🔪	🔪
			Calymmian	1400	🔪	🔪
		Paleo-proterozoic	Statherian	1600	🔪	🔪
			Orosirian	1800	🔪	🔪
	Rhyacian		2050	🔪	🔪	
	Archean	Neoarchean	Siderian	2300	🔪	🔪
			Siderian	2500	🔪	🔪
		Mesoarchean	Neoarchean	2800	🔪	🔪
			Neoarchean	2800	🔪	🔪
		Paleoarchean	Neoarchean	3200	🔪	🔪
			Neoarchean	3200	🔪	🔪
		Eoarchean	Neoarchean	3600	🔪	🔪
Neoarchean			3600	🔪	🔪	

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](http://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 United States Geological Survey. 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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