our present climate. The reliability of the climate models are a subject of debate, yet valid information derived from climate models is critical for policy-makers and politicians to make decisions regarding energy use and development and defense strategies. K.Ya. Kondratyev, a leading Soviet climate scientist, addresses the role of the "greenhouse effect," "nuclear winter," and volcanic eruptions on our climate in a recently published book entitled Climate Shocks: Natural and Anthropogenic. The book provides a detailed survey of the literature on these fields, including the pertinent Soviet literature that is often not surveyed by Western scientists.

Although the book is full of good material, I find that the presentation of some of the information is unsatisfying. The book does not synthesize the material in a meaningful way. A better and more detailed discussion of the fundamental principles that control our climate would have been helpful in providing a better linkage on why the emission of trace species, volcanic particles, and detritus from nuclear explosion can all alter our climate—for better or worse.

My other concern is that much of the information in this book is already dated, because the subject matter is changing fast in this field. The publication date is 1988, but the book was written in 1985. I cannot fault the editors and translators for this delay, for it is a difficult task to produce a volume written in Russian in a timely manner for an English reading audience. In fact, the translation and editing of the book was well done. A book written in 1985 cannot give just treatment to such important and contemporary issues in climate modeling such as the role of clouds on our climate and the role of soot scavenging and the smoke emission on the nuclear winter scenarios. For example, recent cloud studies by Ramakrishnan and coworkers indicate that the amount of reflected short-wave radiation by clouds exceeds that trapped by clouds' greenhouse influence. Since cloud-forcing effects are about 10 times those due to a doubling in CO₂, a small change in cloud cover due to the greenhouse effect may actually cause a negative feedback on our climate. Recent nuclear winter scenarios suggest that the outcome of a nuclear exchange may more or less resemble a nuclear "autumn." Another topic that should be addressed when discussing climatic change, but was not, is the role of weather on the climate signal. For example, it seems that the 1988 drought in the USA was more a response to the El Nino/La Nina effect than to rising CO₂ and methane levels.

The most original contribution of this book is the discussion on the role of NOx on the ozone chemistry of the stratosphere. This subject has been ignored in past nuclear winter studies. Yet further attention needs to be focused on the role that ozone depletion from a nuclear exchange will have on our climate.

Although, practitioners of global climate modeling should examine this volume, I prefer the excellent state-of-the-art reports that have been published on the role of CO₂ and trace species on climate by the U.S. Department of Energy (1985) and the WMO report on Atmospheric Ozone, 1985. Regarding nuclear winter scenarios, we will have to wait for the next book by Kondratyev.

Soil Fertility


This book is intended to serve as a textbook for students in the field. The authors present an introduction that their objective was to "cover the most essential topics and not produce an all-inclusive text to serve as a reference". There are 20 chapters that deal with soil fertility, properties, and information. This book contains some valuable information to soil chemists working on metal chemistry. It should also be of interest to persons from industry, government agencies, commercial research institutions, and information centers and libraries. —M. A. Tabatabai, Department of Agronomy, Iowa State University, Ames, IA 50011.

Metals Speciation, Separation, and Recovery


Metal cycling on a regional and global basis is profoundly modified by human activities in the environment. The speciation of metals in the environment is of concern because the forms and chemical properties of various metal species affect their reactions and biological effects on biological systems. Thus, in response to the current interest in the many aspects of metal chemistry, separation chemistry, and recovery, this comprehensive book has been prepared to provide a broad survey of the literature on these fields, including the pertinently important Soviet literature that is often not surveyed by Western scientists. The book is well-edited with numerous well-prepared figures and tables.

The proceedings contain the three keynote papers and 26 technical papers presented at the International Symposium on Metals Speciation, Separation, and Recovery that was held in Chicago, IL, from 27 July through 1 Aug. 1986. The symposium was sponsored by the Industrial Waste Elimination Research Center of the Institute of Technology and by the Water Research Institute of the Italian National Research Council. The book was reproduced with different letter sizes and the text reprinted with numerous well-prepared figures and tables.

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