

Principles of Stable Isotope Geochemistry
2nd Edition



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Abstract

Principles of Stable Isotope Geochemistry is written as a textbook to accompany a one semester course in Stable Isotope Geochemistry. There are 13 chapters, each dealing with a specific subtopic of the field. Other than Chapters 1 and 2 – introduction and definitions – most of the remaining chapters can be read without reliance on the preceding ones. It is also hoped that the book will serve as a general reference volume for researchers in the field.

Principles of Stable Isotope Geochemistry has been organized in such a way that major concepts are explained and accompanied by numerous examples. In most cases, the first published examples are used for illustration, giving both a broad base of understanding and an appreciation for the historical development of the field. Chapters are organized according to broad classifications. In some cases this is done by discipline such as Chapter 4 – Hydrology and in others by isotope, such as Chapter 10 – Sulfur.

The new revised version is online. In this way, it can be modified as new advances are made in the field. Comments regarding errors, omissions or suggestions for improvements are welcome in order to keep the book up to date. This new online version is free of charge, available in PDF format. A hardcopy is also available.

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About the cover: A Metropolitan Vickers MS 2 mass spectrometer, bought by the Ecole de Géologie, Nancy France in 1958 for analyses of Pb, and later Rb/Sr at the CNRS, Nancy. Similar mass spectrometers were used for oxygen isotope analyses. The mass spectrometer consists of a copper vertical tube pumped by a diffusion pump (bottom center). The flight tube cuts through the central vacuum tube, allowing it to be pumped essentially at both ends. This is the predecessor of the early VG Micromass spectrometers. Photograph by Andreas Pack.