RADIOACTIVE DECAY BACKWARD CALENDAR

If time were to reverse and we went back to the past instead of continuing towards the future, when would radioactive decay make our nuclear waste harmless? This is what this calendar shows, using Carl Sagan's cosmic calendar principle to visualize unimaginably long time spans at a glance.

CALENDRIER À REBOURS DE LA DÉSINTÉGRATION RADIOACTIVE

Si le temps s'inversait et que nous retournions vers le passé au lieu de continuer vers le futur, à quel moment la décroissance radioactive rendrait-elle nos déchets nucléaires inoffensifs ? C'est ce que montre ce calendrier, en utilisant le principe du calendrier cosmique de Carl Sagan pour visualiser en un coup d'œil des périodes de temps inimaginablement longues.

CLASSIFICATION OF RADIOACTIVE DECAY

0 to 1 half-life: High-Level Activity (HLA)				
1 to 3 half-lives: Intermediate-Level Activity (ILA)	24.10E+03	15.70E+06	704.00E+06	14.05E+09
4 to 7 half-lives: Low-Level Activity (LLA)	367.00	366.58	348.38	-4.61
7 to 10 half-lives: Very Low-Level Activity (VLLA)	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Beyond 10 half-lives: Below Regulatory Concern (BRC)	1.09E+03	1.67E+00	37.23E-03	1.87E-03

ERA	DATE	Δ YEARS	PLUTONIUM 239 t1/2 = 24.1 ka	IODE 129 t1/2 = 15.7 Ma	URANIUM 235 t1/2 = 704 Ma	THORIUM 232 t1/2 = 14.05 Ga	EVENT
Cosmology	1 janv. 00:00:00	13.80E+09	0.00000000	0.00000000	0.00000126	0.50620498	Big Bang, as seen through cosmic background radiation, which would have been last emitted 14 minutes after midnight
	19 janv. 00:00:00	13.10E+09	0.00000000	0.00000000	0.00000246	0.52348902	Oldest known Gamma Ray Burst
	26 janv. 00:00:00	12.85E+09	0.00000000	0.00000000	0.00000319	0.53036887	First galaxies form[4]
	16 mars 00:00:00	11.00E+09	0.00000000	0.00000000	0.00001975	0.58112719	Milky Way Galaxy formed
	13 mai 00:00:00	8.80E+09	0.00000000	0.00000000	0.00017106	0.64752262	Milky Way Galaxy disk formed
	2 sept. 00:00:00	4.57E+09	0.00000000	0.00000000	0.01106166	0.79796194	Formation of the Solar System
	6 sept. 00:00:00	4.40E+09	0.00000000	0.00000000	0.01283771	0.80393778	Oldest rocks known on Earth
Evolution of life on Earth	14 sept. 00:00:00	4.10E+09	0.00000000	0.00000000	0.01729107	0.81602404	First known remains of biotic life (discovered in 4.1 billion-year-old rocks in Western Australia).[5][6]
	21 sept. 00:00:00	3.80E+09	0.00000000	0.00000000	0.02243826	0.82674848	First Life (Prokaryotes)[7][8][9]
	30 sept. 00:00:00	3.40E+09	0.00000000	0.00000000	0.03136824	0.84074441	Photosynthesis
	29 oct. 00:00:00	2.40E+09	0.00000000	0.00000000	0.09232654	0.88747446	Oxygenation of atmosphere
	9 nov. 00:00:00	2.00E+09	0.00000000	0.00000000	0.13904681	0.90587145	Complex cells (Eukaryotes)
	5 déc. 00:00:00	800.00E+06	0.00000000	0.00000000	0.36601353	0.95088557	First multicellular life[10]
	7 déc. 00:00:00	670.00E+06	0.00000000	0.00000000	0.39430354	0.95443946	Simple animals
	14 déc. 00:00:00	550.00E+06	0.00000000	0.00000000	0.51167958	0.96698299	Arthropods (ancestors of insects, arachnids)
	17 déc. 00:00:00	500.00E+06	0.00000000	0.00000000	0.57213486	0.97240914	Fish and Proto-amphibians
	20 déc. 00:00:00	450.00E+06	0.00000000	0.00000000	0.63973296	0.97786573	Land plants; Ordovician–Silurian extinction events
	21 déc. 00:00:00	400.00E+06	0.00000000	0.00000001	0.66399606	0.97969139	Insects and seeds
	22 déc. 00:00:00	360.00E+06	0.00000000	0.00000006	0.68917938	0.98152045	Amphibians; Late Devonian extinction
	23 déc. 00:00:00	300.00E+06	0.00000000	0.00000030	0.71531782	0.98335293	Reptiles
	24 déc. 00:00:00	250.00E+06	0.00000000	0.00000159	0.74244762	0.98518884	Permian–Triassic extinction event; 57% of all biological families and 83% of all genera die
	25 déc. 00:00:00	230.00E+06	0.00000000	0.00000842	0.77060636	0.98702817	Dinosaurs
	26 déc. 00:00:00	200.00E+06	0.00000000	0.00004471	0.79983308	0.98887093	Mammals; Triassic–Jurassic extinction event
	27 déc. 00:00:00	150.00E+06	0.00000000	0.00023733	0.83016828	0.99071714	Birds (avian dinosaurs)
	28 déc. 00:00:00	130.00E+06	0.00000000	0.00125973	0.86165400	0.99256679	Flowers
Human evolution	30 déc. 00:00:00	65.00E+06	0.00000000	0.03549271	0.92825320	0.99627646	Primates
	30 déc. 06:24:00	65.00E+06	0.00000000	0.05539287	0.93751364	0.99677213	Cretaceous–Paleogene extinction event, non-avian dinosaurs die out[11]
	31 déc. 06:05:00	28.00E+06	0.00000000	0.28762013	0.97259281	0.99860851	Apes
	31 déc. 14:24:00	12.30E+06	0.00000000	0.51289424	0.98522016	0.99925418	Hominids
	31 déc. 22:24:00	2.50E+06	0.00000000	0.89468736	0.99752139	0.99987566	Primitive humans and stone tools
	31 déc. 23:44:00	400.00E+03	0.00000566	0.98162411	0.99958647	0.99997928	Domestication of fire
	31 déc. 23:52:00	200.00E+03	0.00237874	0.99076945	0.99979321	0.99998964	Anatomically modern humans
	31 déc. 23:55:00	110.00E+03	0.02292011	0.99422088	0.99987075	0.99999352	Beginning of most recent Glacial Period
	31 déc. 23:58:00	35.00E+03	0.22084454	0.99768433	0.99994830	0.99999741	Sculpture and painting
	31 déc. 23:59:32	12.00E+03	0.70299714	0.99945920	0.99998794	0.99999940	Agriculture
History begins	31 déc. 23:59:33	12.00E+03	0.71190083	0.99947851	0.99998837	0.99999942	End of the last Ice Age
	31 déc. 23:59:41	8.30E+03	0.78731234	0.99963299	0.99999181	0.99999959	Flooding of Doggerland
	31 déc. 23:59:46	6.00E+03	0.83844925	0.99972956	0.99999397	0.99999970	Chalcolithic
	31 déc. 23:59:47	5.50E+03	0.84906849	0.99974888	0.99999440	0.99999972	Early Bronze Age; Proto-writing; Building of Stonehenge Cursus
	31 déc. 23:59:48	5.00E+03	0.85982223	0.99976819	0.99999483	0.99999974	First Dynasty of Egypt, Early Dynastic period in Sumer, beginning of Indus Valley civilisation
	31 déc. 23:59:49	4.50E+03	0.87071216	0.99978751	0.99999526	0.99999976	Alphabet, Akkadian Empire, wheel
	31 déc. 23:59:51	4.00E+03	0.89290756	0.99982614	0.99999612	0.99999981	Code of Hammurabi, Middle Kingdom of Egypt
	31 déc. 23:59:52	3.50E+03	0.90421654	0.99984546	0.99999655	0.99999983	Late Bronze Age to early Iron Age; Minoan eruption
	31 déc. 23:59:53	3.00E+03	0.91566874	0.99986477	0.99999698	0.99999985	Iron Age; beginning of classical antiquity
	31 déc. 23:59:54	2.50E+03	0.92726600	0.99988409	0.99999741	0.99999987	Buddha, Mahavira, Zoroaster, Confucius, Achaemenid Empire, Qin dynasty, Classical Greece, Ashokan Empire, Vedas comp
	31 déc. 23:59:55	2.00E+03	0.93901013	0.99990341	0.99999785	0.99999989	Ptolemaic astronomy, Roman Empire, Christ, invention of numeral 0, Gupta Empire
	31 déc. 23:59:56	1.50E+03	0.95090301	0.99992272	0.99999828	0.99999991	Muhammad, Maya civilization, Song dynasty, rise of Byzantine Empire
	31 déc. 23:59:58	1.00E+03	0.97514256	0.99996136	0.99999914	0.99999996	Mongol Empire, Maratha Empire, Crusades, Christopher Columbus voyages to the Americas, Renaissance in Europe, Classi
	31 déc. 23:59:59	500.00E+00	0.98749307	0.99998068	0.99999957	0.99999998	Modern History; the last 437.5 years before present.
	1 janv. 00:00:00	0.00E+00	1.00000000	1.00000000	1.00000000	1.00000000	Today