SECTION NEWS

OCEAN SCIENCES

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Major Multidisciplinary Ocean Project Seeks Proposals

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A major multidisciplinary oceanographic program in the North Atlantic is being put together by the French oceanographic community, and scientists who would like to participate are being asked to submit proposals immediately. Field work will begin in September 2000. Known as Programme Océanographique Multidisciplinaire Méso-Echelle (POMME), the Meso-scale Multidisciplinary Oceanographic Program, it is supported by several French scientific agencies and will take place between the Azores and the Iberian Peninsula.

The program will focus on subduction of mode water in the region, its effect on biological production and the carbon budget in the area, and the fate of organic matter after subduction. More detailed information on the program's framework, rationale, and organization can be found on the Web (http://www.insu.cnrs-dir.fr).

Supporting agencies are the Department of Earth Science at the Centre National de la Recherche Scientifique/Institut National des Sciences de l'Univers (INSU); the Institut Français de Recherche pour l'Exloitation de la Mer (IFREMER); the French Meteorological Office; and the Service Hydrographique de la Marine (SHOM). Funding has already begun, and committees have started work on planning and implementation.

Researchers who want to participate, either in the experimental array or with ship time, or whose projects might complement what is currently planned, should submit their proposals, including a curriculum vitae and a statement of interest, to either Laurent Memery or Gilles Reverdin, coordinators of the POMME scientific committee, with a copy to Martine Revillon at INSU. The scientific committee might be enlarged to better accommodate new participants from other countries. Two proposals have already been received from research groups in the United Kingdom.

After review by the scientific committee, proposals will be forwarded to the POMME project committee. The two committees will discuss the complementarity of the proposals with POMME and suggest ways cooperation might be implemented. Since some activities have to be planned long in advance and since the POMME committees must have time to put together the different contributions into a coherent experiment, proposals should be transmitted as soon as possible (preferably before August 31).

Addresses are Laurent Memery, Laboratoire d'Océanographie Dynamique et de Climatologie, UMR 7617 CNRS/IRD/UPMC, Université Pierre et Marie Curie, Case 100, 4 Place Jussieu, 75252 Paris Cedex 5, France (E-mail:lm@lodyc.jussieu.fr;lmlod@ipsl.jussieu.fr); Gilles Reverdin, Laboratoire d'Etudes en Geophysique et Océanographie Spatiales, Observatoire Midi-Pyrénées, 14 Ave. Edouard Belin, 31400 Toulouse, France (E-mail:Gilles.reverdin@cnes.fr); Martine Revillon, INSU/DSU, 3 rue Michel Ange, 75766 Paris Cedex 16, France (E-mail: martine.revillon@cnrs-dir.fr).

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BOOK REVIEW

Photochemistry of Planetary Atmospheres

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Y. L. Yung and W. B. DeMore, Oxford Univ. Press, New York, 480 pp., ISBN: 0-19-510501-X, 1998, $70.

From the distant, small, and icy bodies of the solar system, such as comets and Pluto, to the gas giants, Jupiter and Saturn, and the rocky inner planets (except Mercury), chemistry driven by the Sun plays a central role. Some of the most abundant constituents of the atmosphere become a principal source of a variety of minor constituents following the action of sunlight. The minor constituents, in turn, hold the key to the stability of the atmosphere, and they provide important clues to the planetary interiors, and transport, origin, and evolution of the planetary atmospheres. On Earth, trace species are central to an understanding of such questions as global climate change and the biosphere.

In *Photochemistry of Planetary Atmospheres*, Yuk Yung and William DeMore present a comprehensive treatment of the photochemical processes taking place on the terrestrial planets, giant planets and their moons, and Pluto. The basics of biogeochemical cycles and climate change are presented in the context of Earth.

The first four of the book's ten chapters give general background information pertinent to photochemistry in any atmosphere. This includes the solar flux and its absorption and scattering in the atmosphere, kinetics of chemical reactions, and the basic ideas about the formation of the solar system and the origin of planetary atmospheres. In the rest of the book, photochemical processes specific to the inner and the outer planets are discussed. At the end of each chapter, the authors list "Unsolved Problems"; for example, "Is SO_2 geochemically stable on Venus?" An extensive bibliography is given for each chapter at the end of the book.

The authors do a commendable job of presenting our current understanding of the composition and the associated photochemistry and evolution of the atmospheres of Mars and Venus. The problem of escape of light gases and the information about atmospheric evolution gleaned from the isotopic data are discussed lucidly in this context. Interesting discussions of the Gaia hypothesis and its limitation and the human impact on Earth's climate are presented in the last part of the book. The chapters on outer planets and satellites contain the photochemical schemes of various relevant gases and the modeling results. However, I found it somewhat disappointing that many crucial results and their implications from the Galileo Jupiter mission (1995-), the Infrared Space Observatory (1995-1998), and even some previous observations were not folded into the book, even though it was published this year and the preface was written in mid-1997. The book contains numerous figures and tables on the relevant laboratory chemical kinetics, cross sections, solar flux, planetary composition, and so forth, and these can serve as a valuable resource to the practitioners of planetary photochemistry. Caution should be exercised, however, when using this information, as in some instances it is outdated, inappropriate, or too general.

Overall, I found *Photochemistry of Planetary Atmospheres* enjoyable reading, a source of useful information and ideas. The authors, who have both made notable contributions to the field of photochemistry through their research, have summarized the important aspects of their work as well as of others. The book should serve as a useful reference to those already engaged in research in planetary photochemistry and those who are contemplating to do so.

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ABOUT AGU

Townsend Receives the Edward A. Flinn III Award

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John W. Townsend, Jr., was awarded the Edward A. Flinn III Award at the AGU Spring Meeting Honors Ceremony, which was held on June 2, 1999, in Boston, Massachusetts. The award recognizes individuals who personify the Union's motto "unselfish cooperation in research" through their facilitating, coordinating, and implementing activities.

Citation

"John W. (Jack) Townsend, the 1999 recipient of the American Geophysical Union's Edward A. Flinn III Award, is one the few members of the AGU whose career has taken them from frontier geophysical research to the highest levels of geoscience management but who has always retained his close identification with the Union as a member, an active committee participant, and a financial contributor. Indeed, Jack's continued close attachment to the Union has allowed him throughout his professional career to anticipate the direction of geophysical research and then to act decisively to promote and facilitate members' research in the geophysical sciences.

"Throughout his career, Jack Townsend has excelled at visionary institutional leadership, innovating new institutions to meet new national challenges and opportunities, and dedicated professional management that always enabled researchers and engineers to accomplish objectives that helped maintain U.S. leadership in science and technology. Jack played a crucial role in furthering the use of advanced technology, especially space technology, to facilitate the ability of the research community to advance understanding in the geophysical sciences significantly.

"Following completion of academic degrees at Williams College and 4 years after his active service in the Second World War (he was a flight instructor and a pilot in the Pacific), Jack joined the Naval Research Laboratory (NRL), where he immediately became centrally involved in the very early studies of the upper atmosphere using V-2, Viking, and Aerobee rockets. His research work on upper atmosphere physics was centered on the first mass spectroscopic measurements of atmospheric constituents at the high altitudes at which the new rocket technologies allowed his innovative instrumentation (employing time-of-flight techniques for the first time) to reach. Jack's many publications during this first decade of his career not only included new results and understanding of the Earth's upper atmosphere but also contained the beginnings of his career-long engineering contributions to rocketry (and later satellites) as platforms for research.

"When the new National Aeronautics and Space Administration (NASA) was formed from the National Advisory Committee on Aeronautics (NACA), Jack moved with his branch from NRL to the fledgling Goddard Space Flight Center where, since he was one of the most senior individuals knowledgeable in space flight technologies, he was immediately thrust into the role of helping to formulate the new science and engineering activities of the agency. From this time on, Jack's principal contributions to geophysical research were to ensure that the opportunities for cutting edge efforts were available to the personnel in the organizations that he led. At Goddard, Jack initiated the developments of in-house capabilities for small and medium scientific spacecraft in the 1960s and supervised the beginnings of the development of the Delta rocket, which has played such an important role for 30 years in the launching of science missions into orbit. A key contribution to international space science was made when Jack, together with Hugh Dryden and Donald Hornig, negotiated the first bilateral space science agreement with the former Soviet Union.

"For much of the 1970s, Jack served as the Associate Administrator of the National Oceanic and Atmospheric Administration (NOAA), with responsibilities that defined the science and services agency that was built from the old Environmental Sciences Services Administration. Research enterprises that he

help create and nurture included the Weather Bureau, the Coast and Geodetic Survey, the Data Services, and the overall Research Laboratories. When Jack moved to industry in 1977 in various roles of increasing responsibility, he continued his involvement in facilitating research opportunities in the geosciences. He was responsible at Fairchild for the Multi-Mission Modular Spacecraft, the platform of which formed the basis for geophysical investigations involving the ocean (TOPEX), the Earth (Landsat 4) and the Sun (Solar Maximum Mission). The last 3 years of Jack's career were spent as the Director of the Goddard Space Flight Center, where he had overall responsibility for the Earth and space sciences. During his tenure, there were 17 major space flight projects in progress, as well as total operational responsibility for all of NASA's Earth satellites.

"Jack was active for years in the AGU's Budget and Finance Committee, helping to steer the Union along the path of strong solvency that it can be so proud of. He was also very active in the committee that worked and planned for the new Union headquarters on Florida Avenue, including tackling the multitude of issues that evolved from the environmental cleanup caused by the old service station that formerly occupied a portion of the site.

"It is most fitting that the American Geophysical Union recognizes, with the Flinn Award, Jack Townsend's 50-year illustrious career in 'facilitating, coordinating, and imple-