

## Alphabetical Index

- absorption spectrum **116**, 118  
 Adams, Douglas.....126  
 adaptive radiation.....36  
 Agassiz.....  
 ice age theory...50, 75, 98, 145  
 Lake.....94  
 Louis.....49, 62, 94  
 air showers.....**127**, 131  
 albedo.....104  
 Alvarez.....  
 KT Extinction Theory. 42  
 Luis.....41  
 Walter.....41  
 anaerobic organisms.....36  
 Anaxagoras.....109  
 Andrewsarchus.....43  
 Anschluss.....124  
 AR4..14, 16, 18, 177, 197, 214  
 archaea.....35, 46  
 Archean Eon.....34, 50  
 Archimedes of Syracuse...**139**, 243  
 argument from authority... 148  
 Aristotle.....108  
 Asimov, Isaac.....139, 144  
 astronomical unit.....125  
 atomic number.....156  
 Axial Obliquity.....101  
 Aztecs.....107  
 backcasting.....20  
 Bacon, Roger.....**141**  
 Becquerel, Antoine Henri. 121  
 Beer's Law.....118  
 beta decay.....157  
 Big Bone Lick, Kentucky. 59  
 biofuels.....213, **214**  
 Bison.....69  
 black holes.....**111**  
 black-body radiation.. **110**, **115**  
 blue-green alga.....35  
 Book of Han.....107  
 Broecker, Wallace 94, **100**, 103, 160  
 brown clouds.....84, 149, 223  
 Bruno, Giordano.....109  
 Buffon, Georges-Louis Leclerc de.....59  
 butterfly effect.....173  
 Calder, Nigel.....131  
 Callendar, G. S.....11  
 Cambrian Explosion...37  
 Cambrian Period.....38  
 CAMP.....**66**, 92  
 carbon budget.....83  
 Carbon Cycle, The.....79  
 carbon dioxide.....118  
 carbon dioxide.....  
 as dissolved gas.....81  
 carbon dioxide.....**78**  
 commercial uses.....79  
 emissions.....77  
 sources of.....76  
 volcanic release of..82  
 carbon sinks.....80  
 carbon tax.....239  
 Carbon-14.....157  
 Carboniferous Period...39, 132  
 Carter, Jimmy.....213  
 catastrophism.....62  
 cave painting.....49  
 Celsius.....  
 Anders.....151  
 temperature scale..151  
 Cenozoic Era.....42  
 Cerenkov radiation....127  
 Chandrasekhar.....  
 Chandrasekhar Limit... 110, 111  
 Subrahmanyan.....111  
 chaos theory.....170  
 Chernobyl.....234  
 Chicxulub asteroid.....66  
 Chicxulub Event.....42  
 China Syndrome.....234  
 Christy, John.....153  
 Churchill, Winston....197  
 Cladistics.....64  
 Clark, William.....59  
 class.....64  
 clathrates.....224  
 coal.....6, 76  
 consumption.....222  
 fires.....223  
 formation.....39  
 mining deaths.....224  
 Compton, Arthur.....**123**  
 consensus.....147  
 Copernicus, Nicolaus 98, **108**, 142, 146, 243  
 Coral reefs.....41  
 cosmic rays.....121  
 Cretaceous Period.41, 132  
 Croll-Milankovitch  
 Cycles .57, **101**, 137, 145, 159  
 Croll, James.....**98**  
 Cryogenian Period .52, 85  
 Cummings, E. E.....49  
 Cuvier, George.....**61**  
 Cuyahoga River.....194  
 cyanobacteria.....35, 52  
 Danish National Space Center.....130  
 Dark Ages Cold Period... 26  
 DARPA.....238  
 Darwin, Charles.....59, 60, 102  
 Degree of confidence . 16  
 Devonian Period.....39  
 Diapsids.....64  
 dinosaurs.....64  
 Doctor of Philosophy. 144  
 Dodo bird.....70  
 domain.....35, **64**  
 Dome Concordia.....161  
 Doppler effect.....116  
 Dostoevsky, Fedor.....4  
 Dyson, Freeman.....178  
 Earth.....74  
 Energy Budget.....117  
 Eemian.....24  
 Einstein.....  
 Albert.....243  
 general relativity..111  
 photoelectric effect..... 115  
 Theory of Relativity.... 143  
 version of Ockham's  
 Razor.....146  
 El Niño-Southern  
 Oscillation....**45**, 93, 105, 154  
 electromagnetic radiation. 73  
 electron degeneracy  
 pressure.....110  
 emergent behavior.....170  
 Emiliani, Cesare...30, 159  
 ENSO.....154  
 Eocene Epoch.....42  
 epicycles.....146  
 erratic boulders.....49  
 Error.....  
 propagation.....171  
 representational ...171  
 roundoff.....171  
 eukaryotes.....37  
 event horizon.....111  
 exponential decay.....157  
 extensive air shower  
 (EAS).....127  
 Extinction.....  
 Chicxulub Event....42  
 Cretaceous-Tertiary.41  
 Early-Cambrian.....65  
 End-Cretaceous.....65  
 End-Ordovician.....65  
 End-Triassic.....65  
 KT.....42, 65, 66  
 Late-Devonian.....65  
 Ordovician.....52  
 Permian-Triassic...40, 55, 65  
 Fahrenheit.....  
 Gabriel.....151  
 temperature scale..151  
 Faint Young Sun Paradox. 113  
 falsifiability criterion..147  
 family.....64  
 feedback mechanisms **74**, 104, 147  
 femtosecond.....168  
 firm.....161  
 flood basalts.....55  
 flywheel.....231  
 Fonda, Jane.....234  
 foraminifera.....158  
 Fourier.....  
 Fourier Series.....75

Fourier Transform...75	William.....74	Garner.....148	Messinian Salinity Crisis..
Jean Baptiste Joseph....	Hess, Harry Hammond. 88	Jupiter...74, 108, 109, 124	45
11, <b>75</b>	Hess, Victor Franz.....122	Jurassic Period.....41	methane.....84
Fourth Assessment	Hipparchus of Nicaea...98	Karoo Ice Age..... <b>52</b> , 158	Methane hydrate..... <b>224</b>
Report..... <b>14</b> , 177	hockey stick...14, 29, 144,	Kennedy, John F.....59	Mid-Atlantic Ridge..... <b>91</b>
France, Anatole.....148	155, <b>163</b>	Kepler.....146	Milankovitch, Milutin. 99
Fricke, Henry C.....157	Hoffman, Doug L.....167	Johannes.....109, 146	Milky Way..... <b>133</b>
Friis-Christensen, Eigil...129	Holocene Climate	Kepler's nova.....126	Millikan, Robert.....123
Galileo Galilei... <b>108</b> , 109,	Maximum..... <b>25</b>	theory of planetary	Miocene Epoch.....44
151	Holocene Epoch.... <b>24</b> , 46	motion.....146	mister fusion.....230
Galvani, Luigi.....145	Homo sapiens sapiens. 46,	Kiehl, Jeff.....166	MOC.....18, <b>93</b>
Garner, John "Cactus	<b>64</b> , 243	Killer Fog.....223	molecular dynamics
Jack".....148	Hubble Space Telescope. .	kingdom.....64	simulation (MD).....167
General Motors.....229	126	Kirschvink, Joseph L...51	Monticello.....59
genome.....70	Huber, Matt.....165	Köppen, Wladimir.....100	moraines.....49
genus.....64	Hudson Canyon..... <b>25</b> , 53	Kuhn, Thomas.....147	morphology.....64
Geologic Time.....34	Humboldt.....	Kyoto Protocol.....5	Mount Pinatubo.....55
Geostationary Earth Orbit	Alexander von.....103	Large Magellanic Cloud...125	Mount St. Helens.....55
(GEO).....237	Current.....86	level of scientific	muon.....128
geothermal...75, 213, <b>216</b>	Friedrich von.....85	understanding.....18	Napoleon Bonaparte....28
giant impact theory.....33	Hurricane models.....169	Lewis, Meriwether.....59	Napoléon Bonaparte....62
GISS modelE..... <b>174</b>	hybrid.....	Libby, Willard.....157	NASA.....11, 80, 83, 114,
glacial drift..... <b>50</b> , 99	full.....228	Lindzen, Dick.....165	152, 155, 163, 179, 182,
glacial period.....24	Mesozoic Era.....40	Little Ice Age..... <b>27</b> , 114,	183
glaciologists.....23	parallel.....229	137, 157	Neanderthal.....64
global climate models...20	plugin.....228	Lomborg, Bjørn.....20	Neogene Period..... <b>44</b>
global warming.....1	power assist.....228	Lorenz, Edward.....170	Neoproterozoic Era....50
Gondwana.....39, 52	series.....229	Luddites.....192	Neptune.....74
Grand Coulee Dam....215	hydroelectric..... <b>215</b> , 216	Lyell, Charles..... <b>63</b> , 98	neutron-degenerate matter
Grande Coupure.....43	hydrogen.....240	Macdougall, Doug.....53	.....111
Great Bombardment <b>33</b> ,	ice age..... <b>23</b>	magnetometers.....88	névé.....161
89	Ice Ages.....	Mammoth.....49, <b>60</b> , 69	Nile River..... <b>119</b>
great ocean conveyor belt.	Clovis people.....68	mantle.....89	NIMBUS..... <b>152</b>
18, <b>93</b> , 94, 173	Karoo.....55	Mars.....73, 146	North Star.....102
Greater Bilby.....70	Permo-Carboniferous. .	Marsh, Nigel.....130	novae.....109, <b>125</b>
greenhouse effect... <b>74</b> , 76	40, 85	Mastodon..... <b>61</b> , 68, 69	nuclear fission.....157
Greenland Ice Sheet	Pleistocene 42, <b>45</b> , <b>53</b> ,	Mauder Minimum 27,	nuclear power....213, 233
(GIS).....178	68	<b>113</b>	Ockham.....
Gulf Stream..... <b>93</b>	Pleistocene Ice.....46	Mauder, Edward W.. 114	Ockham's Razor...145
Hadean Eon.....34	insolation.....25	McIntyre, Steven.....155	William of.....145
Haff, Peter.....169	interglacial period.....24	Medieval Warm Period...25, <b>26</b> , 29, 137, 164	Ohio Animal, The.....59
half-life.....157	Intergovernmental Panel	Medvedev, Mikhail V.....137	Oligocene Epoch.....43
Hamming, Richard W.....169	on Climate Change.....12	Meg Urry.....1, 9, 142	Oppenheimer, Michael....177
Hanel, Rudolf..... <b>152</b>	ion initiated nucleation....149	Megatherium.....61	Orbital Eccentricity...101
Hansen, James....155, 166	IPCC.....5, 12, 178, 213	Mer de Glace.....28	order.....64
Hapi.....119	Working Group II . 16	Mercury.....1, 86	Ordovician Period.....38
Hawking, Stephen.....95	Working Group III.....213	meridional overturning	Ötzi the Iceman.....24
Helmholtz Contraction....113	IRIS.....152	circulation.....18	Oxygen Catastrophe.... <b>35</b>
Herschel, Frederick	Jefferson, Thomas.....59	Mesonyx.....43	ozone...1, 11, 19, <b>36</b> , 115,
	John "Cactus Jack"		149, 152
			Paleocene Epoch.....42

Paleocene-Eocene Thermal Maximum.....71	Ring of Fire..... <b>90</b> , 216	stromatolites.....40	toy armada.....95
Paleocene-Eocene Thermal Maximum (PETM)..... <b>42</b>	Rodinia..... <b>50</b> , 85	stromatolites,.....35	Triassic Period.....40
Paleogene Period.....42	Roentgen, Wilhelm.....121	subduction.....85, <b>90</b>	Trilobite.....38
Paleoindians.....69	Roman Warm Period...25, 26, <b>29</b>	sunspots..... <b>107</b> , <b>113</b> , 114	Twain, Mark.....167
Paleozoic Era.....38	Ruedy, Reto.....155	Sunspots.....114	Tyndall, John.....75, 105
Pangaea.....40, 92	Sagan, Carl. 113, 120, 213	sunspots,.....27	uniformitarianism.....63
paradigm shift.....147	Santorio, Santorio.....151	Supernova.....	United Nations Environment Programme..12
Pasteur, Louis.....144	Saturn.....35, 74, 152	definition..... <b>111</b>	Universe....111, 121, 125
Pauli exclusion principle. .110	Schwabe, Samuel Heinrich.....113	energy released....125	uranium.....122
Peirce, Charles S.....147	Schwarzschild radius..111	nearby.....1	Uranium.....157
Permian-Triassic Extinction.....158	scientific method. .8, 138, 141, 142, 144	SN 1987A.....126	Uranus.....74
PETM..... <b>42</b> , 119, 224	Scientific Method..... <b>142</b>	Svante Arrhenius.... <b>11</b> , 76	Urey, Harold.....159
Phanerozoic Eon.....37	Serendipity.....144	Svensmark, Henrik <b>129</b> , 130, 136	US forest cover.....83
photodisintegration....126	Shakespeare.....119	TAR.....13, 177	varve.....156
phylogenetic tree.....64	Shaviv, Nir.....131, 136	taxa.....64	Venus.....1, 73, 118
phylum.....64	Siberian Traps.....55	taxonomy.....64	VHEMT.....191
pion.....129	Silurian Period.....38	tectonic plates.....91	Voltaire.....151
Planck, Max..... <b>115</b>	Simmons, Allen.....152	Tennekes, Hendrik....177	von Braun, Wernher...145
Plank curve.....110, 115	Skobelzyn, D. V.....123	Tertiary Period.....42	Walpole, Horace.....144
Plass, Gilbert.....11	Snowball Earth 50, <b>51</b> , 52, 57	The Chilling Stars.....131	Walpole, Horace.....144
Plate Tectonics.....85, <b>89</b>	solar energetic particles....121	thermometer 14, 74, 145, <b>151</b> , 163	water vapor.....75, 78
Pleiades.....134	solar energy. 45, 101, 104, <b>219</b>	thermoscope.....151	Wegener Institute.....162
Pleistocene Ice Age....45, 46, 48, <b>53</b> , 57	solar power satellite....237	Third Assessment Report. <b>13</b> , 15, 163	Wegener, Alfred. <b>86</b> , 100, 145, 147, 162
pollen.....156	Solar Spectrum.....115	Thoreau, Henry David. 97	Western Antarctic Ice Sheet (WAIS).....178
Pope John Paul II.....73	Space Shields.....5	Three Gorges Dam....215	wind power..... <b>217</b>
Pope Urban VIII.....108	species.....64	Three Mile Island.....234	winding dilemma.....134
Popper, Karl.....146	spectrophotometer.....76	three pillars of science 7, 149	World Meteorological Organization.....12
Precession of the Equinoxes.....101	spiral arms.....134, 135	thunderstorms.....120	Younger Dryas.... <b>94</b> , 156
prokaryotes.....35	Standard Mean Ocean Water (SMOW).....160	tillite..... <b>50</b> , 132	Yukawa's meson.....128
Proterozoic Eon.....35	Star.....	time step.....168	
proxy data.....15, 47, 120, 151, <b>156</b> , 161, 162, 163	gamma-ray bursters,....109		
Pterodactyls.....41	main-sequence.....109		
Ptolemy.....98, <b>146</b>	neutron star.....111		
Puerto Rico Trench.....92	pulsars.....109		
Quaternary Period.....42	quasars.....111		
radiative efficiency....117	red giant....1, 110, 244		
radioactive—.....122	The Sun.....112		
radiosonde. 151, <b>153</b> , 162	type G dwarf.....112		
Randi, James “The Amazing”.....139	white dwarf.....1, 110		
rectenna.....237	X-ray binaries.....109		
regenerative braking...228	Stellar Evolution.....109		
retrograde motion.....146	Stevens, Wallace.....107		
Revelle, Roger..... <b>11</b> , 12	Storegga submarine landslide.....224		