



# INTERNATIONAL STRATIGRAPHIC CHART



International Commission on Stratigraphy

Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP
Phanerozoic	Cenozoic	Quaternary*	Holocene			
				Upper	0.0115	
			Pleistocene	Middle	0.126	
				Lower	0.781	
		Neogene	Pliocene	Gelasian	1.806	
				Piacenzian	2.588	
				Zanclean	3.600	
			Miocene	Messinian	5.332	
				Tortonian	7.246	
				Serravallian	11.608	
	Paleogene	Oligocene	Langhian	13.65		
			Burdigalian	15.97		
			Aquitanian	20.43		
			Chattian	23.03		
			Rupelian	28.4 ± 0.1		
			Priabonian	33.9 ± 0.1		
		Eocene	Bartonian	37.2 ± 0.1		
			Lutetian	40.4 ± 0.2		
			Ypresian	48.6 ± 0.2		
			Thanetian	55.8 ± 0.2		
			Selandian	58.7 ± 0.2		
			Danian	61.7 ± 0.2		
	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		
			Albian	99.6 ± 0.9		
			Aptian	112.0 ± 1.0		
			Barremian	125.0 ± 1.0		
			Hauterivian	130.0 ± 1.5		
Lower	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	155.7 ± 4.0	
			Middle	Callovian	161.2 ± 4.0	
				Bathonian	164.7 ± 4.0	
				Bajocian	167.7 ± 3.5	
		Lower	Aalenian	171.6 ± 3.0		
			Toarcian	175.6 ± 2.0		
			Pliensbachian	183.0 ± 1.5		
			Sinemurian	189.6 ± 1.5		
			Hettangian	196.5 ± 1.0		
		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		
	Permian	Lopingian	Wuchiapingian	253.8 ± 0.7		
			Capitanian	260.4 ± 0.7		
			Wordian	265.8 ± 0.7		
			Roadian	268.0 ± 0.7		
		Cisuralian	Kungurian	270.6 ± 0.7		
			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	Moscovian	306.5 ± 1.0		
			Bashkirian	311.7 ± 1.1		
			Serpukhovian	318.1 ± 1.3		
Mississippian		Viséan	326.4 ± 1.6			
		Tournaisian	345.3 ± 2.1			
			359.2 ± 2.5			

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

Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP	GSSA
Precambrian	Proterozoic	Neoproterozoic	Ediacaran	542	
			Cryogenian	~630	
			Tonian	850	
		Mesoproterozoic	Stenian	1000	
			Ectasian	1200	
			Calymmian	1400	
	Paleoproterozoic	Statherian	1600		
		Orosirian	1800		
		Rhyacian	2050		
		Siderian	2300		
			2500		
	Archean	Neoproterozoic	Neoproterozoic	2800	
			Mesoproterozoic	3200	
		Paleoproterozoic	Paleoproterozoic	3600	
Eoarchean			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 the 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. Updated descriptions of each GSSP and GSSA are 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 F.M. Gradstein, J.G. Ogg, A.G. Smith, et al. (2004; Cambridge University Press).

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\* proposed by INQUA