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Project Reports Administration

Final Report for Award 9632757
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05/07/2001 06:19 PM

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Final Report: 9632757

Final Report for Period: 01/1997 - 12/2000

Principal Investigator: Prinn, Ronald G.

Organization: MIT

Title:

International Global Atmospheric Chemistry (IGAC)

Core Project Office

Submitted on: 05/04/2001

Award ID: 9632757

AMS
5/7/01Project Participants

Senior Personnel

Name: Prinn, Ronald

Worked for more than 160 Hours: No

Contribution to Project:

Name: Pszenny, Alexander A

Worked for more than 160 Hours: Yes

Contribution to Project:

Name: Brasseur, Guy

Worked for more than 160 Hours: Yes

Contribution to Project:

Post-doc

Graduate Student

Undergraduate Student

Research Experience for Undergraduates

Organizational Partners

International Geosphere-Biosphere Prog.

IGBP is one of two international organizations that cosponsor of IGAC.

Comm. on Atmos. Chem. & Global Pollution

CACGP is one of two international organizations that cosponsor IGAC.

World Meteorological Organization

N. Am. Res. Strategy for Trop. Ozone

EUROTRAC

Max Planck Institute fur Meteorologie

DOE Patent Clearance Granted

MP Dvorscak

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Office of Intellectual Property Law

DOE Chicago Operations Office

1-7-03

Date

Other Collaborators or Contacts

IGAC serves a network of several thousand scientists worldwide. Our main collaborators among them are the 20 members of the IGAC Scientific Steering Committee (SSC). About one third of the membership rotates each year. The 2001 membership of the IGAC SSC is available on <http://web.mit.edu/igac/www/ssc.html>.

Activities and Findings

Project Activities and Findings:

The IGAC Core Project Office is not funded to conduct research or provide education per se, but rather to facilitate these activities internationally. We do this by maintaining a Project web site and publishing a periodic newsletter. Electronic versions of the newsletter are available on <http://web.mit.edu/igac/www/newsletter/igactivities.html>. We note that funding limitations forced us to reduce the frequency of newsletters from 4 to 3 per year in 2000. A third way we facilitate research and education internationally is through helping to organize and providing support for U.S. students to attend IGAC scientific conferences, which have been held approximately once each year since 1993. In the past year we provided logistic support for an IGAC regional symposium on 'Atmospheric Chemistry in the Tropics: From Local to Global, From Air Pollution to Climate Change' held in Bangkok, Thailand on 22-23 January 2001. No funding was available for student support in this case.

Project Training and Development:

No 'findings' per se. See previous section.

Research Training:

See 2nd section preceding.

Outreach Activities:

Meetings and Conferences

o The Core Project Officer traveled on NSF funds to Boulder, CO, in January to meet with IGAC SSC Chair G. Brasseur regarding plans for the IGAC Integration and Synthesis, and an IGAC SSC/Council meeting and scientific conference scheduled for August (see below).

o The SSC Chair hosted and, with the Core Project Officer, represented IGAC at the 13th meeting of the Scientific Committee for the IGBP (SC-IGBP) held in Boulder, CO, in February. Costs of this activity were covered by IGBP.

o The Core Project Officer traveled on NSF funds to Boulder, CO, in July to meet with IGAC SSC Chair G. Brasseur, Vice-Chair S. Penkert, European IGAC Project Officer S. Cieslik, European Union representative G. Angeletti, and S. Fuzzi of CNR/FISBAT (Bologna, Italy) regarding renewal of the charter for the European IGAC Project Office (EIPO), plans for the IGAC Integration and Synthesis, and plans for the 6th IGAC Scientific Conference to be held in Bologna in September 1999.

o An IGAC Scientific Council (SSC plus Activity Conveners plus office heads) meeting was organized by the CPO and was held in Seattle, WA, 26-27 August 1997 following the 'CACGP/IGAC Symposium on Global Atmospheric Chemistry'. The CPO provided financial support with NSF funds to several U.S. Council members for one or both of these meetings.

o The Core Project Officer represented IGAC at the 9th IGBP International Project Office (IPO) Executive Officers Meeting, held in Durham, NH, in late September. Costs of this trip were covered by IGBP.

o The CPO provided partial financial support with NSF funds (originally from NASA) for U.S. scientist participation in the WCRP-IGAC Workshop on 'A Comparison of the Performance of Large Scale Models in Simulating Atmospheric Sulfate Aerosols' held in Halifax, Nova Scotia, in October.

o The CPO organized and provided partial financial support with IGBP funds for U.S. scientist participation in the first workshop of the IGAC Integration and Synthesis Team held in Toulouse, France, in November.

Dr. Brasseur, who is based at MPI-Hamburg, presented seminars or invited talks on global atmospheric chemistry or otherwise represented IGAC at:

- * 15th meeting of the Scientific Committee for the IGBP, Cuernavaca, Mexico, February 2000
- * University of Heidelberg
- * AWI (Bremenhaven)
- * Federal Research Center of the Karlsruhe
- * AGU 2000 Fall Meeting (San Francisco), December 2000

Prof. Prinn presented seminars or invited talks on global atmospheric chemistry or otherwise represented IGAC at:

- * Intersession Activities Period lecture, 'Global measurements of ozone-depleting and greenhouse gases,' MIT, Cambridge, MA, 28 January 2000.
- * Knight Science Fellowship Briefing, 'Projections of global warming based on models,' MIT, Cambridge, MA, 27 April 2000.
- * IGAC Integration and Synthesis Workshop, Aspen, Colorado, 30 April-2 May, 2000
- * Presentation to TEPCO, TEPCO-MIT Joint Environmental Research Program, 'Global warming, ocean circulation, and the carbon cycle', Tokyo, Japan, 7 July, 2000.
- * 'Biospheric traumas caused by great impacts,' International Conference on Catastrophic Events and Mass Extinctions, Vienna, Austria, 12 July, 2000.
- * Presentation to EPRI Global Climate Change Area Council, 'Climate Change: State of Science and Policy implications', Dallas, Texas, 11 September, 2000.
- * Presentation to USAEE/MIT Forum, The Hansen et al. Alternative Scenario, 'The role of methane, ozone, and aerosols in past and future climate', Washington, D.C., 16 October, 2000.
- * Invited talk at COP-6, 'Integrated Assessment of the Kyoto Protocol', U.C. Reville Program Special Session, The Hague, Netherlands, 15 November, 2000.

We note that none of Dr. Brasseur's or Prof. Prinn's costs to attend these events was borne by IGAC.

Dr. Pszenny represented IGAC at:

- * International SOLAS science planning workshop in Damp, Germany, February, 2000
- * IGBP International Project Office directors/E annual meeting, Cuernavaca, Mexico, February 2000

Journal Publications

- Multi, "Polarstern Expedition 1988 ", Journal of Atmospheric Chemistry , p. 3, vol. 15, (1992). Published
- Multi, "Polar Sunrise Experiment 1992 (PSE-1992) ", Journal of Geophysical Research, p. D12, vol. 99, (1994). Published
- Compilation, "Nonmethane Hydrocarbon Intercomparison Experiment (NOMHICE) ", Journal of Geophysical Research, p. 26069, vol. 104, (1999). Published
- Compilation, "Fire of Savannas/Dynamique et Chimie Atmospherique in Foret Equatorial (FOS/DECAFE)", Journal of Atmospheric Chemistry, p. 1, vol. 22, (1995). Published
- Compilation, "International Conference on Regional Environment and Climate Changes in East Asia ". Terres. Atmos. Oceanic Sci., p. 3, vol. 6, (1995). Published
- Compilation, "Second Mauna Loa Photochemistry Experiment (MLOPEX-2)", J. Geophysic. Res., p. D9, vol. 101, (1996). Published
- Compilation, "Southern Tropical Atlantic Regional Experiment (STARE)", J. Geophys. Res., p. D19, vol. 101, (1996). Published
- Compilation, "Atlantic Stratospheric Transition Experiment/Marine Aerosol and Gas Exchange (ASTEX/MAGE)", J. Geophys. Res., p. D2, vol. 101, (1996). Published
- Compilation, "Pacific Exploratory Mission - West A and B", J. Geophys. Res., p. D23, vol. 102, (1997). Published
- Compilation, "North Atlantic Regional Experiment 1993 Summer Intensive", J. Geophys. Res, p. D11, vol. 103, (1998). Published
- Compilation, "Workshop on NOX Emission from Soils and its Influence on Atmospheric Chemistry", Nutrient Cycling in Agroecosystems, p. 1, vol. 48, (1997). Published
- Compilation, "Measurements of Ozone and Water Vapor by Airbus In-service Aircraft (MOAZIC)", J. Geophys. Res, p. D19, vol. 103, (1998). Published

- Compilation, "First Aerosol Characterization Experiment (ACE-1)", J. Geophys. Res., p. D17, vol. 104, (1999). Published
- Compilation, "Tropospheric Aerosol Radiative Forcing Observational Experiment (TARFOX)", J. Geophys. Res., p. D8, vol. 105, (2000). Published
- Compilation, "GEIA REactive Chlorine Emissions Inventory (RCIE)", J. Geophys. Res., p. D27, vol. 104, (1999). Published
- Compilation, "Experiment for Regional Sources and Sinks of Oxidants (EXPRESSO)", J. Geophys. Res., p. D23, vol. 104, (1999). Published
- Compilation, "3-D Simulations of Tropospheric Chemistry with Focus on Ozone Distributions - Results of the GIM/IGAC Intercomparison Exercise.", European Commission Report EUR 18842, Office for Official Publications of the European Communities, Luxembourg, p. 1, vol. 18842, (1999). Published
- Compilation, "3-D Simulations of Tropospheric Chemistry with Focus on Ozone Distributions - Results of the GIM/IGAC Intercomparison 1997 Exercise.", Chemosphere: Global Change Science, p. 1, vol. 1, (1999). Published
- Compilation, "The Second Aerosol Characterization Experiment ACE 2", Tellus, p. , vol. 52B, (2000). Accepted
- Galbally, I.E. (ed.), "The International Global Atmospheric Chemistry (IGAC) Programme". Commission on Atmospheric Chemistry and Global Pollution of the International Association of Meteorology and Atmospheric Physics, ISBN 0 643 05062 0, 1989., p. 1, vol. , (1989). Published
- Matson, P.A. and D.S. Ojima, "Terrestrial Biosphere Exchange with Global Atmospheric Chemistry", Global Change Report No. 32, International Geosphere-Biosphere Programme, Stockholm, Sweden, p. 105, vol. 32, (1990). Published
- Molina, L.T. (ed.), "The International Global Atmospheric Chemistry (IGAC) Programme: An Overview*", IGAC Core Project Office, Cambridge, Mass., USA, 26 pp., 1992., p. 26, vol. , (1992). Published
- Pszenny, A.A.P., and R.G. Prinn (eds.), "International Global Atmospheric Chemistry (IGAC) Project: The Operational Plan.", Global Change Report No. 32, International Geosphere-Biosphere Programme, Stockholm, Sweden, 126 pp., 1994., p. 126, vol. , (1994). Published
- Sass, R.L. and H.-U. Nuec (eds.), "Global Measurement Standardization of Methane Emissions from Irrigated Rice Cultivation", IGAC Core Project Office, Cambridge, Mass., USA, 10 pp., 1994., p. 10, vol. , (1994). Published
- Hobbs, P.V., and B.J. Huebert (eds.), "Atmospheric Aerosols: A New Focus of the International Global Atmospheric Chemistry Project", IGAC Core Project Office, Cambridge, Mass., USA, 46 pp., 1996., p. 46, vol. , (1996). Published
- Pszenny, A., "The International Global Atmospheric Chemistry (IGAC) Project", EUROTRAC Newsletter, No. 18, EUROTRAC International Scientific Secretariat, Garmisch-Partenkirchen, Germany, Spring, 1997., p. 1, vol. 18, (1997). Published
- Pszenny, A., and G. Brasseur., "Tropospheric Ozone: An Emphasis of IGAC Research.", Global Change Newsletter, No. 30, International Geosphere-Biosphere Programme, Stockholm, Sweden, June, 1997., p. 1, vol. 30, (1997). Published
- Smith, K.A. and J. Bogner., "Joint North American-European Workshop on Measurement and Modeling of Methane Fluxes from Landfills.", IGAC Core Project Office, Cambridge, Mass., USA, 46 pp., 1997., p. 46, vol. , (1997). Published
- Prinn, R.G., A.A.P. Pszenny, and P.J. Crutzen (eds.), "Proceedings of the 1st IGAC Scientific Conference, 18-22 April 1993, Eilat, Israel
Contributed papers from the First IGAC Scientific Conference
", J. Geophys. Res., 99(D8), 1994., p. D8, vol. 99, (1994). Published

Penkett, S.A., H. Akimoto, and G.P. Ayers (eds.), "2nd IGAC Scientific Conference and 8th CACGP Symposium on Global Atmospheric Chemistry, 5-9 September 1994, Fuji-Yoshida, Japan
Contributed papers from the 2nd IGAC Scientific Conference and 8th CACGP Symposium on Global Atmospheric Chemistry," Atmos. Environ., p. 10, vol. 30, (1996): Published

Multi., "WMO-IGAC Conference on the Measurement and Assessment of Atmospheric Composition, 9-14 October 1995, Beijing, China
Extended abstracts of the WMO-IGAC Conference on the Measurement and Assessment of Atmospheric Composition," WMO/GAW Report No. 107, World Meteorological Organization, Geneva, Switzerland, 1995, p. 1, vol. , (1995): Published

Multi., "International Symposium on Atmospheric Chemistry and Future Global Environment, 11-13 November 1997, Nagoya, Japan
Program and extended abstracts of the International Symposium on Atmospheric Chemistry and Future Global Environment," Science Council of Japan and National Space Development Agency, 1997., p. 1, vol. , (1997). Published

Drummond, J. (ed.), "Proceedings of the IGAC/SPARC/GAW Conference on Global Measurement Systems for Atmospheric Composition", J. Atmos. Sci., 56(2), 1999.
, p. 2, vol. 56, (1999). Published

Bales, T.S. and P.K. Quinn (eds.), "Contributed papers from the 5th IGAC Scientific Conference and 9th CACGP Symposium on Global Atmospheric Chemistry", J. Geophys. Res., 104(D21), 1999., p. D21, vol. 104, (1999). Published

Multi , "6th IGAC Scientific Conference on Global Atmospheric Chemistry, 13-17 September 1999, Bologna, Italy", IGAC Core Project Office, p. 1, vol. , (2001). Submitted

Books or Other One-time Publications

Crutzen, P.J., and J. G. Goldammer (eds.), "Fire in the Environment: The Ecological, Atmospheric, and Climatic Importance of Vegetation Fires", (1993). Book, Published
Editor(s): Crutzen, P.J., and J. G. Goldammer (eds.)
Collection: N/A
Bibliography: Dahlem Workshop Reports, Environmental Sciences Research Report 13, J. Wiley & Sons, Chichester, England, 1993.

Goldammer, J.G. (ed.), "Feuer in Wald-Ökosystemen der Tropen und Subtropen", (1993). Book, Published
Editor(s): Goldammer, J.G. (ed.)
Bibliography: Birkhäuser-Verlag, Basel-Boston

K. Minami, A. Mosier and R.L. Sass (eds.), "CH₄ and N₂O Global Emissions and Controls from Rice Fields and Other Agricultural and Industrial Sources", (1994). Book, Published
Editor(s): K. Minami, A. Mosier and R.L. Sass (eds.)
Bibliography: National Institute of Agro-Environmental Sciences, Japan

Prinn, R.G. (ed.), "Global Atmospheric-Biospheric Chemistry", (1994). Book, Published
Editor(s): Prinn, R.G. (ed.)
Bibliography: Plenum Press, New York

R.J. Delmas (ed.), "Ice Core Studies of Global Biogeochemical Cycles", (1995). Book, Published
Editor(s): R.J. Delmas (ed.)
Bibliography: NATO ASI Series 1, Vol. 30, Springer-Verlag, New York, 1995.

E. Wolff and R. Bales (eds.), "Chemical Exchange between the Atmosphere and Polar Snow", (1996). Book, Published

Editor(s): E. Wolff and R. Bales (eds.)
Bibliography: NATO ASI Series I, Vol. 43, Springer-Verlag, New York, 1996.

Goldammer, J.G., and V.V.Furyayev (eds.), "Fire in Ecosystems of Boreal Eurasia", (1996). Book, Published
Editor(s): Goldammer, J.G., and V.V.Furyayev (eds.)
Bibliography: Kluwer
Academic Publishers, Dordrecht, 1996.

J.S. Levine (ed.), "Biomass Burning and Global Change", (1996). Book, Published
Editor(s): J.S. Levine (ed.)
Bibliography: MIT Press, Cambridge, Mass., 1996

B.W. van Wilgen, M.O. Andrae,
J.G. Goldammer, and J. A. Lindesay (eds.), "Savanna: Ecological and Environmental Perspectives", (1997). Book, Published
Editor(s): B.W. van Wilgen, M.O. Andrae,
J.G. Goldammer, and J. A. Lindesay (eds.)

Bibliography: Witwatersrand University Press, Johannesburg,
South Africa, 1997

Clark, J.S., H. Cachier, J.G. Goldammer,
and B.J. Stocks (eds.), "Sediment records of biomass burning and global
change.", (1997). Book, Published
Editor(s): Clark, J.S., H. Cachier, J.G. Goldammer,
and B.J. Stocks (eds.)
Bibliography: Springer-Verlag,
Berlin-Heidelberg-New York, 1997.

Web/Internet Site

URL(s):

<http://web.mit.edu/igac/www/>

Description:

Web site is essential sub-task under IGAC CPO obligation to serve as central information source for IGAC.

Other Specific Products

Product Type: Quarterly newsletter

Product Description:

Quarterly newsletter.

Sharing Information:

Mailed to >2,900 scientists and other people worldwide. Highlights reprinted on IGAC web site.

Contributions

Contributions within Discipline:

IGAC provides an international framework for the planning, coordination, and execution of atmospheric-biospheric research, with emphasis on projects which require resources beyond the capabilities of any single nation.

The planning and implementation of international field campaigns such as those sponsored by IGAC, the development of chemical emission inventories by IGAC scientists, the development and intercomparison under IGAC leadership of existing chemical transport models, the analysis of data gathered during IGAC-sponsored field campaigns, etc., has provided new scientific information essential to the development of the discipline.

Contributions to Other Disciplines:

IGAC research contributes to many other aspects of Earth system science (e.g., hydrology, ocean science, terrestrial ecology) by virtue of its being one of 8 Core Projects of the IGBP.

Atmospheric chemistry is a central theme of global change, and the work performed under IGAC sponsorship directly contributes to all the disciplines covered by the IGBP and other global change research programs.

Contributions to Human Resource Development:

IGAC scientific conferences have provided opportunities for scientists from developing countries to meet and establish connections with scientists in world-class laboratories and institutions in developed countries.

IGAC has promoted a discipline which has attracted new students and junior scientists, and has led to numerous Ph.D. theses and other achievements in many countries of the world.

Contributions to Science and Technology Infrastructure:

The IGACactivities Newsletter and presentations at various meetings and conferences added exposure to science and technology for scientists, college teachers, pre-college teachers, young people, and other non-scientist members of the public.

Capacity building is a major emphasis of IGAC and of the IGBP. The organization of field campaigns and of other activities has contributed to the infrastructure of research, especially in the developing world.

Contributions: Beyond Science or Engineering:

Results of IGAC-related research are considered in the preparation of periodic international assessments such as those on stratospheric ozone (WMO/UNEP) and climate change (IPCC).

Correcting atmospheric perturbations, including the degradation of air quality, based on sound understanding of chemical and physical processes in the atmosphere has and will continue to improve human welfare.

Categories for which nothing is reported: