



INTERNATIONAL STRATIGRAPHIC CHART



International Commission on Stratigraphy

Eonothem Eon	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	🚩	
			Oligocene	Chattian	23.03	🚩
	Rupelian			28.4 ± 0.1	🚩	
	Eocene			Priabonian	33.9 ± 0.1	🚩
				Bartonian	37.2 ± 0.1	🚩
	Paleocene	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	🚩		
				65.5 ± 0.3	🚩	
	Mesozoic	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	🚩
			Cenomanian	99.6 ± 0.9	🚩	
			Lower	Albian	112.0 ± 1.0	🚩
				Aptian	125.0 ± 1.0	🚩
				Barremian	130.0 ± 1.5	🚩
				Hauterivian	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	🚩
			Lower	Toarcian	175.6 ± 2.0	🚩
				Pliensbachian	183.0 ± 1.5	🚩
				Sinemurian	189.6 ± 1.5	🚩
		Hettangian		196.5 ± 1.0	🚩	
		Rhaetian		199.6 ± 0.6	🚩	
		Norian		203.6 ± 1.5	🚩	
		Triassic	Upper	Carnian	216.5 ± 2.0	🚩
	Ladinian			228.0 ± 2.0	🚩	
	Middle		Anisian	237.0 ± 2.0	🚩	
			Olenekian	245.0 ± 1.5	🚩	
	Lower		Induan	249.7 ± 0.7	🚩	
				251.0 ± 0.4	🚩	
	Paleozoic	Permian	Lopingian	Changhsingian	253.8 ± 0.7	🚩
				Wuchiapingian	260.4 ± 0.7	🚩
			Guadalupian	Capitanian	265.8 ± 0.7	🚩
				Wordian	268.0 ± 0.7	🚩
			Cisuralian	Roadian	270.6 ± 0.7	🚩
				Kungurian	275.6 ± 0.7	🚩
				Artinskian	284.4 ± 0.7	🚩
				Sakmarian	294.6 ± 0.8	🚩
			Asselian	299.0 ± 0.8	🚩	
			Carboniferous	Pennsylvanian	Upper	Gzhelian
	Kasimovian	306.5 ± 1.0				🚩
	Middle	Moscovian			311.7 ± 1.1	🚩
		Bashkirian			318.1 ± 1.3	🚩
	Mississippian	Upper		Serpukhovian	326.4 ± 1.6	🚩
				Visean	345.3 ± 2.1	🚩
Lower		Tournaisian		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	🚩	
				416.0 ± 2.8	🚩	
		Silurian	Pridoli	418.7 ± 2.7	🚩	
			Ludlow	Ludfordian	421.3 ± 2.6	🚩
				Gorstian	422.9 ± 2.5	🚩
			Wenlock	Homerian	426.2 ± 2.4	🚩
	Sheinwoodian			428.2 ± 2.3	🚩	
	Llandovery		436.0 ± 1.9	🚩		
	Ordovician	Upper	Rhuddanian	439.0 ± 1.8	🚩	
			Hirnantian	443.7 ± 1.5	🚩	
		Middle	Darriwilian	445.6 ± 1.6	🚩	
				455.8 ± 1.6	🚩	
		Lower	Tremadocian	460.9 ± 1.6	🚩	
				468.1 ± 1.6	🚩	
			471.8 ± 1.6	🚩		
	Cambrian	Upper	Paibian	478.6 ± 1.7	🚩	
				483.3 ± 1.7	🚩	
		Middle		488.3 ± 1.7	🚩	
			501.0 ± 2.0	🚩		
Lower			513.0 ± 2.0	🚩		
			542.0 ± 1.0	🚩		

Eonothem Eon	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	🚩
			Statherian	1600	🚩
		Paleo-proterozoic	Orosirian	1800	🚩
			Rhyacian	2050	🚩
			Siderian	2300	🚩
			2500	🚩	
			2500	🚩	
	Archean	Neoarchean		2800	🚩
				3200	🚩
		Mesoarchean		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 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. 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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