

1999 GEOLOGIC TIME SCALE

CENOZOIC						MESOZOIC						PALEOZOIC						PRECAMBRIAN											
AGE (Ma)	MAGNETIC POLARITY	PERIOD	EPOCH	AGE	PICKS (Ma)	AGE (Ma)	MAGNETIC POLARITY	PERIOD	EPOCH	AGE	PICKS (Ma)	UNCERT. (m.y.)	AGE (Ma)	PERIOD	EPOCH	AGE	PICKS (Ma)	AGE (Ma)	EON	ERA	BDY. AGES (Ma)								
0.01	1	TERTIARY	QUATERNARY	HOLOCENE	CALABRIAN	0.01	30	CRETACEOUS	LATE	MAASTRICHTIAN	65	±2	PERMIAN	L	TATARIAN	248	PROTEROZOIC	LATE	543										
1.8	2			PLEISTOCENE	PIACENZIAN	1.8	31				71.3	±1			UFIMIAN-KAZANIAN	252													
3.6	3		PLIOCENE	E	ZANCLEAN	3.6	32			71.3	±1	KUNGURIAN			256														
5.3	4				MESSINIAN	5.3	33			71.3	±1	ARTINSKIAN			260														
7.1	5		NEOGENE	MIOCENE	L	TORTONIAN	7.1			EARLY	ALBIAN	93.5			±4	E				SAKMARIAN	269								
11.2	6					CENOMANIAN	99.0					±1		ASSELIAN	282														
14.8	7					M	SERRAVALLIAN					14.8		L	GZELIAN					290									
16.4	8						LANGHIAN					16.4			KASIMOVIAN					296									
20.5	9						BURDIGALIAN					20.5			MOSCOWIAN					303									
23.8	10		TERTIARY	OLIGOCENE	E	AQUITANIAN	23.8			NEOCOMIAN	BASHKIRIAN	311		MIDDLE	900														
28.5	11					EARLY	APTIAN		112			±2	E			SERPUKHOVIAN	327												
33.7	12								LATE			TITHONIAN				121	±3	E	WISEAN	342									
37.0	13															MIDDLE	KIMMERIDGIAN		127	±3	L	TOURNAISIAN	354						
41.3	14																		EARLY	HAUTERIVIAN		132	±4	M	FRASNIAN	364			
49.0	15										PALEOGENE											EOCENE	L		PRIABONIAN	137	±4	DEVONIAN	GIVETIAN
54.8	16					MIOCENE	L						BARTONIAN													144	±5		
57.9	17	PALEOGENE						L	BARTONIAN			151						±6								L	EMSIA		
61.0	18											PALEOGENE				L	BARTONIAN	154			±7						M		
65.0	19																	PALEOGENE	L	BARTONIAN	159			±7					
65.0	20		PALEOGENE	L	BARTONIAN					164	±8			L	PRIDOLIAN						417								
65.0	21					PALEOGENE	L			BARTONIAN	169		±8		M						LUDLOVIAN	419							
65.0	22	PALEOGENE						L	BARTONIAN		176		±8								E	WENLOCKIAN	423						
65.0	23										PALEOGENE	L	BARTONIAN			180	±8					L	LLANDOVERIAN	428					
65.0	24															PALEOGENE	L	BARTONIAN	190	±8			E	ASHGILLIAN	443				
65.0	25		PALEOGENE	L	BARTONIAN									195					±8	L				CARADOCIAN	449				
65.0	26					PALEOGENE	L			BARTONIAN				202	±8				M					LLANDEILIAN	458				
65.0	27	PALEOGENE						L	BARTONIAN					206	±8						E			LLANVIRNIAN	464				
65.0	28										PALEOGENE	L	BARTONIAN	210	±8							L		ARENIGIAN	470				
65.0	29													PALEOGENE	L	BARTONIAN	221	±9					E	TREMADOCIAN	485				
65.0	30		PALEOGENE	L	BARTONIAN												227	±9		D				SUNWAPTAN*	490				
65.0	31					PALEOGENE	L			BARTONIAN							234	±9	C					STEPTOEAN*	495				
65.0	32	PALEOGENE						L	BARTONIAN								242	±9			B			MARJUMAN*	500				
65.0	33										PALEOGENE	L	BARTONIAN				245	±9				A		DELAMARAN*	506				
65.0	34													PALEOGENE	L	BARTONIAN	248	±10					A	DYERAN*	512				
65.0	35		PALEOGENE	L	BARTONIAN												250	±10		A				MONTEZUMAN*	516				
65.0	36					PALEOGENE	L			BARTONIAN							252	±10	A					MONTEZUMAN*	520				
65.0	37	PALEOGENE						L	BARTONIAN								254	±10			A			MONTEZUMAN*	520				
65.0	38										PALEOGENE	L	BARTONIAN				256	±10				A		MONTEZUMAN*	520				
65.0	39													PALEOGENE	L	BARTONIAN	258	±10					A	MONTEZUMAN*	520				
65.0	40		PALEOGENE	L	BARTONIAN												260	±10		A				MONTEZUMAN*	520				
65.0	41					PALEOGENE	L																						



Sources for nomenclature and ages: Primarily from Gradstein, F., and Ogg, J., 1996, *Episodes*, v. 19, nos. 1 & 2; Gradstein, F., et al., 1995, *SEPM Special Pub. 54*, p. 95–128; Berggren, W. A., et al., 1995, *SEPM Special Pub. 54*, p. 129–212; Cambrian and basal Ordovician ages adapted from Landing, E., 1998, *Canadian Journal of Earth Sciences*, v. 35, p. 329–338; and Davidek, K., et al., 1998, *Geological Magazine*, v. 135, p. 305–309. Cambrian age names from Palmer, A. R., 1998, *Canadian Journal of Earth Sciences*, v. 35, p. 323–328.