



Commission de la Carte Geologique
du Monde
Commission on the Geological Map
of the World

INTERNATIONAL STRATIGRAPHIC CHART

International Union of Geological Sciences

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International Commission on Stratigraphy

EONOTHEM EON	ERATHEM ERA	SYSTEM PERIOD	SERIES EPOCH	STAGE AGE	AGE Ma	AGE SEPM Spec. Vol. #54 (1995) +/-	STAGE NOTATION	SERIES NOTATION	SYSTEM NOTATION					
PHANEROZOIC PH	CENOZOIC CZ	Quaternary	HOLOCENE		0.01			Q ₂	Q					
			PLEISTOCENE				Q ₁							
		NEOGENE	MIOCENE	Gelasian	Calabrian	1.81		n ₉	N ₁	N				
				Pliocene	Piacenzian	2.58		n ₈						
					Zanclean	3.60		n ₇						
					Messinian	5.32		n ₆						
					Tortonian	7.12		n ₅						
					Serravallian	11.2		n ₄						
					Langhian	14.8		n ₃						
					Burdigalian	16.4		n ₂						
					Aquitanian	20.5		n ₁						
				PALEOGENE	OLIGOCENE	Chattian		23.8				e ₉	E ₃	E
		Rupelian				28.5		e ₈						
		Priabonian				33.7		e ₇						
		Bartonian				37.0		e ₆						
		Lutetian				41.3		e ₅						
		EOCENE	Ypresian			49.0		e ₄	E ₂					
						55.0		e ₃						
			Thanetian			57.9		e ₂						
			Selandian			61.0		e ₁						
			Danian			61.0		e ₁						
		CRETACEOUS	UPPER/LATE	Maastrichtian		65.5	0.1	k ₆	K ₂	K				
				Campanian		71.3	0.5	k ₅						
				Santonian		83.5	0.5	k ₄						
				Coniacian		85.8	0.5	k ₃						
	Turonian				89.0	0.5	k ₂							
	Cenomanian				93.5	0.2	k ₁							
	LOWER/EARLY			Albian		98.9	0.6	b ₆			K ₁			
				Aptian		112.2	1.1	b ₅						
				Barremian		121.0	1.4	b ₄						
				Hauterivian		127.0	1.6	b ₃						
			Valanginian		132.0	1.9	b ₂							
			Berriasian		136.5	2.2	b ₁							
			JURASSIC	UPPER/LATE	Tithonian		142.0	2.6	j ₇			J ₃		
					Kimmeridgian		150.7	3.0	j ₆					
					Oxfordian		154.1	3.3	j ₅					
					Callovian		159.4	3.6	j ₄					
					Bathonian		164.4	3.8	j ₃					
				MIDDLE	Bajocian		169.2	4.0	j ₂				J ₂	
					Aalenian		176.5	4.0	j ₁					
					Toarcian		180.1	4.0	i ₄					J ₁
					Pliensbachian		189.6	4.0	i ₃					
	Sinemurian					195.3	3.9	i ₂						
	Hettangian			201.9	3.9	i ₁								
	TRIASSIC		UPPER/LATE	Rhaetian		205.1	4.0	t ₇	T ₃					
				Norian		209.6	4.1	t ₆						
		Carnian			220.7	4.4	t ₅							
		Ladinian			227.4	4.5	t ₄							
		Anisian			234.3	4.6	t ₃							
		LOWER/EARLY	Olenekian		241.7	4.7	t ₂	T ₂						
			Induan		244.8	4.8	t ₁							
					250	4.8	t ₁							

EONOTHEM EON	ERATHEM ERA	SYSTEM PERIOD	SERIES EPOCH	STAGE AGE	AGE Ma	AGE Subcommissions or other sources +/-	STAGE NOTATION	SERIES NOTATION	SYSTEM NOTATION			
PHANEROZOIC PH	PALEOZOIC PZ	PERMIAN	Lopingian	Changhsingian	251.4	3.6	p ₉	P ₃	P			
				Wuchiapingian	253.4		p ₈					
			Guadalupian	Capitanian	265		p ₇			P ₂		
				Wordian			p ₆					
				Roadian			p ₅					
			CARBONIFEROUS	PENNSYLVANIAN	Kungurian		283				p ₄	P ₁
					Artinskian						p ₃	
					Sakmarian						p ₂	
					Asselian						p ₁	
					Gzhelian		292				c ₇	
		Kazimovian					c ₆					
		Moscovian					c ₅					
		Bashkirian			320		c ₄					
		Serpukhovian			327		c ₃					
		MISSISSIPPIAN		Visean		342		c ₂		C ₁		
			Tournaisian		354		c ₁					
			Famennian		364		d ₇	D ₃				
			Frasnian		370		d ₆					
			Givetian		380		d ₅					
		Eifelian		391		d ₄						
		Emsian		400		d ₃						
		DEVONIAN	UPPER/LATE	Pragian		412				d ₂	D ₂	
				Lochkovian		417				d ₁		
			MIDDLE	Pragian		417				d ₁		
				Pragian		417				d ₁		
	Pragian				417		d ₁					
	SILURIAN	Priddian		419		s ₈	S ₄					
		Ludfordian		423		s ₇						
		Gorstian		428		s ₆						
		Homerian		428		s ₅						
		Sheinwoodian		440		s ₄						
		Telychian		440		s ₃						
		Aeronian		467.5		s ₂						
		Rhuddanian		495		s ₁						
		ORDOVICIAN	UPPER/LATE	"sixth stage"					O ₃			
			MIDDLE	Darriwilian								
	LOWER/EARLY		"third stage"									
	Tremadocian			495								
				495								
	CAMBRIAN	UPPER/LATE					O ₂					
		MIDDLE										
		LOWER/EARLY										

EONOTHEM EON	ERATHEM ERA	SYSTEM PERIOD	AGE (Defines these Eras and Periods)	NOTATION SYSTEM	NOTATION ERA	
PRECAMBRIAN PC -	PROTEROZOIC PR	NEOPROTEROZOIC	540	NP ₃	NP	
			650	NP ₂		
			850	NP ₁		
		MESOPROTEROZOIC	1000	MP ₃	MP	
			1200	MP ₂		
			1400	MP ₁		
			1600	PP ₄		PP
			1800	PP ₃		
			2050	PP ₂		
			2300	PP ₁		
	ARCHEAN AR	NEOARCHEAN		2500		NA
		MESOARCHEAN		2800		MA
		PALEOARCHEAN		3200		PA
		EOARCHEAN		3600		EA
		No subdivision into periods				

This 2000 edition of the International Stratigraphic Chart is intended to give a clear picture of the present state of the art in chronostratigraphic subdivisions of geological time, mentioning only units recommended for international use. A typographical distinction is made between **formal**, semiformal and *informal* units.

The 1986 Guidelines of ICS (COWIE et al, 1986) and their recent revision (REMANE et al, 1996) regulate the definition of the international chronostratigraphic/geochronologic units. The Revised Guidelines were voted by the full commission of ICS as a mandatory document. Both versions of the guidelines stipulate that global chronostratigraphic units are not defined by unit-stratotypes, but their lower boundary only, following the principle introduced with the definition of the base of the Devonian in 1972 (MARTINSSON, 1977). This is indeed the only way to arrive at a global chronostratigraphic scale made of strictly contiguous units.

Phanerozoic global chronostratigraphic boundaries are formally defined by a Global Standard Stratotype Section and Point (GSSP - COWIE et al, 1986), whereas Precambrian chronostratigraphic boundaries are formally defined in terms of absolute ages : Global Standard Stratigraphic Age (GSSA - REMANE et al, 1996). In order to become mandatory, a boundary definition as to be accepted by 60% majority in successive votes, first by the working group responsible for the choice of the GSSP, then by the concerned Subcommission of ICS and finally by the Full Commission of ICS. With its ratification through IUGS, the GSSP or GSSA becomes mandatory.

FORMAL UNITS (in bold characters) are all the those which have their lower boundary defined by a GSSP or GSSA voted by ICS in accordance with the Guidelines and ratified by IUGS. Proposed GSSPs (in bold italic) are pending ratification. **SEMIFORMAL UNITS** (normal characters): Several Subcommissions of ICS (Neogene, Paleogene, Jurassic, Triassic, Permian) have conducted a formal vote by postal ballot about the stage names which should be used and codified by a GSSP. But as long as no GSSP has been formally adopted, these units, recommendable as they are, have no formal status. **INFORMAL UNITS** (in italics) are not formally adopted by the Subcommissions.

The subdivisions used in the present Global Chart, are based on the proposals made by the concerned Subcommissions. Simplified subdivisions have, however been adopted for the Carboniferous and the Ordovician, in order to maintain the necessary homogeneity of presentation. The complete versions were included in the detailed explanatory note. Also some traditional names which are becoming obsolete have been omitted : Lias, Dogger, Malm in the Jurassic and Tertiary in the Cenozoic (the latter already abandoned in the first edition of this chart). "Tertiary" can be used as an informal name like Permotrias.

Numerical ages of the Phanerozoic chronostratigraphic boundaries were provided by Subcommission summaries, compilation in Episodes (1997) by Gradstein & Ogg, or other sources, and are subject to revision.

The letter/number symbols used for divisions down to stage/age rank and the colours of the individual units are established by the CGMW, taking as a basis its Geological Atlas of the World. This chart is updated periodically during its general assemblies occurring within the International Geological Congress and upon ratification of GSSPs by IUGS.