



## **CURRICULUM VITAE**

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## 2. Overview

Guy P. Brasseur was educated at the *Free University of Brussels*, Belgium where he earned two engineering degrees: one in physics (1971) and one in telecommunications and electronics (1974). He obtained his PhD degree at the same University, but completed the work at the *Belgian Institute for Space Aeronomy* under the supervision of Prof. Marcel Nicolet. His PhD thesis focused on the effects of nitrogen oxides on the stratospheric ozone layer, and specifically assessed the potential stratospheric impact of a projected fleet of supersonic aircraft. Brasseur worked several years at the Belgian Institute for Space Aeronomy, where he developed advanced models of photochemistry and transport in the middle atmosphere. Between 1977 and 1981, he served as an elected member of the Belgian House of Representatives, and was a delegate to the Parliamentary Assemblies of the Council of Europe (Strasbourg, France) and of the Western European Union (Paris, France). In 1984, Brasseur made a 5-month visit at the *Max Planck Institute for Chemistry in Mainz*, where he worked with Prof. Paul Crutzen, now Nobel Laureate for Chemistry. In 1986, he visited for a one-year period the Atmospheric Chemistry Division of the *National Center for Atmospheric Research* (NCAR) in Boulder, CO (Director Prof. Ralph Cicerone, now President of the US Academy of Sciences).

In 1988, Brasseur moved to NCAR where he first became a staff scientist. He became Director of the Atmospheric Chemistry Division in 1990 (120 staff). During his tenure at NCAR, he served between 1992 and 1996 as Editor in Chief of the *Journal of Geophysical Research* (Atmospheres), and during the period 1994-2001, became Chair of the International Atmospheric Chemistry Project (IGAC) of the *International Geosphere-Biosphere Program* (IGBP). On 1 January 2000, Brasseur moved to Hamburg, Germany, where he became Director at the *Max Planck Institute for Meteorology* (210 staff and students), and Honorary Professor at the *Universities of Hamburg and Brussels*. He also became the Scientific Director of the *German Climate Computer Center* (20 staff), which hosts one of the largest supercomputer dedicated to climate science. Between January 2002 and December 2005, Brasseur was the Chair of the Scientific Committee of the ICSU International Geosphere Biosphere Programme (IGBP). IGBP is organized around approximately 10 large scientific Projects and promotes „Earth System Science“ at the international level, including the developing world. Brasseur was also President of the Atmospheric Sciences Section of the *American Geophysical Union* (2002-2004) and member of the Council of AGU. He was a Coordinating Lead Author for the fourth Assessment Report (WG-1) of the *International Panel for Climate Change* (IPCC). Jointly with Al Gore, the IPCC was awarded the 2007 Nobel Peace Prize. Between January 2006 and July 2009, Brasseur was an Associate Director of the National Center for Atmospheric Research (NCAR) and Head of the *Earth and Sun Systems Laboratory* (ESSL, 300 staff). Since July 2009, he is the founding Director of the *Climate Service Center* (CSC) in Hamburg, Germany and an External Member of the Max Planck Institute for Meteorology. He has become the first Distinguished Scholar

appointed by NCAR. Since June, 2014, he is affiliated with the Max Planck Institute for Meteorology as a Senior Scientist and Project Leader.

In addition to his management tasks, Brasseur's primary scientific interests are questions related to Global Change, climate variability, chemistry-climate relations, biosphere-atmosphere interactions, climate change, stratospheric ozone depletion, global air pollution including tropospheric ozone, solar-terrestrial relations. He has led the development of complex models describing the formation and fate of chemical compounds in the stratosphere and troposphere. One of these models, called MOZART, has become a community-model for global atmospheric chemistry and is used in several universities and research centers. He also used climate models to study the interactions between the biogeochemical and the climate system. He now promotes the concept of integrated Earth System Model (ESM). He has authored or co-authored approximately 180 publications in the peer-reviewed literature, and has contributed to the publication of several books.

Brasseur has performed studies on the role of nitrogen compounds in the upper atmosphere, on the response of ozone and temperature to solar variability and to anthropogenic trace constituents, on the formation and fate of positive and negative ions in the mesosphere, stratosphere and troposphere, on the impact of chlorofluorocarbons on stratospheric ozone, on the impact of volcanic eruptions on chemical compounds in the middle atmosphere, on the effects of chemical perturbations on climate forcing, on the global budget of atmospheric trace constituents, on the relation between the biosphere and the atmospheric chemical composition, etc. In Hamburg and in Boulder, he has been working more specifically on the development of comprehensive Earth System Models. The mission of the Climate Service Center in Hamburg that Brasseur currently directed is to help society to cope with the risks and opportunities associated with climate change. The Center, provides relevant science-based information to support the development and implementation of climate adaptation and mitigation strategies and measures.

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### 3. Education:

- High school: European School, Brussels, Belgium European Baccalaureat in 1966.
- Ingenieur Physicien, Free University of Brussels, 1971. (Engineer in Applied Physics).
- Ingenieur des Télécommunications et Electronique, Free University of Brussels, 1974. (Engineer in Telecommunications and Electronics).
- Docteur en Sciences Appliquées (Space Aeronomy), Free University of Brussels, 1976. (Ph.D.).

Languages:

French (native language)

English (excellent)

German (excellent speaking skills, good writing skills)

Dutch (good understanding)

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#### 4. Professional Positions:

- Senior Scientist and Group Leader at the *Max Planck Institute for Meteorology* in Hamburg, Germany.
- Since 1 July 2011: Distinguished Scholar at the *National Center for Atmospheric Research* in Boulder, CO, USA
- From 1 July 2009 to May 31, 2014: Director of the *Climate Service Center (CSC)* in Hamburg, Germany (Helmholtz Zentrum Geesthacht), and External Member of the *Max Planck Institute for Meteorology* in Hamburg, Germany.
- From July 2009 to June 2011: Part-time Senior Scientist at the *National Center for Atmospheric Research* in Boulder, CO, USA
- From January 2006 to June 2009: Associate Director of the *National Center for Atmospheric Research*, and Head of the *NCAR Earth and Sun Systems Laboratory (ESSL)*, Boulder, Colorado, USA.
- From October 1999 to January 2006 - Director at the *Max-Planck-Institute for Meteorology*, Hamburg (Department “Atmosphere in the Earth System”), and Member of the *Max-Planck-Society*, Munich, Germany
- From March 2000 to January 2006 - CEO and Scientific Director of the *Deutsches Klimarechenzentrum (DKRZ)* (German Climate Computing Center, Private Corporation hosting a supercomputing and data facility dedicated to climate modeling for the German scientific community), Hamburg, Germany
- July 1990 to June 2011- Senior Scientist, *National Center for Atmospheric Research* (NCAR), Boulder, Colorado, USA. Affiliated with the Atmospheric Chemistry Division (until 2001) and part-time as Senior Research Associate with the Advanced Study Program (2001-2005)
- April 1990 - December 1999: Director, *Atmospheric Chemistry Division*, National Center for Atmospheric Research, Boulder, Colorado, USA, and head of the Global Modeling Project.

- November 1995 - October 1996: Associate Research Director, *Service d'Aéronomie du Centre National de la Recherche Scientifique (CNRS)*, Verrières-le-Buisson, France (Sabbatical from NCAR)
  - August 1989 - April 1990: Acting Director, *Atmospheric Chemistry Division*, National Center for Atmospheric Research, Boulder, Colorado, USA
  - June 1988 - July 1990: Scientist III, National Center for Atmospheric Research, Boulder, Colorado, USA. Head of the Atmospheric Chemistry Modeling Section
  - September 1985 - June 1988: "Chercheur Qualifié" at the *Belgian Fund for Scientific Research*. (On leave as Visitor at NCAR, January-December 1986.)
  - April 1985 - August 1985: Visiting Professor at the *Max Planck Institute for Chemistry*, Mainz, Germany (Director: P. Crutzen)
  - September 1976 - March 1985: "Aspirant" at the Belgian Fund for Scientific Research. (On leave as a member from the Belgian House of Representatives, May 1977-December 1981.)
  - September 1971 - August 1976: Research Assistant at the *Belgian Institute for Space Aeronomy*
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## 5. Other Past and Present Major Responsibilities:

- From 1 January 2015, Chair of the JSC of the World Climate Research Programme (WCRP) (Office hosted at the World Meteorological Organization in Geneva).
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- External Scientific Member of the Max Planck Institute for Meteorology, Hamburg, Germany, and Member of the Max Planck Society (since 2008).
- Chair, Science Committee, *International Geosphere Biosphere Programme* (IGBP) (2002-2005).
- Coordinating Lead Author, Chapter 7 WG-1 Assessment Report of the *Intergovernmental Panel on Climate Change* (IPCC). The IPCC was awarded the *Nobel Peace Prize* in 2007.
- Member of the Scientific Steering Committee of the College of Global Change and Earth System Science at *Beijing Normal University* since 2008.
- Member of the Research Board of the *Austrian Academy of Sciences* since 2008.
- President, *Atmospheric Science Section, American Geophysical Union* (2002-2004).
- Ex Officio Member of the JSC of the *World Climate Research Programme* (WCRP) and of the SC of the *International Human Dimension Programme* (IHDP).
- Former Head of the “Model and Data Project” supported by the German BMBF (about 25 staff employed). This Group provides documented community models and data to the scientific community.
- Head of the *International Max Planck Research School* for Earth System Modeling (IMPRS, 50 PhD students) (2002-2005).
- Former Coordinator of the *European Network for Earth System Modeling* (ENES) and of the EC-sponsored Program for Integrated Earth System Modeling (PRISM).
- Member of the Scientific Advisory Committee of the *European Centre for Middle-Range Weather Forecasts* (ECMWF, 2003-2004).
- Member of the Advisory Board of the ETH Supercomputer Center located in Manno, Switzerland (since 2004).
- Former Editor-in-Chief, *Journal of Geophysical Research—Atmospheres* (1992–1996).



- Former Chair, Science Steering Committee of the *International Global Atmospheric Chemistry (IGAC) Project* of the International Geosphere Biosphere Programme (IGBP) (1994–2001).
  - Former elected member (1978–1981) of the *Belgian House of Representatives* (Belgian Federal Parliament) and Belgian delegate (1979–1982) to the Parliamentary Assemblies of the *Council of Europe* (Strasbourg, France) and of the *Western European Union* (Paris, France).
  - Former Member of the *City Council of Uccle*, Belgium (1970-1988)
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## 6. Educational Activities:

- Since 2001: Honorary Professor at the *University of Hamburg* (Germany).
- Professor at the *Free University of Brussels* (Belgium), Department of Earth Sciences (Courses: External Geophysics (15 hours/year) and Geochemistry of the Atmosphere (15 hours/year), Dynamics of the Upper Atmosphere (15 hours/year)). „Suppléant“ since fall 2002.
- Until 2005: Head of the International Max Planck Research School (IMPRS) on Earth System Modeling, Hamburg (Germany) 60 PhD students
- Research Affiliate, Department of Earth, Atmospheric and Planetary Sciences, *Massachusetts Institute of Technology* (MIT), Cambridge, Massachusetts, USA (1999-2001)
- 2004: Visiting Professor at the University of Sao Paulo, Brazil
- February 1991–1997: Lecturer, *University of Colorado*, Boulder, Colorado, USA
- 1995: Director, NATO Advanced Study Institute on "The Stratosphere and Its Role in the Climate System," 1–4 September 1995, Val Morin, Quebec, Canada
- 1991: Visiting Lecturer, University of Kyoto, Japan
- 1989: Visiting Professor, University of Louvain-la-Neuve, Belgium, Institute for Astronomy and Geophysics
- 1984: Visiting Lecturer at the Institute for Atmospheric Physics, Beijing, China
- 1983—1984: Visiting Lecturer at the University of Wuppertal, Federal Republic of Germany
- 1983: Lecturer at the Belgian Fund for Scientific Research
- 1981: Visiting Lecturer at the University of Paris VII, France
- 1979: Visiting Lecturer at the Ecole Polytechnique Fédérale, Lausanne, Switzerland
- Member of several Ph.D. thesis committees in the United States, France, Canada, and Belgium

- Thesis Advisor to several Ph.D. students at the Free University of Brussels, Belgium, at the University of Colorado, USA, and at the University of Hamburg, Germany (see below)
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## 7. Academies, Honors and Awards:

### *Academies*

- Member of the *Academia Europaea*
- Foreign Member of the *Norwegian Academy of Sciences and Letters*.
- Founding and Ordinary Member of the *Academy of Sciences of Hamburg*, Germany
- Associate Member of the *Royal Academy of Belgium*, Section: Technology and Society
- Member of the Research Board of the *Austrian Academy of Sciences* (2011-2013)
- Former Corresponding Member of the *International Academy of Astronautics* (Section 1 - Basic Sciences), Paris, France

### *Honorary Degrees and other Honors*

1. Doctor *Honoris Causa* of the University Pierre and Marie Curie, Paris, 2005.
2. Doctor *Honoris Causa* of the University of Oslo, Norway, 2008.
3. Doctor *Honoris Causa* of the University of Athens, Greece, 2010
4. Fellow of the *American Geophysical Union* (2005)
5. Coordinating Lead Author of the IPCC report (WG1) that was awarded the *Nobel Peace Prize* 2007.

### *Awards and Prizes*

6. Scientific Prize *GLAXO* for young scientists, 1973
7. WETREMS Prize of the Scientific Class of the *Royal Academy of Belgium*, 1974
8. Quinquennial *Jacques Cox Prize* of the Free University of Brussels, 1975
9. NCAR *Outstanding Publication Award*, 1995
10. Award on Environmental Physics by the *European Physical Society* and *Balkan Physical Union* (in recognition of outstanding contributions to our understanding of the atmospheric environment), 2002.
11. Special Recognition to distinguished Belgian Scholars (2004) by the *World Cultural Council* (Mexico)
12. Group Achievement Award (AURA team) for the success in designing, building and launch of the Aura Observatory, given by the National Aeronautics and Space Administration (NASA), 2005.
13. Group Achievement Award (TIMED team) for outstanding accomplishments in enhancing understanding of the Earth's upper atmosphere and changes induced by the Sun and other influences, given by the National Aeronautics and Space Administration (NASA), 2009.
14. Abate Juan Ignacio Molina Prize to develop a research project in cooperation with a Chilean institution, Chile 2014

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## 8. Service to the Community:

- Member of the Joint Science Committee (JSC) of the World Climate Research Programme (WCRP) .
- Member of the Think Tank of the *Helmholtz Association*, Berlin (2010-2013).
- Member of the Advisory Panel of the „Center for Climate and Resilience Research“ (CR2) linked to the University of Chile, Santiago, Chile/
- Member of the Advisory Panel of the EU Project „Monitoring Climate and Atmospheric Chemistry“ (MACC II), Copernic Program.
- Member of the Science Advisory Committee of the *Korean Ocean Research and Development Institute*, South Korea (2010-2012).
- Member of the Scientific Steering Committee of the *Institute of Global Environmental Change of the Xi'An Jiatong University*, China (2011-2015)
- Chair of the ICSU Ad hoc Panel on Regional Environmental Change (requested by the Belmont Forum)
- Member of the Review Panel of the *Commissariat à l'Energie Atomique (CEA)*, France (2010-2011)
- Chair of the Geo-Vision Committee at the US *National Science Foundation* (Preparation of a Strategic Vision for the Geosciences at NSF) (2008-2009).
- Lead Coordinating Author of the FAA/NASA Assessment document on the impact of aviation on climate. Lead Chair of the Science Panel of the ACCRI Program (Aviation Climate Change Research Initiative of the FAA, USA, 2010-2013)
- Member of the Senate Commission of the *Helmholtz Association*, Berlin, Germany, and Chair in 2008 of the Review Panel on Marine, Coastal and Polar Systems.
- Member of the Advisory Board of the *College of Global Change and Earth System Science, Normal University*, Beijing, China.

- Member of the Scientific Advisory Committee of the *Swiss Supercomputing Center*, Mano, Switzerland
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- Member and Chair of the Scientific Committee of the *International Geosphere-Biosphere Programme* (2002-2005)
- Member of the Scientific Advisory Panel of the *Potsdam Institute for Climate Impacts* (PIK), Potsdam, Germany (2003-2007).
- Chair of the Subcommittee on the “Analysis of Global Change Assessments” (2006-2007), The US *Academy of Sciences*, Washington, DC.
- Member of the US *Academy of Sciences* Committee on Strategic Guidance for NSF’s Support of the Atmospheric Sciences (2004-2005)
- Member of the Scientific Council of the *Institut des Sciences de l’Univers of CNRS*, France (2001- 2002)
- Member of the Advisory Committee for Scientific Research of *Meteo-France* (2001-2006).
- Chair of the Evaluation Committee of the *Frontier Research System for Global Change*, Yokohama, Japan (2003 and 2007)
- Member of the European Commission Advisory Panel on Tropospheric Chemistry (2000-2004)
- Member, Science Advisory Board, *Max-Planck-Institut für Chemie* (Otto-Hahn-Institut), Mainz, Germany (1998-2003)
- Member, Science Advisory Board, *Institute for Atmospheric Physics*, Kühlungsborn, Germany (1998- 2002)
- Member of the IGBP Task Force on *Global Analysis, Interpretation and Modeling* (GAIM) (1992–1994) and (1998–2001)
- Member of the *International Commission on Atmospheric Chemistry and Global Pollution* [IAMAP/CACGP], (1979-1983) and (1995-2001)
- Member of the *International Ozone Commission* (1992-2000, and 2008 to present)
- Member of the Evaluation Committee for the Climate Monitoring and Diagnostic Laboratory (CMDL), NOAA, Boulder, Colorado, USA (1991) and of the Evaluation Committee for the Aeronomy Laboratory of NOAA in Boulder, Colorado, USA (1995)

- Member of the AMS Committee on the Middle Atmosphere (1990-1993)
  - Member of the Advisory Committee for Atmospheric Sciences, *National Science Foundation*, Washington, D.C., USA (1991-1992)
  - Member of the Panel of Model-Assimilated Data Sets, US *National Academy of Sciences* (1989)
  - Associated member of the Belgian National Committee for Geodesy and Geophysics (1977-1978) and Former member of COSPAR subcommittee A2 (Earth's Middle Atmosphere and Lower Ionosphere) (1984-1988)
  - Member of ICMUA-Modeling of the Middle Atmosphere [IMAP] (1987-1988)
  - Member of the special committee "Stratospheric Physics and Chemistry" for the General Delegation for Scientific and Technical Research (DGRST), France (1978-1981)
  - Chair of the Science Committee of the Belgian Royal Society of Engineers and Industrials and member of the board of this Society (1974-1978)
  - Member of COSPAR subcommittee C2 (Dynamics of Geochemistry and Climatology of the Middle Atmosphere)
  - Former Member of the Board of the Belgian Royal Society of Astronomy, Meteorology and Earth's Physics
  - Former Member of the Subcommittee on Global Modeling: Terrestrial-Atmosphere Interactions of the Global Change Committee, National Academy of Sciences
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## 9. Publications:

### 9.1. Books

1. Brasseur, G., *Physique et chimie de l'atmosphère moyenne*, 310 pages, Masson Editeurs, Paris, France, 1982.
2. Brasseur, G., and S. Solomon, *Aeronomy of the Middle Atmosphere*, 441 pages, Reidel Publishing Company, The Netherlands, 1984. Second edition in 1986 by Kluwer (Translated into Russian [1987] and Chinese [1988].). Third edition (644 pages) published in 2005 by Springer Verlag.
3. Brasseur, G. P. (Ed.), *The Stratosphere and Its Role in the Climate System*, NATO/ASI Series, Series 1: Global Environmental Change, Vo. 54, 366 pp., Springer Verlag, Berlin, 1997.
4. Brasseur, G. P., J. Orlando, and G. Tyndall (Eds), *Atmospheric Chemistry and Global Change*, 654 pages, Oxford University Press, New York, 1999.
5. Brasseur, G. P., R. G. Prinn, and A. P. Pszenney (Eds), *Atmospheric Chemistry in a Changing World*, 300 pages, Springer Verlag, Heidelberg, 2002.
6. Mosbrugger, V., G. Brasseur, M. Schaller, and B. Stribrny (Eds), *Klimawandel und Biodiversität (Climate Change and Biodiversity)*, 432 pages, WBG, Darmstadt, 2012.
7. Brasseur G. P. and D. J. Jacob, *Mathematical Modeling of Atmospheric Chemistry*, in preparation (2014).

### 9.2. Scientific Papers Published in Refereed Journals

8. Brasseur, G., and S. Cieslik, On the behaviour of nitrogen oxides in the stratosphere, *Pure Appl. Geophys.*, **106-108**, 1931–1937, 1973.
9. Brasseur, G., and M. Nicolet, Chemospheric processes of nitric oxide in the mesosphere and stratosphere, *Planet. Space Sci.*, **21**, 939–961, 1973.
10. Brasseur, G., J. L. van Eck, and P. Vilain, Selection of a single pulse from a mode-locked laser using avalanche transistors, *Appl. Optics*, **14**, 1758–1759, 1975.
11. Bertin, M., and G. Brasseur, Utilisation d'un modele bi-dimensionnel méridional pour l'étude de la répartition et de la circulation de l'ozone stratosphérique, *L'Aéronautique et l'Astronautique*, **61**, 11–15, 1976.
12. Brasseur, G., and J. Lemaire, Fitting of hydrodynamic and kinetic solar wind models, *Planet. Space Sci.*, **25**, 201–202, 1977.



13. Brasseur, G., Un modèle bi-dimensionnel du comportement de l'ozone dans la stratosphère, *Planet. Space Sci.*, **26**, 139–159, 1978.
14. Brasseur, G., Long-term effect on the ozone layer of nitrogen oxides produced by thermonuclear explosions in the atmosphere, *Ann. Geophys.*, **34**, 301–306, 1978.
15. Brasseur, G., and M. Bertin, The action of chlorine on the ozone layer as given by a zonally averaged two-dimensional model, *Pure Appl. Geophys.*, **117**, 436–447, 1978/1979.
16. Brasseur, G., and P. C. Simon, Stratospheric chemical and thermal response to long-term variability in solar UV irradiance, *J. Geophys. Res.*, **86**, 7343–7362, 1981.
17. De Baets, P., G. Brasseur, and P. C. Simon, Chemical response of the middle atmosphere to solar variations, *Solar Physics*, **74**, 349–353, 1981.
18. Brasseur, G., A. De Rudder, and P. C. Simon, Implication for stratospheric composition of a reduced absorption cross section in the Herzberg continuum of molecular oxygen, *Geophys. Res. Lett.*, **10**, 20–23, 1983.
19. Brasseur, G., P. De Baets, and A. De Rudder, Solar variability and minor constituents in the lower thermosphere and in the mesosphere, *Space Sci. Rev.*, **34**, 377–385, 1983.
20. Brasseur, G., and A. Chatel, Modelling of stratospheric ions: A first attempt, *Ann. Geophysicae*, **1**, 173–185, 1983.
21. Simon, P. C., and G. Brasseur, Photodissociation effects of solar UV radiation, *Planet. Space Sci.*, **31**, 987–999, 1983.
22. Brasseur, G., E. Arijs, A. De Rudder, D. Nevejans, and J. Ingels, Acetonitrile in the atmosphere, *Geophys. Res. Lett.*, **10**, 725–728, 1983.
23. Olbregts, J., G. Brasseur, and E. Arijs, Reaction of acetonitrile and chlorine atoms, *J. Photochem.*, **24**, 315–322, 1984.
24. Brasseur, G., Agents and effects of ozone trends in the atmosphere, in *Stratospheric Ozone Reduction, Solar Ultraviolet Radiation and Plant Life*, R. C. Worrest and M. M. Cadwell, Eds., pp. 2–29, Springer Verlag, 1985.
25. Brasseur, G., R. Zellner, A. De Rudder, and E. Arijs, Is hydrogen cyanide (HCN) a progenitor of acetonitrile (CH<sub>3</sub>CN) in the atmosphere? *Geophys. Res. Lett.*, **12**, 117–120, 1985.
26. Keating, G., G. Brasseur, J. Nicholson III, and A. De Rudder, Detection of the response of ozone in the middle atmosphere to short term solar variability, *Geophys. Res. Lett.*, **12**, 449–452, 1985.
27. Brasseur, G., A. De Rudder, and Chr. Tricot, Stratospheric response to chemical perturbations, *J. Atmos. Chem.*, **3**, 261–288, 1985.

28. Arijs, E., and G. Brasseur, Acetonitrile in the stratosphere and implications for positive ion composition, *J. Geophys. Res.*, **91**, 4003–4016, 1985.
29. Labitzke, K., G. Brasseur, B. Naujokat, and A. De Rudder, Long-term temperature trends in the stratosphere: Possible influence of anthropogenic gases, *Geophys. Res. Lett.*, **13**, 52–55, 1985.
30. Brasseur, G., and P. De Baets, Ions in the mesosphere and lower thermosphere: A two-dimensional model, *J. Geophys. Res.*, **91**, 4025–4046, 1986.
31. Brasseur, G., and D. Offermann, Recombination of atomic oxygen near the mesopause: Interpretation of rocket data, *J. Geophys. Res.*, **91**, 10,818–10,824, 1986.
32. Keating, G. M., J. Nicholson III, G. Brasseur, A. De Rudder, and U. Schmailzl, Detection of HNO<sub>3</sub> response to short-term solar ultraviolet variability, *Nature*, **322**, 43–46, 1986.
33. Kouker, W., and G. Brasseur, Transport of atmospheric tracers during a winter stratospheric warming event, *J. Geophys. Res.*, **91**, 13,167–13,185, 1986.
34. Keating, G. M., M. C. Pitts, G. Brasseur, and A. De Rudder, Response of middle atmosphere to short-term solar ultraviolet variations: 1. Observations, *J. Geophys. Res.*, **92**, 889–902, 1987.
35. Brasseur, G., A. De Rudder, G. M. Keating, and J. Nicholson III, Response of middle atmosphere to short-term solar ultraviolet variations: 2. Theory, *J. Geophys. Res.* **92**, 903–914, 1987.
36. Brasseur, G., C. Cariolle, A. De Rudder, L. J. Gray, J. A. Pyle, E. P. Roeth, U. Schmailzl, and D. J. Wuebbles, Odd nitrogen during the MAP/GLOBUS campaign, *Planet. Space Sci.*, **35**, 637–645, 1987.
37. Brasseur, G., and A. De Rudder, The potential impact on atmospheric ozone and temperature of increasing trace gas concentrations, *J. Geophys. Res.*, **92**, 10,903–10,920, 1987.
38. Hitchman, M. H., and G. Brasseur, Rossby wave activity in a two-dimensional model: Closure for wave driving and meridional eddy diffusivity, *J. Geophys. Res.*, **93**, 9405–9417, 1988.
39. Brasseur, G., and M. H. Hitchman, Stratospheric response to trace gas perturbations: Changes in ozone and temperature distributions, *Science*, **240**, 634–637, 1988.
40. Brasseur, G., M. H. Hitchman, P. C. Simon, and A. De Rudder, Ozone reduction in the 1980's: A model simulation of anthropogenic and solar perturbations, *Geophys. Res. Lett.*, **12**, 1361–1364, 1988.

41. Gillotay, D., P. C. Simon, and G. Brasseur, Absorption cross-section of alternative chloro-fluoroethanes and potential effects on the ozone layer, *Planet. Space Sci.*, **37**, 105–108, 1989.
42. Hitchman, M. H., J. C. Gille, C. D. Rodgers, and G. Brasseur, The separated polar winter stratopause: A gravity wave driven climatological feature, *J. Atmos. Sci.*, **46**, 410–422, 1989.
43. Rose, K., and G. Brasseur, A three-dimensional model of chemically active trace species in the middle atmosphere during disturbed winter conditions, *J. Geophys. Res.*, **94**, 16,387–16,403, 1989.
44. Brasseur, G., M. H. Hitchman, S. Walters, M. Dymek, E. Falise, and M. Pirre, An interactive chemical dynamical radiative two-dimensional model of the middle atmosphere, *J. Geophys. Res.*, **95**, 5639–5655, 1990.
45. Smith, A. K., and G. Brasseur, The Dependence of Constituent Transport on Chemistry in a Two-Dimensional Model of the Middle Atmosphere, *J. Geophys. Res.*, **95**, 13,749–13,764, 1990.
46. Brasseur, G. P., C. Granier, and S. Walters, Future changes in stratospheric ozone and the role of heterogeneous chemistry, *Nature*, **348**, 626–628, 1990.
47. Granier, C., and G. Brasseur, Ozone and other trace gases in the Arctic and Antarctic regions: A three-dimensional model simulation, *J. Geophys. Res.*, **96**, 2995–3011, 1991.
48. Taylor, J. A., G. Brasseur, P. Zimmerman, and R. J. Cicerone, A study of the sources and sinks of methane using a global 3-d Lagrangian tropospheric tracer transport model, *J. Geophys. Res.*, **96**, 3013–3044, 1991.
49. Smith, A. K., and G. P. Brasseur, Numerical simulation of the seasonal variation of mesospheric water vapor, *J. Geophys. Res.*, **96**, 7553–7563, 1991.
50. Moreau, D., L. W. Esposito, and G. Brasseur, The chemical composition of the Martian atmosphere, *J. Geophys. Res.*, **96**, 7933–7945, 1991.
51. Brasseur, G. P., Natural and anthropogenic perturbations of the stratospheric ozone layer, *Planet. Space Sci.*, **40**, 403–412, 1992.
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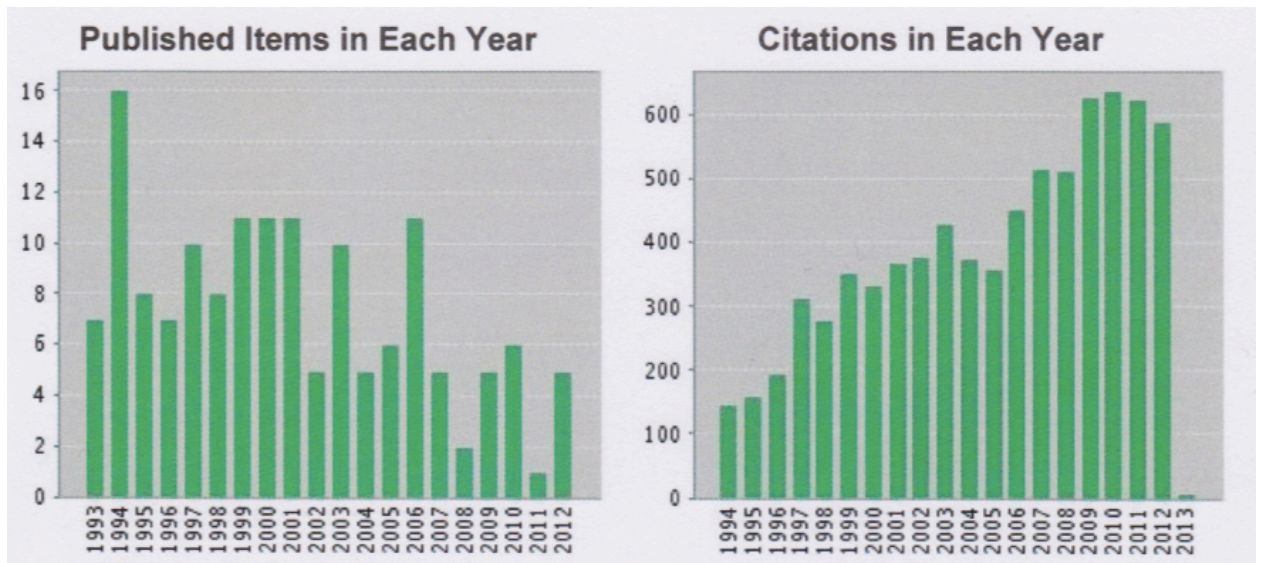
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## 10. Supervision of PhD Theses

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## 12. Past and Present Financial Support for Research Project

[in addition to base funding by the Belgian Fund for Scientific Research (FNRS), the US National Science Foundation (NSF), and the Max Planck Society (MPG)]

- National Aeronautics and Astronautics Administration (NASA-USA)
  - Department of Energy (DoE, USA)
  - Chemical Manufacturers Association (CMA- USA)
  - Gas Research Institute (GRI-USA)
  - European Commission (EC, Brussels, Belgium)
  - Belgian Service for Science Policy (SPPS-Belgium)
  - German Ministry for Science and Education (BMBF-Germany)
  - North Atlantic Treaty Organization (NATO, Brussels, Belgium)
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## 13. Current Involvement in Research Projects

*PANDA*: Coordinator (PI) of the EU “Partnership with China on Space Data” (PANDA) involving 14 partners (7 in Europe and 7 in China) with focus on the use of space observations, in situ measurements and complex chemical transport models of the atmosphere to predict “chemical weather” (atmospheric pollution) in Asia.

Contributing investigator of the following EU projects

*ECLISE*: Enabling Climate Information Services for Europe

*ACCENT-Plus*: Atmospheric Composition Change: The European network

*CLIPC*: Climate Information Platform for Copernicus

*MACC III* Monitoring of Atmospheric Chemistry and Climate.

