

Introductory Editorial

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“History of Geo- and Space Sciences” Board of Editors

The Editorial Board is pleased to present the first issue of the journal “History of Geo- and Space Sciences”.

The journal’s scope is to document historical facts and knowledge, to reconstruct the history of important ideas, to integrate related concepts into new perspectives, and to improve awareness of the history of geoscience. The idea was to establish a journal for publications dealing with historical questions and aspects of geosciences which should include all related fields from the Earth’s core, mantle, lithosphere, ocean, and cryosphere to the atmosphere and near-Earth space, encompassing along the way geology, geodesy, hydrology, marine science, meteorology, and seismology. We hope that the contributions of our first volume will be regarded as a promising step in this direction.

Science is made of ideas. The history of ideas is the key to understanding and validating our cognitive approach. History is a basis for the progress of science.

The cover of our new journal was designed to honor a number of famous geoscientists. We are well aware that this selection is quite subjective, and we therefore plan to change the individual pictures from time to time, but keeping the overall layout. Suggestions are welcome!

The following should serve as a very brief introduction to the life and achievements of eminent geoscientists featured on the present cover.

Upper row:

Kristian Olaf Bernhard Birkeland (1867–1917), Norwegian geophysicist and engineer, since 1898 Professor at the University of Kristiania (now Oslo). He became famous for his aurora simulations with the help of a magnetized sphere (“terrella”) in a vacuum tank, and organized several Norwegian polar expeditions. With his observations and interpretations of Earth’s magnetic field disturbances he laid the foundation of magnetospheric physics. Besides his auroral research he was a successful engineer, developing a

process to manufacture artificial fertilizer (Birkeland-Eyde process) and founded the company Norsk Hydro. He was nominated seven times for the Nobel Prize but never received it (see also article by Egeland, A. and Burke, W. J.: Kristian Birkeland’s pioneering investigations of geomagnetic disturbances, *Hist. Geo Space. Sci.*, 1, 13–24, doi:10.5194/hgss-1-13-2010, 2010.).

Gregorius Agricola (1494–1555), German scholar. He studied medical science and pharmacy in Leipzig, but was universally educated and also studied in philology, history, geology and mining as well as being “Bürgermeister” (mayor) of Chemnitz/Saxonia. His principal work “De re metallica libri XII” (twelve books on metallurgy) was the first systematic technological treatise of mining and metallurgy with many instructive illustrations. For several centuries this book was “the” standard work for mining. It also gained him the title “father of mineralogy”. An English translation of the book was provided 1912 by Herbert Hoover, mining engineer and later President of the United States, and his wife.

Inge Lehmann (1888–1993), Danish seismologist. She studied mathematics in Copenhagen and Cambridge, became interested in seismology and became eventually head of the department of Seismology of Geodetical Institute of Denmark. She was the first to interpret correctly P waves as reflections from an “inner core”, leading to a new concept of the Earth interior, with an inner and an outer core having different physical properties. Later she discovered another seismic discontinuity at a depth between 190 and 250 km, usually referred to as “Lehmann discontinuity”. She received many honors for her outstanding scientific achievements, among them being the first woman to receive the William Bowie Medal, the highest honor of the American Geophysical Union.



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Milutin Milankovic (1879–1958), Serbian mathematician, geophysicist and astronomer. He studied at the Technische Hochschule in Vienna, graduated as a civil engineer and earned a doctorate in technical sciences. As a civil engineer he built dams, bridges and other structures in reinforced concrete. After accepting a chair of mechanics, celestial mechanics and theoretical physics at the University of Belgrade he developed his theory of the secular motions of the Earth's poles and of glacial periods known as "Milankovic cycles". His theory was only fully accepted after his death after similar cycles were found in deep-sea sediments.

Lower row:

Alexander von Humboldt (1769–1859), German scholar, naturalist and explorer. As a truly universal genius educated at several universities in Germany, his interest spanned from astronomy, meteorology, and geology to paleontology, botany, zoology, ethnology, linguistics and history. After several scientific expeditions (within Europe, to South and North America and Central Asia), he published the results in numerous papers, and he summarized the natural science knowledge of the time in his famous, five-volume book "Kosmos", in his own words "a sketch of the physical description of the universe". He maintained a vivid correspondence with many eminent scholars of his time, 12 500 letters of which are archived.

Sir Edward Victor Appleton (1892–1965), English physicist. After his scientific education and early employment with J. J. Thomson and Lord Rutherford at the Cavendish Laboratory in Cambridge he became Professor at King's College, London and subsequently at Cambridge University

and University of Edinburgh. During the First World war he served as a Royal Engineer. With his famous "frequency change" radio wave experiment and the subsequent development of the magneto-ionic theory, he established ionospheric physics and its application in radio wave propagation. With his numerous observations he also laid the foundation of aeronomy and solar terrestrial physics. He received the Nobel Prize in 1947, one of only a few awarded in geophysics.

Emil Johann Wiechert (1861–1928), German physicist and seismologist. After his studies at the University of Königsberg/Prussia, he became assistant at this university and later Professor at the University of Göttingen of the first chair in geophysics ever created. He detected almost simultaneously with J. J. Thomson the electron and contributed significantly to the physics of cathode rays. He became well known with his work on seismology and the development of the shell structure of the Earth interior. For these investigations he constructed seismographs of unprecedented sensitivity, one of which is still in use at the "Erdbebenwarte" in Göttingen since 1905, and a main station of the international seismic network.

"History of Geo- and Space Sciences" is an open-access journal. All manuscripts which have passed the peer review process will be immediately typeset and published online: http://www.hist-geo-space-sci.net/volumes_and_issues.html. Every six months a printed version of the journal will be issued. There will be no page charge for authors, at least for the next three years. This is important as many of our authors are historians or are retired scientists who may have no institutional funding.