INTERNATIONAL STRATIGRAPHIC CHART

International Commission on Stratigraphy

ICS

IUGS International Union of Geological Sciences

Eonothem Eon	Erathem Era	System Period	Series Epoch	Stage Age	Age Ma	GSSP
Phanerozoic	Cenozoic	Quaternary	Holocene		0.0117	
			Pleistocene	Upper	0.126	
				"Ionian"	0.781	
				Calabrian	1.806	
				Gelasian	2.588	
		Neogene	Pliocene	Piacenzian	3.600	
				Zanclean	5.332	
			Miocene	Messinian	7.246	
				Tortonian	11.608	
				Serravallian	13.82	
				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	~ 61.1	
				Danian	65.5 ±0.3	
	Mesozoic	Cretaceous	Upper	Maastrichtian	70.6 ±0.6	
				Campanian	83.5 ±0.7	
				Santonian	85.8 ±0.7	
				Coniacian	~ 88.6	
				Turonian	93.6 ±0.8	
				Cenomanian	99.6 ±0.9	
			Lower	Albian	112.0 ±1.0	
				Aptian	125.0 ±1.0	
				Barremian	130.0 ±1.5	
				Hauterivian	~ 133.9	
				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	~ 155.6	
			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	~ 228.7	
				Anisian	237.0 ±2.0	
			Lower	Olenekian	~ 245.9	
				Induan	~ 249.5	
	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	Pennsylvanian	Gzhelian	299.0 ±0.8	
				Kasimovian	303.4 ±0.9	
				Moscovian	307.2 ±1.0	
				Bashkirian	311.7 ±1.1	
			Mississippian	Serpukhovian	318.1 ±1.3	
				Visean	328.3 ±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	
			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	
				Katian	445.6 ±1.5	
				Sandbian	455.8 ±1.6	
			Middle	Darriwilian	460.9 ±1.6	
				Dapingian	468.1 ±1.6	
			Lower	Floian	471.8 ±1.6	
				Tremadocian	478.6 ±1.7	
		Cambrian	Furongian	*Stage 10*	488.3 ±1.7	
				Stage 9	~ 492 *	
				Paibian	~ 496 *	
			Series 3	Guzhangian	~ 499	
				Drumian	~ 503	
				Stage 5	~ 506.5	
			Series 2	*Stage 4*	~ 510 *	
				Stage 3	~ 515 *	
			Terreneuvian	*Stage 2*	~ 521 *	
				Fortunian	~ 528 *	
					542.0 ±1.0	

	Eonothem Eon	Erathem Era	System Period	Age Ma	GSSP GSSA
Precambrian	Proterozoic	Neoproterozoic	Ediacaran	542	
			Cryogenian	~635	
			Tonian	850	
		Mesoproterozoic	Stenian	1000	
			Ectasian	1200	
			Calymmian	1400	
		Paleoproterozoic	Statherian	1600	
			Orosirian	1800	
			Rhyacian	2050	
			Siderian	2300	
	Archean	Neoarchean		2500	
		Mesoarchean		2800	
		Paleoarchean		3200	
		Eoarchean		3600	
	Hadean (informal)			4000	
				~4600	

This chart was drafted by Gabi Ogg. Intra Cambrian unit ages with * are informal, and awaiting ratified definitions.

Subdivisions of the global geologic record are formally defined by their lower boundary. Each unit of the Phanerozoic (~542 Ma to Present) and the base of Ediacaran are defined by a basal Global Boundary Stratotype Section and Point (GSSP), whereas Precambrian units are formally subdivided by absolute age (Global Standard Stratigraphic Age, GSSA). Details of each GSSP are posted on the ICS website (*www.stratigraphy.org*).

Numerical ages of the unit boundaries in the Phanerozoic are subject to revision. Some stages within the Cambrian will be formally named upon international agreement on their GSSP limits. Most sub-Series boundaries (e.g., Middle and Upper Aptian) are not formally defined.

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 F.M. Gradstein, J.G. Ogg, A.G. Smith, et al. (2004; Cambridge University Press) and "The Concise Geologic Time Scale" by J.G. Ogg, G. Ogg and F.M. Gradstein (2008).

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