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Overview of Global Boundary Stratotype Sections and Points (GSSP's)

Status on June 2004, compiled by Jim Ogg (ICS Executive Secretary)

EON, Era, System, Series, Stages	Age (Ma) GTS 2004	Est. ±Ma	Derivation of age	Principal correlative events	GSSP and location	Status	Publication
PHANEROZOIC Eon							
Cenozoic Era							
Neogene System							
"Quaternary" is traditionally considered to be the interval of oscillating climatic extremes (glacial and interglacial episodes) that was initiated at about 2.6 Ma, therefore it encompasses the Holocene and Pleistocene epochs and the Gelasian stage of late Pliocene. This composite epoch is not a formal unit in the chronostratigraphic hierarchy.							
Holocene Series							
base Holocene	0.0115	0.00	Carbon-14 dating calibration	exactly 10,000 Carbon-14 years (= 11.5 ka calendar years BP) at the end of the Younger Dryas cold spell	-	Informal working definition	-
Pleistocene Series							
base upper Pleistocene Subseries	0.126	0.00	Astronomical cycles in sediments	base of the Eemian interglacial stage (= base of marine isotope stage 5e) before final glacial episode of Pleistocene	Potentially, within sediment core under the Netherlands (Eemian type area)	Informal working definition	-
base middle Pleistocene Subseries	0.781	0.00	Astronomical cycles in sediments	Brunhes-Matuyama magnetic reversal	-	Informal working definition	-
base Pleistocene Series	1.806	0.00	Astronomical cycles in sediments	Just above top of magnetic polarity chronozone C2n (Olduvai) and the extinction level of calcareous nannofossil Discoaster brouweri (base Zone CN13). Above are lowest occurrence of calcareous nannofossil medium Gephyrocapsa spp. and extinction level of planktonic foraminifer Globigerinoides extremus.	Top of sapropel layer 'e', Vrica section, Calabria, Italy	Ratified 1985	Episodes 8 (2), p.116-120, 1985

Pliocene Series							
base Gelasian Stage	2.588	0.00	Astronomical cycles in sediments	Isotopic stage 103, base of magnetic polarity chronozone C2r (Matuyama). Above are extinction levels of calcareous nannofossil Discoaster pentaradiatus and D. surculus (base Zone CN12c).	Midpoint of sapropelic Nicola Bed ("A5"), Monte San Nicola, Gela, Sicily, Italy	Ratified 1996	Episodes 21 (2), p.82-87, 1998
base Piacenzian Stage	3.600	0.00	Astronomical cycles in sediments	Base of magnetic polarity chronozone C2An (Gauss); extinction levels of planktonic foraminifers Globorotalia margaritae (base Zone PL3) and Pulleniatina primalis.	Base of beige layer of carbonate cycle 77, Punta Piccola, Sicily, Italy	Ratified 1997	Episodes 21 (2), p.88-93, 1998
base Zanclean Stage, base Pliocene Series	5.332	0.00	Astronomical cycles in sediments	Top of magnetic polarity chronozone C3r, ~100 kyr before Thvera normal-polarity subchronozone (C3n.4n). Calcareous nannofossils -- near extinction level of Triquetrorhabdulus rugosus (base Zone CN10b) and the lowest occurrence of Ceratolithus acutus.	Base of Trubi Fm (base of carbonate cycle 1), Eraclea Minoa, Sicily, Italy	Ratified 2000	Episodes 23 (3), p.179-187, 2000
Miocene Series							
base Messinian Stage	7.246	0.00	Astronomical cycles in sediments	Astrochronology age of 7.251 Ma; middle of magnetic polarity chronozone C3Br.1r; lowest regular occurrence of the Globorotalia conomiozea planktonic foraminifer group.	Base of red layer of carbonate cycle 15, Oued Akrech, Rabat, Morocco	Ratified 2000	Episodes 23 (3), p. 172-178, 2000
base Tortonian Stage	11.608	0.00	Astronomical cycles in sediments	Last Common Occurrences of the calcareous nannofossil Discoaster kugleri and the planktonic foraminifer Globigerinoides subquadratus. Associated with the	Midpoint of sapropel 76, Monte dei Corvi beach section, Ancona, Italy	Ratified 2003	Episodes article in preparation

				short normal-polarity subchron C5r.2n.			
base Serravallian Stage	13.65	0.00	Astronomical cycles in sediments	Near lowest occurrence of nannofossil Sphenolithus heteromorphus, and within magnetic polarity chronozone C5ABr.	-	GSSP anticipated in 2004	-
base Langhian Stage	15.97	0.00	Calibrated magnetic anomaly scale	Near first occurrence of planktonic foraminifer Praeorbulina glomerosa and top of magnetic polarity chronozone C5Cn.1n	-	GSSP anticipated in 2004	-
base Burdigalian Stage	20.43	0.00	Calibrated magnetic anomaly scale	Near lowest occurrence of planktonic foraminifer Globigerinoides altiaperturus or near top of magnetic polarity chronozone C6An	-	Guide event is undecided	-
base Aquitanian Stage, base Miocene Series, base Neogene System	23.03	0.00	Astronomical cycles in sediments	Base of magnetic polarity chronozone C6Cn.2n; lowest occurrence of planktonic foraminifer Paragloborotalia kugleri; near extinction of calcareous nannofossil Reticulofenestra bisecta (base Zone NN1).	35 m from top of Lemme-Carrosio section, Carrosio village, north of Genoa, Italy	Ratified 1996	Episodes 20 (1),p. 23-28, 1997
Paleogene System							
Oligocene Series							
base Chattian Stage	28.4	0.1	Calibrated magnetic anomaly scale relative to base-Miocene and C24n. Arbitrary 100 kyr uncertainty assigned.	Planktonic foraminifer, extinction of Chiloguembelina (base Zone P21b)	Probably in Umbria-Marche region of Italy	GSSP anticipated in 2004	-
base Rupelian Stage, base Oligocene Series	33.9	0.1	Calibrated magnetic anomaly scale relative to base-Miocene and C24n.	Planktonic foraminifer, extinction of Hantkenina	Base of marl bed at 19m above base of Massignano quarry, Ancona, Italy	Ratified 1992	Episodes 16 (3), p.379-382, 1993

Eocene Series							
base Priabonian Stage	37.2	0.1	Calibrated magnetic anomaly scale relative to base-Miocene and C24n	Near lowest occurrence of calcareous nannofossil Chiasmolithus oamaruensis (base Zone NP18)	Probably in Umbria-Marche region of Italy	-	-
base Bartonian Stage	40.4	0.2	Calibrated magnetic anomaly scale relative to base-Miocene and C24n	Near extinction of calcareous nannofossil Reticulofenestra reticulata	-	-	-
base Lutetian Stage	48.6	0.2	Calibrated magnetic anomaly scale relative to base-Miocene and C24n	Planktonic foraminifer, lowest occurrence of Hantkenina	Leading candidate is Fortuna section, Murcia province, Betic Cordilleras, Spain	GSSP anticipated in 2004	-
base Ypresian Stage, base Eocene Series	55.8	0.2	Astronomical cycles in sediments scaled from base-Paleocene	Base of negative carbon-isotope excursion	Dababiya Section near Luxor, Egypt	Ratified 2003	Micropaleontology v.49 (Suppl. 1), 2003. Episodes article in preparation
Paleocene Series							
base Thanetian Stage	58.7	0.2	Astronomical cycles in sediments scaled from base Paleocene, using base of magnetic polarity chronozone C26n. Arbitrary 0.1 (2 precession cycles, plus the base-Paleogene radiometric) uncertainty assigned to all estimates.	Magnetic polarity chronozone, base of C26n, is a temporary assignment	Leading candidate is Zumaya section, northern Spain	Guide event is undecided	-
base Selandian Stage	61.7	0.2	Astronomical cycles in sediments scaled from base Paleocene, using magnetic polarity chronozone placement of C27n.9	Boundary task group is considering a higher level -- base of calcareous nannofossil zone NP5 -- which would be ~1 myr younger.	Leading candidate is Zumaya section, northern Spain	Guide event is undecided	-
base Danian Stage, base Paleogene System, base Cenozoic	65.5	0.3	Ar-Ar and U-Pb age agreement	Iridium geochemical anomaly. Associated with a major extinction horizon (foraminifers, calcareous nannofossils, dinosaurs, etc.);	Base of boundary clay, El Kef, Tunisia (but deterioration may require assigning a replacement section)	Ratified 1991	-

Mesozoic Era							
Cretaceous System							
Most Cretaceous substages also have recommended GSSP criteria							
Upper Cretaceous Series							
base Maastrichtian Stage	70.6	0.6	Estimated placement relative to Ar-Ar calibrated Sr-curve	Mean of 12 biostratigraphic criteria of equal importance. Closely above is lowest occurrence of ammonite Pachydiscus neubergicus. Boreal proxy is lowest occurrence of belemnite Belemnella lanceolata.	115.2 m level in Grande Carrière quarry, Tercis-les-Bains, Landes province, SW France	Ratified 2001	Episodes 24 (4), p.229-238, 2001; Odin (ed.) IUGS Spec. Publ. Series, v.36, Elsevier, 910pp.
base Campanian Stage	83.5	0.7	Spline fit of Ar-Ar ages and ammonite zones.	Crinoid, extinction of *Marsupites testudinarius*	Leading candidates are in southern England and in Texas	-	-
base Santonian Stage	85.8	0.7	Spline fit of Ar-Ar ages and ammonite zones.	Inoceramid bivalve, lowest occurrence of *Cladoceramus undulatoplicatus*	Leading candidates are in Spain, England and Texas	-	-
base Coniacian Stage	89.3	1.0	Spline fit of Ar-Ar ages and ammonite zones.	Inoceramid bivalve, lowest occurrence of Cremnoceramus rotundatus (sensu Tröger non Fiege)	Base of Bed MK47, Salzgitter-Salder Quarry, SW of Hannover, Lower Saxony, northern Germany	GSSP anticipated in 2004	-
base Turonian Stage	93.5	0.8	Spline fit of Ar-Ar ages and ammonite zones	Ammonite, lowest occurrence of Watinoceras devonense	Base of Bed 120, Rock Canyon Anticline, east of Pueblo, Colorado, west-central USA	Ratified 2003	Episodes article in preparation
base Cenomanian Stage	99.6	0.9	Spline fit of Ar-Ar ages and ammonite zones, plus monitor standard correction. Then cycle stratigraphy to place foraminifer datum relative to ammonite zonation.	Planktonic foraminifer, lowest occurrence of Rotalipora globotruncanoides	36 m below top of Marnes Bleues Formation, Mont Risou, Rosans, Haute-Alpes, SE France	Ratified 2002	Episodes 27 (1), p.21-32, 2004.
Lower Cretaceous Series							
base Albian Stage	112.0	1.0	Estimated placement relative to bases of	Calcareous nannofossil, lowest	-	Guide event is undecided	-

			Cenomanian and Aptian, with large uncertainty due to lack of GSSP criteria. Ar-Ar age of 114.6 +/- 0.7 Ma from Parahoplites nutfieldensis below.	occurrence of Praediscosphaera columnata (= P. cretacea of some earlier studies), is one potential marker.			
base Aptian Stage	125.0	1.0	Base of M0r, as recomputed from Ar-Ar age from MIT guyot	Magnetic polarity chronozone, base of M0r	Leading candidate is Gorgo a Cerbara, Piobbico, Umbria-Marche, central Italy	-	-
base Barremian Stage	130.0	1.5	Pacific spreading model for magnetic anomaly ages (variable rate), using placement at M5n.8.	Ammonite, lowest occurrence of Spitidiscus hugii – Spitidiscus vandeckii group	Leading candidate is Río Argos near Caravaca, Murcia province, Spain	-	-
base Hauterivian Stage	136.4	2.0	Pacific spreading model for magnetic anomaly ages (variable rate), using placement at base M11n	Ammonite, lowest occurrence of genus Acanthodiscus (especially A. radiatus)	Leading candidate is La Charce village, Drôme province, southeast France	-	-
base Valanginian Stage	140.2	3.0	Pacific spreading model for magnetic anomaly ages (variable rate), using placement at M14r.3 (base T. pertransiens).	Calpionellid, lowest occurrence of Calpionellites darderi (base of Calpionellid Zone E); followed by the lowest occurrence of ammonite “Thurmanniceras” pertransiens	Leading candidate is near Montbrun-les-Bains, Drôme province, southeast France	-	-
base Berriasian Stage, base Cretaceous System	145.5	4.0	Pacific spreading model for magnetic anomaly ages (variable rate), assigning to base of Berriasella jacobi zone (M19n.2n.55)	Maybe near lowest occurrence of ammonite Berriasella jacobi	-	Guide event is undecided	-
Jurassic System							
Upper Jurassic Series							
base Tithonian Stage	150.8	4.0	Pacific spreading model for magnetic anomaly ages (variable rate), assigning to base M22An	Near base of Hybonoticeras hybonotum ammonite zone and lowest occurrence of Gravesia genus, and the base of magnetic polarity chronozone M22An	-	Guide event is undecided	-
base Kimmeridgian	155.7	4.0	Pacific spreading model for magnetic	Ammonite, near base of Pictonia	Leading candidates are	GSSP anticipated in	-

Stage			anomaly ages (variable rate), assigning to base M26r.2 (Boreal ammonite definition)	baylei ammonite zone of Boreal realm	In Scotland, SE France and Poland	2004	
base Oxfordian Stage	161.2	4.0	Pacific spreading model for magnetic anomaly ages (variable rate), assigning to base M36An	Ammonite, Brightia thuouxensis Horizon at base of the Cardioceras scarburgense Subzone (Quenstedtoceras mariae Zone)	Leading candidates are in SE France and southern England	GSSP anticipated in 2004	-
Middle Jurassic Series							
base Callovian Stage	164.7	4.0	Equal subzones scale Bajo-Bath-Callov	Ammonite, lowest occurrence of the genus *Kepplerites (Kosmoceratidae)* (defines base of *Macrocephalites herveyi* Zone in sub-Boreal province of Great Britain to southwest Germany)	Leading candidate is Pfeffingen, Swabian Alb, SW Germany	GSSP anticipated in 2004	-
base Bathonian Stage	167.7	3.5	Equal subzones scale Bajo-Bath-Callov	Ammonite, lowest occurrence of Parkinsonia (G.) convergens (defines base of Zigzagiceras zigzag Zone)	-	-	-
base Bajocian Stage	171.6	3.0	Equal subzones scale Bajo-Bath-Callov	Ammonite, lowest occurrence of the genus Hyperlioceras (defines base of the Hyperlioceras discites Zone)	Base of Bed AB11, 77.8 m above base of Murtinheira section, Cabo Mondego, western Portugal	Ratified 1996	Episodes 20 (1), p.16-22, 1997
base Aalenian Stage	175.6	2.0	Duration of Aalenian-Toarcian from cycle stratigraphy	Ammonite, lowest occurrence of Leioceras genus	base of Bed FZ107, Fuentelsalz, central Spain	Ratified 2000	Episodes 24 (3), p.166-175, 2001
Lower Jurassic Series							
base Toarcian Stage	183.0	1.5	Duration of Aalenian-Toarcian from cycle stratigraphy	Ammonite, near lowest occurrence of a diversified Eodactylites ammonite fauna; correlates with the NW European Paltus horizon.	-	Guide event undecided	-
base Pliensbachian Stage	189.6	1.5	Cycle-scaled linear Sr trend	Ammonite, lowest occurrences of Bifericeras donovani and of genera Apoderoceras and Gleviceras.	Wine Haven section, Robin Hood's Bay, Yorkshire, England, UK	GSSP in ICS voting, July 2004	-

base Sinemurian Stage	196.5	1.0	Cycle-scaled linear Sr trend	Ammonite, lowest occurrence of arietitid genera Vermiceras and Metophioceras	0.9 m above base of Bed 145, East Quantoxhead, Watchet, West Somerset, SW England, UK	Ratified 2000	Episodes 25 (1), p. 22-26, 2002
base Hettangian Stage, base Jurassic System	199.6	0.6	U-Pb age just below proposed GSSP for base-Jurassic	Near lowest occurrence of smooth Psiloceras planorbis ammonite group	-	Guide event is undecided	-
Triassic System							
Upper Triassic Series							
base Rhaetian Stage	203.6	1.5	Magnetostratigraphic correlation to cycle-scaled Newark magnetic polarity pattern	Near lowest occurrence of ammonite Cochlocera, conodonts Misikella spp. and Epigondolella mosheri, and radiolarian Proparvicingula moniliformis	Key sections in Austria, British Columbia (Canada), and Turkey	Guide event is undecided	-
base Norian Stage	216.5	2.0	Magnetostratigraphic correlation to cycle-scaled Newark magnetic polarity pattern	Base of Klamathites macrolobatus or Stikinoceras kerri ammonoid zones and the Metapolygnathus communisti or M. primitius conodont zones	Leading candidates are in British Columbia (Canada), Sicily (Italy), and possibly Slovakia, Turkey (Antalya Taurus) and Oman.	Guide event is undecided	-
base Carnian Stage	228.0	2.0	Magnetostratigraphic correlation to cycle-scaled Newark magnetic polarity pattern	Near first occurrence of the ammonoids Daxatina or Trachyceras, and of the conodont Metapolygnathus polygnathiformis	Candidate section at Prati di Stuores, Dolomites, northern Italy. Important reference sections in Spiti (India) and New Pass, Nevada (USA).	Guide event is undecided	-
Middle Triassic Series							
base Ladinian Stage	237.0	2.0	U-Pb array by Mundil et al. on levels near Nevadites (= Secedensis) ammonite zone in Dolomites, plus placement relative to magnetostratigraphy	Alternate levels are near base of Reitzi, Secedensis, or Curionii ammonite zone; near first occurrence of the conodont genus Budurovignathus	Leading candidates are Bagolino (Italy) and Felsoons (Hungary). Important reference sections in the Humboldt	Guide event is undecided	-

			corrlations to cycle-scaled Newark magnetic polarity pattern		Range, Nevada (USA).		
base Anisian Stage	245.0	1.5	Proportional subzonal scaling	Ammonite, near lowest occurrences of genera Japonites, Paradanubites, and Paracrochordiceras; and of the conodont Chiosella timorensis	Candidate section probable at Desli Caira, Dobrogea, Romania; significant sections in Guizhou Province (China).	GSSP anticipated in 2004	-
Lower Triassic Series							
base Olenekian Stage	249.7	0.7	Composite standard from conodonts scaled to base-Anisian and base-Triassic	Near lowest occurrence of Hedenstroemia or Meekoceras gracilitatis ammonites, and of the conodont Neospathodus waageni	Candidate sections in Siberia (Russia) and probably Chaohu, Anhui Province, China. Important sections also in Spiti.	Guide event is undecided	-
base Induan Stage, base Triassic System, base Mesozoic	251.0	0.4	Average of U-Pb constraints from Bowring et al. (1998)	Conodont, lowest occurrence of Hindeodus parvus; termination of major negative carbon-isotope excursion. About 1 myr after peak of Late Permian extinctions.	Base of Bed 27c, Meishan, Zhejiang, China	Ratified 2001	Episodes 24 (2), p.102-114, 2001
Paleozoic Era							
Permian System							
Lopingian Series							
base Changhsingian Stage	253.8	0.7	Permian-Carboniferous time scale is derived from calibrating a master composite section to selected radiometric ages	Near lowest occurrence of conodont Clarkina wangi	Leading candidates are in China	-	-
base Wuchiapingian Stage	260.4	0.7	"	Conodont, lowest occurrence of conodont Clarkina postbitteri postbitteri (Mei & Wardlaw); and termination of a major global sea-level lowstand	Base of Bed 6K/115 in Penglaitan section, S. bank of Hongshui River, 20 km ESE of Laibin country town, Guangxi Province, south China (midway between cities of Guilin and	Ratified 2004	-

					Nanning). Nearby Tieqiao (Rail-bridge) section is a supplementary reference section.		
Guadalupian Series							
base Capitanian Stage	265.8	0.7	"	Conodont, lowest occurrence of Jinogondolella postserrata	4.5 m above base of Pinery Limestone Member, Nipple Hill, SE Guadalupe Mountains, Texas, USA	Ratified 2001	Episodes article in preparation
base Wordian Stage	268.0	0.7	"	Conodont, lowest occurrence of Jinogondolella aserrata	7.6 m above base of Getaway Ledge outcrop, Guadalupe Pass, SE Guadalupe Mountains, Texas, USA	Ratified 2001	Episodes article in preparation
base Roadian Stage	270.6	0.7	"	Conodont, lowest occurrence of Jinogondolella nanginkensis	42.7 m above base of Cutoff Formation, Stratotype Canyon, southern Guadalupe Mountains, Texas, USA	Ratified 2001	Episodes article in preparation
Cisuralian Series							
base Kungurian Stage	275.6	0.7	"	Near lowest occurrence of conodont Neostreptognathus pnevi - N. exculptus	Leading candidates are in southern Ural Mtns.	-	-
base Artinskian Stage	284.4	0.7	"	Conodont, lowest occurrence of conodont Sweetognathus whitei	Leading candidates are in southern Ural Mtns.	-	-
base Sakmarian Stage	294.6	0.8	"	Conodont, near lowest occurrence of conodont Sweetognathus merrelli	Leading candidate is at Kondurovsky, Orenburg Province, Russia.	-	-
base Asselian Stage, base Cisuralian Series, base Permian System	299.0	0.8	"	Conodont, lowest occurrence of Streptognathodus isolatus within the S. "wabaunsensis" conodont	27 m above base of Bed 19, Aidaralash Creek, Aktöbe, southern Ural Mountains,	Ratified, 1996	Episodes 21 (1), p.11-18, 1998

				chronocline. 6 m higher is lowest fusilinid foraminifer Sphaeroschwagerina	northern Kazakhstan		
Carboniferous System							
Pennsylvanian Subsystem							
Upper Pennsylvanian Series							
base Gzhelian Stage	303.9	0.9	"	Near lowest occurrences of the fusulinids Daixina, Jigulites and Rugosofusulina, or lowest occurrence of conodont Idiognathodus simulator (s.str.). Close to lowest occurrence of ammonoid Shumardites.	-	Guide event is undecided	-
base Kasimovian Stage	306.5	1.0	"	Near base of Obsoletes obsoletes and Protriticites pseudomontiparus fusulinid zone, or lowest occurrence of Parashumardites ammonoid	-	Guide event is undecided	-
Middle Pennsylvanian Series							
base Moscovian Stage	311.7	1.1	"	Near lowest occurrences of Declinognathodus donetzianus and/or Idiognathoides postsulcatus conodont species, and fusulinid species Aljutovella aljutovica	-	Guide event is undecided	-
Lower Pennsylvanian Series							
base Bashkirian Stage, base Pennsylvanian Subsystem	318.1	1.3	"	Conodont, lowest occurrence of Declinognathodus nodiliferus s.l.	82.9 m above top of Battleship Wash Fm., Arrow Canyon, southern Nevada, USA	GSSP ratified 1996. Subsystem rank with Mississippian and Pennsylvanian names ratified 2000.	Episodes 22 (4), p.272-283, 1999
Mississippian Subsystem							
Upper Mississippian Series							
base Serpukhovian	326.4	1.6	"	Near lowest occurrence of conodont, Lochriea crusiformis	-	Guide event is undecided	-

Middle Mississippian Series							
base Visean	345.3	2.1	"	Foraminifer, lineage Eoparastaffella simplex morphotype 1/morphotype 2	Leading candidate is Pengchong, south China	-	-
Lower Mississippian Series							
base Tournaisian, base Mississippian Subsystem, base Carboniferous System	359.2	2.5	"	Conodont, above lowest occurrence of Siphonodella sulcata	Base of Bed 89, La Serre, Montagne Noir, Cabrières, southern France	Ratified 1990	Episodes 14 (4), p.331-336, 1991
Devonian System							
Upper Devonian Series							
base Famennian Stage	374.5	2.6	Devonian time scale is a statistical fit of a composite biostratigraphic zonation (based on Figure 8 of Williams et al., 2000) to selected radiometric ages	Just above major extinction horizon (Upper Kellwasser Event), including conodonts Ancyrodella and Ozarkodina and goniatites of Gephuroceratidae and Beloceratidae	base of Bed 32a, upper Coumiac quarry, Cessenon, Montagne Noir, southern France	Ratified 1993	Episodes 16 (4), p.433-441, 1993
base Frasnian Stage	385.3	2.6	"	Conodont, lowest occurrence of Ancyrodella rotundiloba (defines base of Lower Polygnathus asymmetricus conodont Zone)	Base of Bed 42a', Col du Puech de la Suque section, St. Nazaire-de-Ladarez, SE Montagne Noir, southern France	Ratified 1986	Episodes 10 (2), p.97-101, 1987
Middle Devonian Series							
base Givetian Stage	391.8	2.7	"	Conodont, lowest occurrence of Polygnathus hemiansatus, near base of goniatite Maenioceras Stufe	Base of Bed 123, Jebel Mech Irdane ridge, Tafilalt, Morocco	Ratified 1994	Episodes 18 (3), p.107-115, 1995
base Eifelian Stage	397.5	2.7	"	Conodont, lowest occurrence of Polygnathus costatus partitus; major faunal turnover	Base unit WP30, trench at Wetteldorf Richtschnitt, Schönecken-Wetteldorf, Eifel Hills, western Germany	Ratified 1985	Episodes 8 (2), p.104-109, 1985
Lower Devonian Series							
base Emsian Stage	407.0	2.8	"	Conodont, lowest occurrence of Polygnathus kitabicus (= Po. dehiscens)	Base of Bed 9/5, Zinzil'ban Gorge, SE of Samarkand, Uzbekistan	Ratified 1995	Episodes 20 (4), p. 235-240, 1997
base Pragian	411.2	2.8	"	Conodont, lowest	Base of Bed 12,	Ratified 1989	Episodes 12 (2),

Stage				occurrence of Eognathodus sulcatus	Valká Chuchle quarry, southwest part of Prague city, Czech Republic		p.109-113, 1989
base Lochkovian Stage, base Devonian System	416.0	2.8	base-Devonian from scale in Cooper (GTS 2004), which is 1 myr younger than Tucker et al (1998) estimate.	Graptolite, lowest occurrence of Monograptus uniformis	Within Bed 20, Klonk, Barrandian area, southwest of Prague, Czech Republic	Ratified 1972	Martinsson (ed.), The Silurian-Devonian Boundary, IUGS Series A, no.5, 349 pp., 1977
Silurian System *[Holland and Bassett (eds), A Global Standard for the Silurian System, Nat. Mus. Wales, Geol. Series No.10, Cardiff, 325 pp., 1989]*							
Pridoli Series							
base Pridoli Series (not subdivided in stages)	418.7	2.7	Silurian and Ordovician time scales are from calibrating a CONOP composite graptolite zonation to selecte radiometric ages	Graptolite, lowest occurrence of Monograptus parultimus	Within Bed 96, Pozáry section near Reporje, Barrandian area, Prague, Czech Republic	Ratified 1984	Episodes 8 (2), p.101-103, 1985
Ludlow Series							
base Ludfordian Stage	421.3	2.6	"	Imprecise. May be near base of Saetograptus leintwardinensis graptolite zone.	Base of lithological unit C, Sunnyhill Quarry, Ludlow, Shropshire, southwest England, UK	Ratified 1980	Lethaia 14, p.168, 1981; Episodes 5 (3), p.21-23, 1982
base Gorstian Stage	422.9	2.5	"	Imprecise. Just below base of local acritarch Leptobrachion longhopense range zone. May be near base of Neodiversograptus nilssoni graptolite zone	Base of lithological unit F, Pitch Coppice quarry, Ludlow, Shropshire, southwest England, UK	Ratified 1980	Lethaia 14, p="yellow"> ***Wenlock Series***
base Homerian Stage	426.2	2.4	"	Graptolite, lowest occurrence of Cyrtograptus lundgreni (defines base of C. lundgreni graptolite zone)	Graptolite biozone intersection in stream section in Whitwell Coppice, Homer, Shropshire, southwest England, UK	Ratified 1980	Lethaia 14, p.168, 1981; Episodes 5 (3), p.21-23, 1982
base Sheinwoodian Stage	428.2	2.3	"	Imprecise. Between the base of acritarch biozone 5 and extinction of conodont Pterospathodus amorphognathoides.	Base of lithological unit G, Hughley Brook, Apedale, Shropshire, southwest England, UK	Ratified 1980	Lethaia 14, p.168, 1981; Episodes 5 (3), p.21-23, 1982

				May be near base of Cyrtograptus centrifugus graptolite zone.			
Llandovery Series							
base Telychian Stage	436.0	1.9	"	Brachiopods, just above extinction of Eocoelia intermedia and below lowest succeeding species Eocoelia curtisi. Near base of Monograptus turriculatus graptolite zone.	Locality 162 in transect d, Cefn Cerig road, Llandovery area, south-central Wales, UK	Ratified 1984	Episodes 8 (2), p.101-103, 1985
base Aeronian Stage	439.0	1.8	"	Graptolite, lowest occurrence of Monograptus austerus sequens (defines base of Monograptus triangulatus graptolite zone)	Base of locality 72 in transect h, Trefawr forestry road, north of Cwm-coed-Aeron Farm, Llandovery area, south-central Wales, UK	Ratified 1984	Episodes 8 (2), p.101-103, 1985
base Rhuddanian Stage, base Silurian System	443.7	1.5	"	Graptolites, lowest occurrences of Parakidograptus acuminatus and Akidograptus ascensus	1.6 m above base of Birkhill Shale Fm., Dob's Linn, Moffat, Scotland, UK	Ratified 1984	Episodes 8 (2), p.98-100, 1985
Ordovician System							
Upper Ordovician Series							
base Hirnantian Stage	445.6	1.5	"	Potentially at base of the Normalograptus extraordinarius - N. ojsuensis graptolite biozone	Candidate section is Wangjiawan, China	-	-
base of sixth stage (not yet named)	455.8	1.6	"	Potentially near first appearance of the graptolite Diplacanthograptus caudatus	Candidate sections ae Black Knob Ridge (Oklahoma, USA) and Hartfell Spa (S. Scotland, UK)	Guide event is undecided	-
base of fifth stage (not yet named)	460.9	1.6	"	Graptolite, lowest occurrence of Nemagraptus gracilis	1.4 m below phosphorite in E14a outcrop, Fågelsång, Scane, southern Sweden	Ratified 2002	Episodes 23 (2), p.102-109, 2000 (proposal; formal GSSP publication in preparation).
Middle Ordovician Series							
base Darriwillian Stage	468.1	1.6	"	Graptolite, lowest occurrence of Undulograptus	Base of Bed AEP184, 22 m below top of	Ratified 1987	Episodes 20 (3), p.158-166, 1997

				austrodentatus	Ningkuo Fm., Huangnitang, Changshan, Zhejiang province, southeast China		
base of third stage (not yet named)	471.8	1.6	"	Conodont, potentially lowest occurrence of Protoprioniodus aranda or of Baltoniodus triangularis	Candidate sections at Niquivil (Argentina) and Huanghuachang (China)	-	-
Lower Ordovician Series							
base of second stage (not yet named)	478.6	1.7	"	Graptolite, lowest occurrence of Tetragraptus approximatus	Just above E bed, Diabasbrottet quarry, Västergötland, southern Sweden	Ratified 2002	Episodes article in preparation
base of Tremadocian stage, base Ordovician System	488.3	1.7	"	Conodont, lowest occurrence of Iapetognathus fluctivagus;just above base of Cordylodus lindstromi conodont Zone. Just below lowest occurrence of planktonic graptolites. Currently dated around 489 Ma	Within Bed 23 at the 101.8 m level, Green Point, western Newfoundland, Canada	Ratified 2000	Episodes 24 (1), p.19-28,
Cambrian System							
Potential GSSP correlation levels include Cordylodus proavus, Glyptagnostus reticulatus, Ptychagnostus punctuosus, Acidusus atavus, and Oryctocephalus indicus. Overview of potential subdivisions in Episodes 23 (3), p. 188-195, 2000.							
Upper Cambrian ("Furongian") Series							
upper stage(s) in Furongian	-	-	-	Potential GSSP levels in upper Cambrian are based on trilobites and condonts	-	-	-
base Paibian Stage, base Furongian Series	501.0	2.0	Radiometric ages near primary marker level. Estimated age and uncertainty only.	Trilobite, lowest occurrence of agnostoid Glyptagnostus reticulatus. Coincides with base of large positive carbon-isotope excursion	369.06 m above base of Huaqiao Fm, Paibi section, NW Hunan province, south China	Ratified 2003	Episodes article in preparation
Middle Cambrian Series							
-	513.0	2.0	Radiometric ages near primary marker level. Estimated age and uncertainty only	Potential GSSP levels in Middle Cambrian are based mainly on trilobites	-	-	-

Lower Cambrian Series							
Potential GSSP levels in Lower Cambrian are based on archaeocyatha, small shelly fossils, and to a lesser extent, trilobites							
base Cambrian System, base Paleozoic Era, base Phanerozoic Eon	542.0	1.0	U-Pb age from Oman coinciding with the negative carbon excursion	Trace fossil, lowest occurrence of Treptichnus (Phycodes) pedum. Near base of negative carbon-isotope excursion	2.4 m above base of Member 2 of Chapel Island Fm., Fortune Head, Burin Peninsula, southeast Newfoundland, Canada	Ratified 1992	Episodes 17 (1&2), p.95-100, 1994.
PROTEROZOIC Eon							
Pre-Cambrian eras and systems below Ediacaran are defined by absolute ages, rather than stratigraphic points.							
Neoproterozoic Era							
base Ediacaran System	630	-	Age suggested by Ediacaran Subcomm.; bracketed by radiometric ages of 600 and 635 Ma	Termination of Varanger (or Marinoan) glaciation.	"Base of the Marinoan cap carbonate (Nuccaleena Formation), immediately above the Elatina diamictite in the Enorama Creek section, Flinders Ranges, South Australia."	"Neoproterozoic III" (ratified 1990 with base defined chronometrically at 650 Ma) was formally replaced by Ediacaran Period and its GSSP in Feb 2004.	Episodes article in preparation
Cryogenian System	850	-	Defined chronometrically	Base = 850 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991
Tonian System	1000	-	Defined chronometrically	Base = 1000 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991
Mesoproterozoic Era							
Stenian System	1200	-	Defined chronometrically	Base = 1200 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991
Ectasian System	1400	-	Defined chronometrically	Base = 1400 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991
Calymmian System	1600	-	Defined chronometrically	Base = 1600 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991
Paleoproterozoic Era							
Statherian System	1800	-	Defined chronometrically	Base = 1800 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991
Orosirian System	2050	-	Defined chronometrically	Base = 2050 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991
Rhyacian System	2300	-	Defined chronometrically	Base = 2300 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991
Siderian System	2500	-	Defined chronometrically	Base = 2500 Ma	-	Ratified 1990	Episodes 14 (2), p.139-140, 1991

ARCHEAN Eon							
Neoarchean Era	2800	-	Defined chronometrically	Base = 2800 Ma	-	Subcomm. decision 1996, but not submitted to ICS	Informally in Episodes 15 (2), p.122-123, 1992.
Mesoarchean Era	3200	-	Defined chronometrically	Base = 3200 Ma	-	Subcomm. decision 1996, but not submitted to ICS	Informally in Episodes 15 (2), p.122-123, 1992.
Paleoarchean Era	3600	-	Defined chronometrically	Base = 3600 Ma	-	Subcomm. decision 1996, but not submitted to ICS	Informally in Episodes 15 (2), p.122-123, 1992.
Eoarchean Era		-	Base is not defined	-	-	Subcomm. decision 1996, but not submitted to ICS	Informally in Episodes 15 (2), p.122-123, 1992

Referencia:

Félix M. Gradstein, James G. Ogg, Alan G. Smith, Wouter Bleeker and Lucas J. Lourens, 2004. A New Geologic Time Slace, with special reference to Precambrian and Neogene. *Episodes*, Vol. 27, Nº2.