

1. Record Nr.	UNINA9910959197103321
Autore	Volk Tyler
Titolo	CO rising : the world's greatest environmental challenge / / Tyler Volk
Pubbl/distr/stampa	Cambridge, MA, : MIT Press, c2008
ISBN	9780262265010 026226501X 9780262285612 0262285614 9781435665408 1435665406
Edizione	[1st ed.]
Descrizione fisica	1 online resource (242 p.)
Disciplina	363.738/74
Soggetti	Atmospheric carbon dioxide - Environmental aspects Carbon cycle (Biogeochemistry) Carbon dioxide
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Contents -- Preface -- Acknowledgments -- 1 Introducing the CO ₂ Molecule and Its Carbon Atom -- 2 From a Molecule in Beer to the Great Cycle of Carbon in the Biosphere -- 3 The Worldwide Increase of CO ₂ -- 4 Fossil-Fuel Carbon Atoms Join the Biosphere -- 5 Carbon's Fluxes and Its Rate of Increase -- 6 Time Capsules in Ice -- 7 Wealth, Energy, and CO ₂ -- 8 How High Will the CO ₂ Go? -- 9 Reininng In the CO ₂ Increase -- 10 The Ultimate Fates of Our Carbon Atoms -- Notes -- Index.
Sommario/riassunto	An introduction to the global carbon cycle and the human-caused disturbances to it that are at the heart of global warming and climate change. The most colossal environmental disturbance in human history is under way. Ever-rising levels of the potent greenhouse gas carbon dioxide (CO ₂) are altering the cycles of matter and life and interfering with the Earth's natural cooling process. Melting Arctic ice and mountain glaciers are just the first relatively mild symptoms of what will result from this disruption of the planetary energy balance. In CO ₂

Rising, scientist Tyler Volk explains the process at the heart of global warming and climate change: the global carbon cycle. Vividly and concisely, Volk describes what happens when CO₂ is released by the combustion of fossil fuels (coal, oil, and natural gas), letting loose carbon atoms once trapped deep underground into the interwoven web of air, water, and soil. To demonstrate how the carbon cycle works, Volk traces the paths that carbon atoms take during their global circuits. Showing us the carbon cycle from a carbon atom's viewpoint, he follows one carbon atom into a leaf of barley and then into an alcohol molecule in a glass of beer, through the human bloodstream, and then back into the air. He also compares the fluxes of carbon brought into the biosphere naturally against those created by the combustion of fossil fuels and explains why the latter are responsible for rising temperatures. Knowledge about the global carbon cycle and the huge disturbances that human activity produces in it will equip us to consider the hard questions that Volk raises in the second half of CO₂ Rising: projections of future levels of CO₂; which energy systems and processes (solar, wind, nuclear, carbon sequestration?) will power civilization in the future; the relationships among the wealth of nations, energy use, and CO₂ emissions; and global equity in per capita emissions. Answering these questions will indeed be our greatest environmental challenge.
