Air Pollution, Third Edition: Volume VI, Supplement to Air Pollutants, Their Transformation, Transport, and Effects; Volume VII, Supplement to Measurement, Monitoring, Surveillance, and Engineering Control; and Volume VIII, Supplement to Management of Air Quality [Arthur C. Stern, Ed., 1986, Vol. VI: 483 pp., $70.00, Vol. VII: 523 pp., $69.50, Vol. VIII: 206 pp., $43.50, hardbound, from Academic Press]. The material in the first five volumes of the third edition of this series needed to be brought up-to-date. Since the material in the third edition was still basic and valid, however, the option of publishing a fourth edition was rejected in favor of supplement volumes. The editors of these supplements assume that readers will have access to either the first five volumes of the third edition or to the three volumes of the second edition. Chapter titles in Volume VI include “Effects of Acidic Deposition on Aquatic Ecosystems” and “Air Pollution Effects on Physical and Economic Systems.” Volume VII includes chapters on “Control Devices: Centrifugal Force and Gravity, Filtration, and Dry Flue Gas Scrubbing;” and “Process Emissions and Their Control;” and Volume VIII has chapters on “Air Quality Management in the United States;” and “Air Pollution Personnel and Their Development.”

Anomalous Atmospheric Flows and Blocking, Advances in Geophysics, Volume 29 [Roberto Benzi, Barry Saltzman, and Aksel C. Wiin-Nielsen, Eds., 1986, 459 pp., $85.00, hardbound, from Academic Press]. Barry Saltzman, in the forward to this book, writes, “In the present volume we consider the rapidly growing subject of low-frequency weather variability. This variability is exemplified by the persistence of certain large-scale “anomalous” features of the atmospheric flow that are often related to the so-called blocking weather patterns.” Some of the topics addressed in the book include “Observational Characteristics of Atmospheric Planetary Waves with Bimodal Amplitude Distributions;” “A Case Study of Eddy Forcing during an Atlantic Blocking Episode;” and “Mechanistic Experiments to Determine the Origin of Short-Scale Southern Hemisphere Stationary Rossby Waves.”

The Australian Summer Monsoon, Teleconnections, and Flooding in the Lake Eyre Basin [Robert J. Allan, 1985, 47 pp., $49.00 including postage and packing, paperbound, from The Royal Geographical Society of Australasia, South Australian Branch, State Library, North Terrace, Adelaide, South Australia, 5000]. This monograph is the second paper in the South Australian Geographical Papers series. In his forward to the book, editor Peter Smailes writes, “In this paper, Dr. Robert Allan deals with the climatic events responsible for major floodings of Lake Eyre, the great intermittent lake upon which South Australia’s and Australia’s largest internal drainage basin centres. . . . Dr. Allan first shows how the flooding of the lake is related to the intensity of the Australian monsoon, and then how the monsoon itself is related to ‘teleconnections’ or observed correlations between atmospheric-oceanic conditions in widely separated parts of the globe. In particular, the study shows how climatic events over northern Australia-Indonesia are related to climatic and oceanic conditions over the Pacific Dry Zone.”

The Changing Carbon Cycle: A Global Analysis [J. R. Tatalika and D. E. Reichle, Eds., 1986, 592 pp., $53.00, hardbound, from Springer-Verlag]. This book examines current knowledge about the fluxes, sources, and sinks in the global carbon cycle as well as our ability to apply this knowledge to the prediction of changes in atmospheric CO₂ concentration resulting from anthropogenic influences. Some of the topics considered include past and expected releases of CO₂ from fossil fuels; the historical record and implications of atmospheric CO₂ increases; isotopic and geological records of past carbon-cycle processes; the role of the oceans in the global carbon cycle; the influence of the world biosphere on changes in atmospheric CO₂ levels; and evidence linking the components of the global carbon cycle.

Energy and the Atmosphere: A Physical-Chemical Approach, Second Edition [I. M. Campbell, 1986, 337 pp., $57.00, hardbound, from John Wiley & Sons]. The first edition of this book was published in 1977. This second edition has been revised and reorganized in response to the rapid development of knowledge in this field in the last decade. The author describes the impact of the emissions from combustion of fossil fuels on the chemical cycles in the air, on both a global and local level. Chapter titles include “The Atmosphere and Insolation,” “Fuels, Combustion and Pollutants,” “The Realization of Energy,” “Global Hydrogen-Oxygen Cycles,” “The Global Cycle of Carbon,” “Nitrogen, Sulphur and Halogen Cycles,” “Chemistry of the Polluted Troposphere,” and “Aspects of the Chemistry of the Upper Atmosphere.” Basic theory is developed to a considerable extent in the book in order to make the contents accessible to the general or student reader.

Hydrological Forecasting [Jaromir Nemec, 1986, 239 pp., $54.00, hardbound, from D. Reidel]. This work is intended as a comprehensive and practical manual on the best methods available for the location, sampling, and analyzing of atmospheric pollutants. Its intended readership includes those scientists just entering the field and needing information on basic techniques and principles, as well as professionals who wish to extend their repertoire of analyses. The first edition of the handbook was published in 1977. This second edition has been updated throughout and expanded to include topics of current interest such as precipitation sampling and analysis, physicochemical speciation of particulate pollutants, and quality-assurance procedures. A new section on low-cost methods of analysis has been included.

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This book outlines the activities and structures of the International Council of Scientific Unions (ICSU), a nongovernmental scientific organization composed of 20 international scientific unions, 71 national members, associates, and observers, and 21 scientific associates. The volume contains lists of members of committees, a calendar of meetings for the years 1986–1992, addresses of international organizations, definitions of acronyms, and an extensive list of the names and addresses of many of the people involved in ICSU activities.

The Medical Implications of Nuclear War [Fredric Solomon and Robert Q. Marston, Eds., 1986, 619 pp., $33.50 paperbound, $43.50 hardbound, from National Academy Press]. This publication provides an overview of the physical and environmental effects of nuclear war. The authors, whose papers were originally presented at an Institute of Medicine symposium, address such problems as triage in nuclear war, food and nutrition in the aftermath of a nuclear attack, and the immunological impact of nuclear warfare. They approach the nuclear arms race from a psychosocial perspective and review the medical needs—in contrast to the medical resources likely to be available—after a nuclear attack.

Nonlinear Dynamics and Chaos [J. M. T. Thompson and H. B. Stewart, 1986, 376 pp., $42.95, hardbound, from John Wiley & Sons]. This book is intended for systems analysts, for mathematicians, and for all those in any field of science or technology who use computers to model systems that change over time. It is intended as the first comprehensive, systematic account of nonlinear dynamics and chaos. Section titles include “Basic Concepts of Nonlinear Dynamics,” “Iterated Maps as Dynamical Systems,” “Flows, Outstructures, and Chaos,” and “Applications in the Physical Sciences.”

Survey Design and Analysis [F. R. Jolliffe, 1986, 178 pp., $64.95, hardbound, from John Wiley & Sons]. This book describes statistical aspects of social surveys. The subject matter is related throughout the book to data collected in surveys by complex sampling methods. The following topics are included in the discussion: models for response errors, foundations of inference, and newer technological developments for collecting survey data. Written at an intermediate level, the book is aimed at those who have a foundation in introductory statistics. It is intended to enable such readers to progress easily to more-advanced texts.