



DEEP CARBON EXPLORERS:

CALL FOR SUGGESTIONS

This is a handy list of people and their research that will feature in *Carbon from Crust to Core*, an academic history of science project that is documenting the people, institutions, ideas, and observations of deep carbon science. Suggestions for additional names are most welcome: sam11@cam.ac.uk. This project is generously supported by the Alfred P. Sloan Foundation. Publication of the book is scheduled for September 2019.

Revised 30 September 2017

Abelson	Phil Abelson - early research on clumped isotopes
Agricola	Georgius Agricola (Georg Bauer) (1494–1555), German naturalist and 'Father of Mineralogy'
Anderson	Don Anderson - pioneer of analysis of CO ₂ -carbon dissolved in magmas (melt inclusions)
Bailey	Ken Bailey , for describing the first deep carbonate minerals and showing that their surface manifestation of deep carbon is not related to current models for plate tectonics or plumes
Balkwill	David Balkwill - DOE Subsurface Science Program.
Barnes	Yvan Barnes (USGS) - pioneering recognition of worldwide coincidence between igneous carbon emissions and active tectonic and volcanic regions
Beysac	Olivier Beysac - metamorphic carbonaceous matter erosion and deposition
Boetius	Antje Boetius , seafloor methane and other deep life discoveries
Bridgman	Percy Williams Bridgman (1882–1961), application of high pressure physics to mineralogy

Buffon	Georges-Louis Leclerc, Comte de Buffon (1707–88), Age of the Earth, heat loss from interior
Bullard	Edward (Teddy) Bullard – geodynamo, continental drift
Cartigny	Pierre Cartigny - how do diamonds form in the mantle?
Cragg	Barry A. Cragg - Cell counts and other work conducted by Parkes and Cragg was essential for the discovery of microbial life in the deep seafloor).
Cuvier	Georges Cuvier (1769–1832), major figure in establishing palaeontology in Paris, catastrophism
D'Hondt	Steven L. D'Hondt - pioneer of deep biosphere research in the marine realm. D'Hondt and Jørgensen were co-chief scientists of ODP Leg 201, i.e. the first scientific drilling initiative dedicated to the deep marine biosphere. ODP Leg 201 was probably the most important trigger for the development of the field.
Dawson	Barry Dawson for connecting carbon in the Earth, to ancient carbon in diamond and kimberlite, with the long trajectory leading to the young carbonate volcano (Oldoinyo Lengai) in the East African Rift: he wrote the most recent and best memoir on the Gregory Rift, not long before he died.
Denies	Peter Denies - for leading the effort to use diamonds to understand deep carbon.
Dubrovinski	Leonid Dubrovinsky - ultra-high pressure high temperature crystallography of C-bearing phases (e.g. diamonds, carbonates, carbides etc.)
Ebelmen	Jacques Joseph Ebelmen in the 1840s wrote the seminal papers on the carbon cycle with his carbon rotation theory
Edwards	Katrina J. Edwards (1968–2014) a pioneering geomicrobiologist who initiated early investigations into microbes that live beneath the seafloor. https://www.frontiersin.org/articles/10.3389/fmicb.2017.01368/full

Epstein	Sam Epstein - pioneer stable isotope geochemist who developed numerous methods to measure carbon isotopes of many forms of carbon
Eugster	Hans Eugster - developed methods to quantify thermodynamic properties of C-O-H fluids
Fei	Yingwei Fei , - potential role of iron carbide the Earth core Mario Santoro , high pressure physics and chemistry
Fourier	Joseph Fourier (1768–1830), Analytical theory of heat to be applied to finding Age of the Earth
Fredrickson	Jim Fredrickson - DOE subsurface science program, metabolic activities of continental subsurface microbes. http://www.pnnl.gov/science/staff/staff_info.asp?staff_num=5738 Fredrickson JK, and M Fletcher. 2001. Subsurface Microbiology and Biogeochemistry. Wiley-Liss, New York, NY).
Fukao	Yoshio Fukao geodynamics of subducted slabs
Galimov	Yu Galimov - for leading the effort to use diamonds to understand deep carbon.
Galli	Giulia Galli important contributions to deep carbon science via her state-of-the-art molecular dynamics simulations.
Galvez	Matthieu Galvez has meticulously researched the early history of the origins of the carbon cycle concept
Ghirose	Bill Ghirose wcg1@cornell.edu DOE Subsurface Science Program he discovered the abundant and diverse microbial biodiversity in the continental subsurface
Giggenbach	Werner Giggenbach evolution of C-O-H fluids in hydrothermal systems developed the standard volcanic gas sampling methods used in the late 1970's, and led research linking volcanic gas outputs to subduction
Gilbert	William Gilbert (1544–1603), geomagnetism, first to suggest Earth has an iron core

Gold	Thomas Gold (1920–2004) deep drilling Sweden abiotic hydrocarbons, primordial methane
Goldschmidt	Victor M. Goldschmidt (1888 - 1947), whose classification of the behaviour of the elements in the Earth and meteorites laid the basis of modern geochemistry.
Green	David Green - petrologist who explored the fundamental roles that very small contents of carbon and hydrogen (as water, methane, diamond or graphite, and carbon dioxide) play in the mineralogy and melting characteristics of the Earth
Hall	Howard Tracy Hall - recognized as first developer of methods to synthesize synthetic diamonds in 1954
Halley	Edmond Halley (1656–1742) Geomagnetism, observation and theory, theory of hollow Earth, appeals for crowd sourced data.
Hayes	John M. Hayes jhayes@whoi.edu - pioneered developments in compound-specific stable-isotope analyses and contributed to the field with insights into the development of the global carbon cycle over geologic time). http://www.whoi.edu/nosams/page.do?pid=50996&tid=282&cid=74886
Hazen	Bob Hazen - an early pioneer in high-pressure crystallography
Helgeson	Harold Helgeson - developed thermodynamic basis for calculating the properties of minerals, aqueous species and volatiles as a function of temperature and pressure
Hemley	Rus Hemley is an acknowledged leader in high-pressure research including geophysical research.
Hess	Harry Hess (1906–1969) , sea-floor spreading 1960
Holmes	Arthur Holmes
Hooke	Robert Hooke (1635–1703), improvement of the microscope, study of thin sections
Hoyle	Fred Hoyle – carbon and nucleosynthesis

Hutton	James Hutton (1726–97), uniformitarianism, concept of deep geologic time
Inagaki	Fumio Inagaki , science and technology of exploring life through ocean drilling
Jeffries	Harold Jeffries (1891–1989), Earth’s outer core is molten
Jørgensen	Bo B. Jørgensen - pioneer of deep biosphere research in the marine realm. D’Hondt and Jørgensen were co-chief scientists of ODP Leg 201, i.e. the first scientific drilling initiative dedicated to the deep marine biosphere. ODP Leg 201 was probably the most important trigger for the development of the field.
Kant	Immanuel Kant (1724–1804) Three treatises on the Lisbon Earthquake (published 1756). Suggested that earthquakes have a natural cause, and his work is the beginnings of seismology
Keeling	David Keeling – measuring atmospheric carbon dioxide at Mauna Loa Observatory from 1958
Lavoisier	Antoine Laurent Lavoisier (1743–94). Explains combustion, carbonic acid (1781). Describes respiration as slow combustion
Lehmann	Inge Lehmann (1888–1993). Discovered solid inner core (1936). Lived 104 years, a record for a woman scientist
Le Pichon	Xavier Le Pichon (1937, Vietnam). Comprehensive model of plate tectonics (1968), who showed the theory could account for the evolution of ocean basins
Lollar	Barbara Sherwood Lollar , deep and old Hydrogen
Lonsdale	Kathleen Lonsdale - a trailblazing scientist (crystallographer) who worked on many carbon-related structures (notably benzene).
Lyell	Charles Lyell (1797–1875), <i>Principles of Geology</i> , and, uniformitarianism
Martinez	Isabelle Martinez - abiotic CO ₂ reduction into solid carbon in the oceanic crust.

Matthews	Drummond Matthews and Frederick Vine – 1963 seafloor spreading and continental drift
Matuyama	Motonori Matuyama (October 25, 1884 – January 27, 1958) was a Japanese geophysicist who was the first to surmise that the Earth's magnetic field had undergone reversals in the past.
McGammon	Catherine McCammion - Properties and processes within the mantle
McKenzie	Dan McKenzie – principles of plate tectonics, convection in the mantle, sedimentary basins
Menez	Bénédicte Menez - biotic and abiotic reduced carbon in serpentines, hidden carbon on seafloor
Morgan	(William) Jason Morgan (1935) plate tectonics, Princeton. Doctoral advisor Robert Dicke
Nestola	Fabrizio Nestola - research on the formation of diamonds and their trapped inclusions.
Onstott	Tullis Onstott , microbiology of deep subsurface using bore holes in deep mines
Parkes	R. John Parkes - Cell counts and other work conducted by Parkes and Cragg was essential for the discovery of microbial life in the deep subseafloor). http://www.sciencedirect.com/science/article/pii/S0025322714000425 .
Pedersen	Karsten Pedersen , Swedish subsurface deep drilling programme
Phelps	Tommy J. Phelps - DOE Subsurface Science Program, instrumental in devising the methods used in collecting representative samples from the continental subsurface. Transferred same methods to marine sampling ODP (now IODP).
Rhodes	Cecil Rhodes - consolidation of 100s of small claims enables deep mining in kimberlites

Ringwood	Ted Ringwood - pioneer petrologist whose work paved the way for us to understand the mineralogical constitution of the Earth's mantle
Sedgwick	Adam Sedgwick (1785–1873), Devonian system (with Roderick Murchison)
Shoemaker	Gene Shoemaker , through his life and death study of meteorite impacts still tragically undervalued by the Earth science community, gives us a planetary perspective of our precious carbon-rich planet.
Smith	William Smith (1769–1839), stratigraphy, made first geological map on a national scale
Sverjensky	Dimitri Sverjensky - Deep Earth Water model that has revolutionized deep fluids
Toit	Alexander du Toit (1878–1948), correlation between South America and South Africa
Treibs	Alfred E. Treibs (1899 – 1983) was a German organic chemist who is credited with founding the area of organic geochemistry)
Tuzo-Wilson	John Tuzo Wilson (1908–93), mantle hot-spots (1963) and transform faults. Achieved worldwide acclaim for contributions to plate tectonics. Wilson Cycle and subduction
Vine	Drummond Matthews and Frederick Vine – 1963 seafloor spreading and continental drift
Wegner	Alfred Wegener (1880–1930), continental drift
Werner	Abraham Gottlob Werner (1749–1817), foundation of mineralogy and systematic stratigraphy
Wobber	Frank Wobber - visionary DOE program manager in 80's and 90's. Doe Report of 1986 refers Together with Bill Ghiorse wcg1@cornell.edu DOE Subsurface Science Program he discovered the abundant and diverse microbial biodiversity in the continental subsurface

Wood	Bernard Wood - proposed iron carbide as a component of Earth's inner core
Wyllie	Peter Wyllie , godfather of the petrology of melted carbonate at high pressure and hence the origin of carbonate melt, and thereby requiring solid carbonate minerals in the mantle (subsequently found).
ZoBell	Claude ZoBell - pioneering marine subsurface scientist; important as discoverer of biofilms; abundance of subsurface life; sulfate reducing bacteria.