

# INTERNATIONAL STRATIGRAPHIC CHART

International Commission on Stratigraphy

Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP
Phanerozoic	Cenozoic	Neogene	Holocene			
			Pleistocene	Upper	0.0115	
				Middle	0.126	
				Lower	0.781	
			Pliocene	Gelasian	1.806	
				Piacenzian	2.588	
				Zanclean	3.600	
			Miocene	Messinian	5.332	
				Tortonian	7.246	
				Serravallian	11.608	
				Langhian	13.65	
				Burdigalian	15.97	
		Aquitanian		20.43		
		Paleogene	Oligocene	Chattian	23.03	
				Rupelian	28.4 ±0.1	
			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	61.7 ±0.2			
		Mesozoic	Cretaceous	Upper	Maastrichtian	65.5 ±0.3
	Campanian				70.6 ±0.6	
	Santonian				83.5 ±0.7	
	Coniacian				85.8 ±0.7	
	Turonian				89.3 ±1.0	
	Cenomanian				93.5 ±0.8	
	Lower			Albian	99.6 ±0.9	
				Aptian	112.0 ±1.0	
Barremian				125.0 ±1.0		
Hauterivian				130.0 ±1.5		
Valanginian				136.4 ±2.0		
Berriasian				140.2 ±3.0		
		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	
	Triassic	Upper	Rhaetian	199.6 ± 0.6	203.6 ± 1.5	
			Norian	216.5 ± 2.0	228.0 ± 2.0	
			Carnian	237.0 ± 2.0	245.0 ± 1.5	
			Ladinian	249.7 ± 0.7	251.0 ± 0.4	
			Anisian	253.8 ± 0.7	253.8 ± 0.7	
		Middle	Wuchiapingian	260.4 ± 0.7	260.4 ± 0.7	
			Capitanian	265.8 ± 0.7	265.8 ± 0.7	
			Wordian	268.0 ± 0.7	270.6 ± 0.7	
			Roadian	275.6 ± 0.7	284.4 ± 0.7	
			Kungurian	294.6 ± 0.8	299.0 ± 0.8	
	Paleozoic	Permian	Lopingian	Artinskian	299.0 ± 0.8	
				Sakmarian	303.9 ± 0.9	
				Asselian	306.5 ± 1.0	
				Gzhelian	306.5 ± 1.0	
				Kasimovian	311.7 ± 1.1	
		Carboniferous	Pennsylvanian	Moscovian	318.1 ± 1.3	
				Bashkirian	326.4 ± 1.6	
				Serpukhovian	345.3 ± 2.1	
			Mississippian	Visean	359.2 ± 2.5	
				Tournaisian		

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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	
		Silurian	Lower	Pragian	407.0 ± 2.8	
				Lochkovian	411.2 ± 2.8	
				Pridoli	416.0 ± 2.8	
			Ludlow	Ludfordian	418.7 ± 2.7	
				Gorstian	421.3 ± 2.6	
	Ordovician	Wenlock	Homerian	422.9 ± 2.5	426.2 ± 2.4	
				Telychian	428.2 ± 2.3	
				Aeronian	436.0 ± 1.9	
			Llandovery	Rhuddanian	439.0 ± 1.8	
				Hirnantian	443.7 ± 1.5	
		Upper	Darriwilian	445.6 ± 1.5	455.8 ± 1.6	
				460.9 ± 1.6	468.1 ± 1.6	
				471.8 ± 1.6	478.6 ± 1.7	
			Tremadocian	488.3 ± 1.7	501.0 ± 2.0	
				513.0 ± 2.0	542.0 ± 1.0	
	Cambrian	Furongian	Paibian			
		Middle				

Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP GSSA
Precambrian	Proterozoic	Neoproterozoic	Ediacaran	542
			Cryogenian	600
			Tonian	850
		Meso-proterozoic	Stenian	1000
			Ectasian	1200
			Calymmian	1400
		Paleo-proterozoic	Statherian	1600
			Orosirian	1800
			Rhyacian	2050
			Siderian	2300
	Archean	Neoarchean	2500	
		Mesoarchean	2800	
		Paleoarchean	3200	
		Eoarchean	3600	
		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 (Renne 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 Commission for the Geological Map of the World ([www.cgmw.org](http://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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