INTERNATIONAL STRATIGRAPHIC CHART

ICS

International Commission on Stratigraphy

IUGS
International Union of Geological Sciences

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	
		Paleogene	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	
	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	
				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	
			Lower	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	
	Paleozoic	Permian	Lopingian	Changhsingian	251.0 ±0.4	
				Wuchiapingian	253.8 ±0.7	
			Guadalupian	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	
		Carboniferous	Penn-sylvanian	Upper	Gzhelian	299.0 ±0.8
					Kasimovian	303.9 ±0.9
				Middle	Moscovian	306.5 ±1.0
				Lower	Bashkirian	311.7 ±1.1
			Missis-sippian	Upper	Serpukhovian	318.1 ±1.3
				Middle	Visean	326.4 ±1.6
				Lower	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	
			Lower	Emsian	397.5 ±2.7	
				Pragian	407.0 ±2.8	
				Lochkovian	411.2 ±2.8	
		Silurian	Pridoli		416.0 ±2.8	
			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	
				Rhuddanian	439.0 ±1.8	
		Ordovician	Upper	Hirnantian	443.7 ±1.5	
					445.6 ±1.5	
					455.8 ±1.6	
			Middle	Darriwilian	460.9 ±1.6	
					468.1 ±1.6	
			Lower		471.8 ±1.6	
				Tremadocian	478.6 ±1.7	
		Cambrian	Furongian		488.3 ±1.7	
				Paibian	501.0 ±2.0	
			Middle		513.0 ±2.0	
			Lower		542.0 ±1.0	

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

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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