

I. General information

Coheur, Pierre

Born 03-10-1971 in Turnhout (Belgium)

SQUARES. Spectroscopy • Quantum Chemistry • Atmospheric Remote Sensing

CPI 160/09, Université Libre de Bruxelles (ULB)

Brussels, Belgium

+32-2-650 2578

<https://squares.ulb.be/people/pfcoheur/main.html>; pierre.coheur@ulb.be

Short presentation

I am a physical chemist, “Doctor in Sciences from the Université Libre de Bruxelles –ULB–” and “Doctor Communitatis Europae” (1999) following an international mobility programme during the PhD (University of Brighton and Max Born Institute in Berlin). My main fields of expertise acquired during 5 years as postdoctoral researcher, at ULB with stays at Université Paris VI and NCAR (Boulder, USA) are on molecular spectroscopy, radiative transfer, satellite remote sensing and environmental chemistry. I have authored or coauthored more than 230 peer-reviewed publications in these fields (*h factor* of 59 - December 2023), including several high impact and featured papers.

At ULB, I have been leading the atmospheric remote sensing group for almost 20 years, successively as Research Associate (2005-2013) and Senior Research Associate (2013-2015) with the F.R.S.-FNRS; then as (Associate) Professor at ULB from 2015. I have co-directed the SQUARES laboratory for 7 years (2016-2023) and head of the Chemistry Department at ULB for 2 years (2020-2022). I teach environmental chemistry, molecular spectroscopy, spectrophysics, atmospheric chemistry and environmental remote sensing. I have (co)supervised over 15 PhD theses and over 25 MA theses.

I am PI or col of various international projects and satellite mission teams; I am in particular chairman of the IASI sounder science working group (CNES, EUMETSAT), a member of the IRS Mission Advisory Group (EUMETSAT) and I have act as Lead Scientist for the Nitrosat Earth Explorer candidate mission (ESA). I am also a member of the local scientific committees of the Solvay Institutes and act as expert in several selection and review committees.

II. Academic degrees:

- PhD in Sciences, ULB 1999
- Master in Chemistry, ULB, 1994
- "Agrégation de l'Enseignement Secondaire Supérieur", ULB, 1994

III. Scientific career:

3.1 Academic and scientific positions

- 2017- : Professor at ULB
- 2015-2017: Associate Professor (Chargé de cours) at ULB
- 2013-2015: Senior Research Associate (Maître de Recherches) at FRS-FNRS
- 2005-2013: Research Associate (Chercheur Qualifié) at FRS-FNRS
- 2005-2015: Senior Lecturer « Maître de conférence et d'enseignement » at ULB and 2009-2011 : Supply Professor UMH (Mons-Hainaut University)
- 1999-2005: Postdoctoral Researcher: Belspo/Prodex (1999-2001 and 2004-2005) and FRS-FNRS (Chargé de Recherches 2001-2004)
- 1994-1998 : IRSIA/FRIA fellow (PhD bursary), ULB

3.2 Visiting scientist

- July-August 2008, >1 month at the National Center for Atmospheric Research, Boulder, U.S.A.
- May 2004, 1 month at the National Center for Atmospheric Research, Boulder, U.S.A.
- 2002-2003, 8 months at the Service d'Aéronomie, Université de Paris-6, Paris, France
- 1995-1996, 3 months at the University of Sussex, Falmer-Brighton, UK (Prof. Sir H.W. Kroto),
- 1997-1998, 3 months at the Max Born Institute, Berlin, Germany (Prof. E.E.B. Campbell)

IV. Teaching career

4.1 Lectures and practical work at ULB

As Professor or Associate Professor

Since 2019

- "Spectrophysique" (PHYS-F-304, 5 ECTS, shared with S. Van Eck)

Since 2015

- "Spectroscopies Moléculaires" (CHIM-F-325, 5 ECTS, shared with J. Vander Auwera)
- "Chimie de l'environnement et risques chimiques" (ENVI-F-474, 5 ECTS, shared with L. Rongy)
- "Sciences de l'atmosphère et changements climatiques" (ENVI-F-526, 5 ECTS, with C. Clerbaux)
- "Remote sensing of climate and environmental variables" (ENVI-F-451, 5 ECTS)

2011-2015 ; as Lecturer ("Maître de Conférences")

- "Photophysique dans les atmosphères planétaires et le milieu interstellaire" (CHIM-F-405, 4 ECTS, shared with N. Vaeck)
- "Sciences de l'atmosphère et changements climatiques" (ENVI-F-526, 5 ECTS, with C. Clerbaux)
- "Atmospheric radiation and satellite remote sensing" (ENVI-F-451, 2 ECTS).

Before 2011

- "Spectroscopie Atmosphérique et Télédétection Spatiale" (CHIM-F-454, 2 ECTS). *Lecture 2007-2011*
- "Chimie de l'Atmosphère" (CHIM-F-405, 2 ECTS). *Lecture 2005-2011*
- "Structures et Spectroscopies Moléculaires". *Practical Work 2006-2010*
- "Chimie Physique Moléculaire". *Practical Work 2004-2010*

4.2 Invited lectures

- "Remote sensing of atmospheric composition in the infrared" University of Gent - 2h / year since 2021
- "Introduction to atmospheric remote sensing" ULB. within GEOG-F425. 1h / year 2010-2022
- The Maïdo Observatory Summer School with lectures on "Radiation, spectroscopy and radiative transfer" and "Global atmospheric composition measurements from sounders on satellites" St-Gilles de La Réunion, December 2016
- The International Summer School on the "Spectroscopy and Physico-Chemistry of Planetary Atmospheres" with a lecture on "Satellite missions to sound the Earth atmosphere" Fréjus, France, June 2015
- The first Summer school "Partnership with China on Space data", with a lecture on "Satellite remote sensing: infrared observations of the troposphere" Bremen, Germany, August 2015

4.3 Supervision of PhD theses and Master theses

Supervision of PhD theses

- Mauri Rosier; *Sciences (Chemistry)*, co-supervision with ULg 2024-ongoing
- Gaia Pinardi; *Sciences (Chemistry)*, co-supervision with BIRA-IASB, 2023-ongoing
- Beata Opacka; *Sciences (Chemistry)*, co-supervision with BIRA-IASB, 2021-ongoing
- Gilles Lecomte; *Sciences (Chemistry)*, 2018-ongoing
- Hélène De Longueville ; *Sciences (Chemistry)*, December 2023
- Ermioni Dimitropoulou; *Sciences (Chemistry)*, co-supervision with BIRA-IASB, December 2021

- Jimmy Bouche; *Sciences (Chemistry)*, co-supervision with BIRA-IASB, **November 2021**
- Stamatia Doniki; *Sciences (Chemistry)*, **August 2019**
- Gaétane Ronsmans; *Sciences (Chemistry)*, **November 2018**
- Veerle De Bock; *Sciences (Chemistry)*, co-supervision with KMI-IRM **October 2018**
- Simon Whitburn; *Bioengineering sciences*, **December 2017**
- Enrico Dammers, *Environmental Sciences*, co-supervision with VU Amsterdam **September 2017**
- Sophie Bauduin; *Sciences (Chemistry)*, **October 2016**
- Yannick Willame; *Sciences (Physics)*, co-supervision with BIRA-IASB **November 2015**
- Martin Van Damme; *Bioengineering sciences*, joint supervision with VU Amsterdam **May 2015**
- Jean-Lionel Lacour, *Sciences (Chemistry)*, **January 2015**
- Yasmina R'honi, *Sciences (Chemistry)*, **June 2014**
- Robin Campion; *Sciences (Geology)*, co-supervision with A. Bernard ULB, **2011**
- Catherine Wespes; *Sciences (Chemistry)*, **February 2010**

Supervision of MA theses

N. Van Bellingen, *Master in Environmental Sciences*, **2023**; A. Giaprakis, *Master in Chemistry* **2023**; S. Boutsen *Master in Environmental Sciences*, **2022**, Z. Bourdonge, *Master in Bioengineering* **2022**; G. Demuynck, *Master in Chemistry* **2022**; L. Noppen, *Master in Chemistry* **2021**, A. Gniewczynska, *Master in Chemistry* **2021**; L. Francotte, *Master in Chemistry* **2021**; F. Hajji, *Master in Chemistry* **2021**; P. Willame, *Master in Chemistry* **2021**; Merlin Velghe, *Master in Environmental Sciences*, **2019**, Joana Pinto, *Master in Chemistry* **2019**, H. De Longueville, **2019**, G. Lecomte, *Master in Chemistry* **2018**; L. Dineon, *Master in Chemistry* **2018**; S. Ibrahim, *Master in Bioengineering* **2016**; P. Delaunoy, *Master in Environmental Science* **2015**; N. Martinez, *Master in Chemistry* **2014**; Y. Vranx, *Master in Chemistry* **2013**; J. Roty, *Master in Environmental Science* **2013**; G. Herremans, *Master in Environmental Science* **2013**; S. Bauduin, *Master in Chemistry* **2012**; G. Chaumont, *Master in Bioengineering* **2012**; B. Santos, *Master in Physics* **2010**; M. Van Damme, *Master in Bioengineering* **2009**; Y. Willame, *Master in Physics* **2007**; C. Polart, *Master in Bioengineering* **2006**; N. Rahal, *Master in Chemistry* **2006**

4.4 Committees of PhD theses and habilitation theses

Committee of PhD theses (Italic when outside ULB)

M. Beaudor, *Université de Paris-Saclay*, **2023**; T. Bertin, ULB (as chairman of jury), **2023**; A. Farji, *Ecole Nationale Supérieure d'Ingénieurs de Tunis et ULB*, **2022**; P. Alalam, *Université de Lille*, **2022**; N. Maira, ULB (as chairman of jury), **2022**, M. Luffarelli, ULB (as chairman of jury), **2022**; J. Tisaun, ULB, **2021**; Y. Forget, ULB (as chairman of jury), **2020**; A. Gibbons, **2019**, S. Berger, ULB, **2017**; S. Collette, ULB, **2017**; G. Rea, *Ecole Polytechnique Palaiseau, France*, **2015**; S. Safieddine, *UPMC Sorbonne Universités, France*, **2015**; T. Thonat, *Ecole Polytechnique Palaiseau, France*, **2014**; O. Carrière, ULB, **2011**; V. Kanawade, *Leicester University, United-Kingdom*, **2010**

Committee of habilitation theses

S. Turquety, *Laboratoire de Météorologie Dynamique, France*, **2017**; H. Herbin, *Université de Lille 1, France*, **2014**

V. Publications and principal scientific activities

5.1 Publications

Book chapters

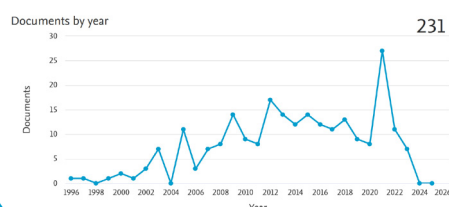
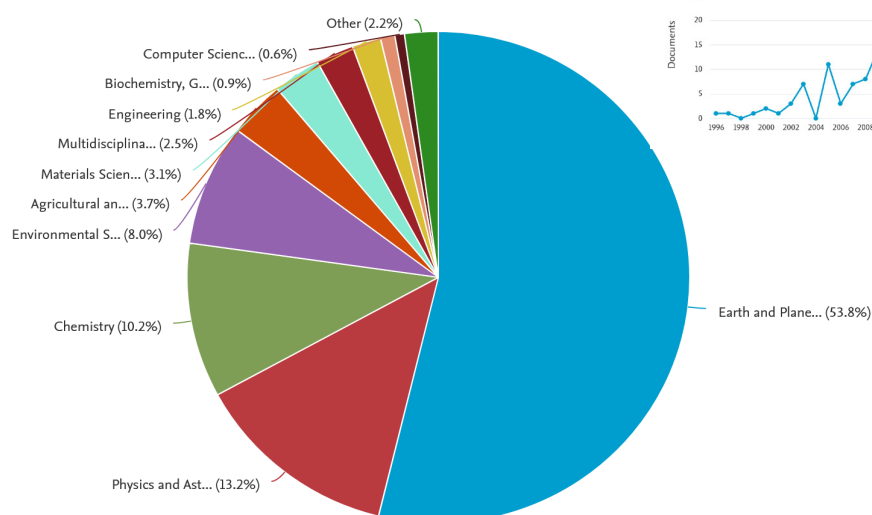
- Co-author contribution to 4 chapters of collective works
- Guest Editor for a Special Issue of Molecular Spectroscopy on “molecular spectroscopy, atmospheric composition and climate change”
- Contribution (« avis d’experts ») to the online version of “Principes de télédétection: applications à l’observation de la Terre et de son climat ». Dunod. 2023.

Peer-reviewed publications in international journals (from Scopus; Last updated December, 2023)

- 231 journal articles; 37 % as last author in the last 10 years
- Over 11000 citations (by >6500 documents)
- Over 1000 co-authors
- *h* index of 59

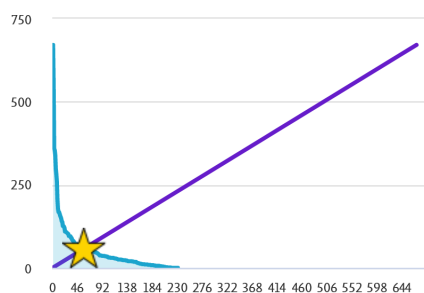
My author profile generated by Scopus in December 2023 (from which the above metrics are extracted) is given in the following two infographics.

Documents by subject area



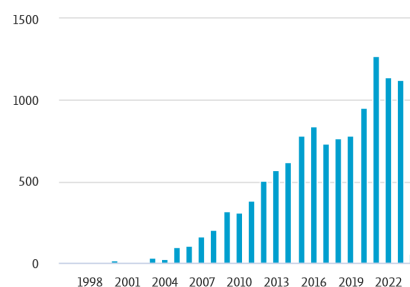
h-index

59 ↗



Citations

11.844 ↗



Coheur, P. F.

Université Libre de Bruxelles, Brussels, Belgium 6603425325 Connect to ORCID View more

11,844

Citations by 6,639 documents

231

Documents

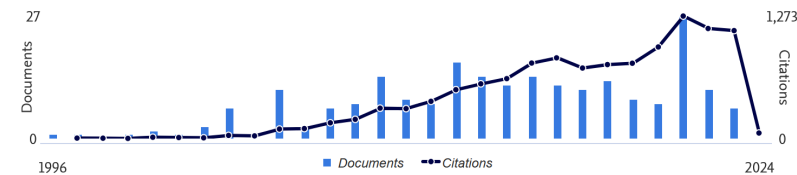
59

h-index View h-graph

View all metrics >

- Set alert
- Edit profile
- More

Document & citation trends



Most contributed Topics 2018–2022

- Dry Deposition; Emission Inventory; Nitrogen
25 documents
- China; GOME; Nitrogen Dioxide
7 documents
- MOPITT; Ozonesondes; Troposphere
5 documents

Collaboration

100.0%

International collaboration

Percent of documents co-authored with researchers in other countries/regions

10.7%

Academic-Corporate collaboration

Percent of documents with both academic and corporate affiliations

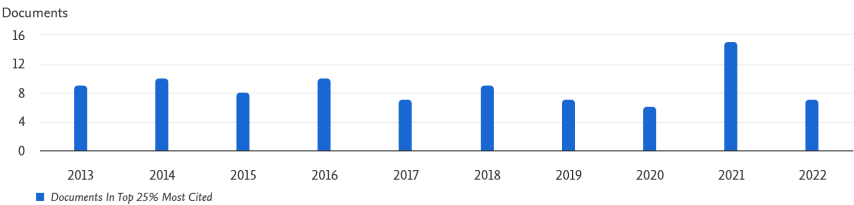
Analyze author in SciVal

Documents in top citation percentiles

67.2% (88 documents)

Percent of documents in the top 25% most cited documents worldwide

Analyze author in SciVal

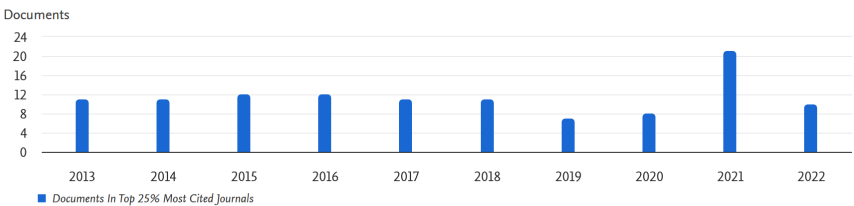


Documents in top 25% journals by CiteScore percentile

91.9% (114 documents)

Percent of documents in the top 25% journals by CiteScore

Analyze author in SciVal



5.2 *Scientific activities*

5.2.1 *Short stays abroad*

- Regular visits to space agencies for satellite mission advisory groups (EUMETSAT, CNES, ESA)
- Regular short stays/visits at LATMOS IPSL / CNRS, Paris, France, **2003-2010**
- Regular meetings for the EU-FP7 ECLAIRE, QA4ECV, PANDA projects, the ESA O₃ CCI initiative and the EUMESTAT O3MSAF projects. **2010-now**
- Regular meetings for ESA CAMELOT and OnTRAQ projects. **2006-2009**
- ACCENT Barnsdale Expert Workshop. **27-29 October 2008**
- Measurement campaigns (ground-based FTIR) at La Réunion. **2 × 2 weeks in 2002 and 2004**
- Measurement campaign at GSMA, Reims, France. **3 weeks in 2001-2002**
- "Laboratoire des Matériaux et Procédés Membranaires", Montpellier, France. **1 week in 1996**

5.2.2 *Personal contributions to international conferences*

Invited oral presentations

Excluding invited seminars/conferences, which are listed in sections 5.2.3 and 5.5.

- "Nitrosat : A Satellite Mission Concept For Mapping Reactive Nitrogen At The Landscape Scale" **ESA Living Planet Symposium, Bonn (Germany), May 2022**
- "EE-11 candidate Nitrosat : A Satellite Mission Concept For Mapping Reactive Nitrogen At The Landscape Scale" **ESA ATMOS Conference (virtual), November 2021**
- "Atmospheric composition applications with IASI and next-generation hyperspectral IR sounders IASI-NG and IRS" **International Geoscience and Remote Sensing Symposium (virtual), July 2021**
- "Sounding atmospheric composition in the infrared – highlights from IASI mission", **GTEO webinar on Air and Atmosphere, November 2020**
- "Atmospheric Chemistry products and applications" **EUMETSAT webinar on Next-Generation hyperspectral infrared sounders, October 2020**
- "IASI observations of pollutants after 10 years in orbit" **EUMETSAT Conference, Tallin (Estonia), September 2018**
- "Stratospheric chemistry with IASI and possible synergies with ALTIUS" **First ALTIUS international Symposium, Brussels, 2-3 May 2017**
- "New insights on sources and distributions of reactive nitrogen revealed from the global monitoring of atmospheric ammonia" **European Geophysical Union General Assembly, Vienna, Austria, 28 April-2 May 2014**
- "Satellite remote sensing of the reactive lower atmosphere using medium resolution infrared measurements: Highlights from IASI mission" **International Symposium on Molecular Spectroscopy, Columbus University, USA, 17-21 June 2013**
- "Advances in nadir infrared spectrometry from satellites for atmospheric composition", **GMES-PURE workshop, Rutherford Appleton Laboratory, UK, 11-12 June 2013**
- "Atmospheric composition measurements with the IASI hyperspectral sounder: local to global", **High-resolution Molecular Spectroscopy Symposium, Dijon, France, September 2011**
- "Observing the troposphere with IASI: Emission, chemistry and transport", **AURA Science meeting, Leiden, The Netherlands, 14-17 September 2009**
- "Tropospheric Composition Measurements with IASI: Emission, transport, chemistry and climate", **ACCENT-AT2 meeting, Mainz, Germany, 22-23 June 2009**
- "Tropospheric Composition Measurements with IASI", **European Geophysical Union General Assembly, Vienna, Austria, 20-24 April 2009**
- "IASI measurements of short-lived species", **4th Hyperspectral sounder Meeting, Darmstadt, Germany, 15-16 September 2008**
- "Infrared atmospheric sounding from space: Highlights from IASI/MetOp and future perspectives", **Quadriennial Ozone Symposium (QOS), Tromsø, Norway, 30 June 2008**
- "Mesures de la composition de l'atmosphère terrestre par spectroscopie infrarouge depuis l'espace", **Journées de Spectroscopie Moléculaire, Lyon, France, 18-20 May 2005**

Regular oral presentations

- “Ammonia total column distributions and point source emissions from IASI” EUMETSAT Meteorological satellite conference, Malmö, Sweden, September 2023.
- “Nitrosat Mapping reactive nitrogen at the landscape scale” European Geophysical Union General Assembly, Vienna, Austria, April 2021.
- “Mapping NH₃ with IASI” EUMETSAT Meteorological satellite conference, Boston, U.S.A September-October 2019.
- “Global distributions and 5-years time series in the concentrations of reactive species retrieved from IASI/MetOp”, EUMETSAT-AMS Conference, Vienna, Austria, September 2013
- “Atmospheric chemistry with hyperspectral infrared sounders : illustration from IASI Mission” Space days, Liège, Belgium, September 2012
- “Global multi-sensor satellite monitoring of volcanic SO₂ and ash emissions in support to aviation control”, AGU Chapman Conference, Selfoss, Iceland, June 2012
- “Observation of fire emission products and chemistry with IASI”, Eumetsat Conference, Cordoba, Spain, September 2010
- “Global to local observations of atmospheric ammonia with IASI”, 2^d IASI Conference, Sévrier, France, January 2010
- “IASI measurements of VOCs”, EUMETSAT Conference, Bath, UK, September 2009
- “IASI measurements of biomass burning and volcanic plumes”, EUMETSAT Conference, Darmstadt, Germany, September 2008
- “Tropospheric chemistry using IASI / MetOP: overview of initial results”, 2^d ACCENT symposium, Urbino, Italy, July 2007
- “Tropospheric NO_y and organic species (ACE-FTS / IMG)”, ACCENT AT-2 Workshop, Créteil, France, December 2006
- “Retrieval, validation and characterization of O₃, CO and HNO₃ vertical profiles from the IMG nadir spectra”, 12th ASSFTS meeting, Québec, Canada, April 2005
- “Retrievals of ozone vertical distributions from IMG/ADEOS spectra”, 35th COSPAR, Paris, France, July 2004
- “Fourier transform absorption spectroscopy of water vapour in the visible and near-infrared spectral regions”, 35th EGAS conference, Brussels, Belgium, July 2003
- “Absolute intensities of water vapor lines in the near ultraviolet and visible regions”, EOS- SPIE Conference, Remote Sensing of Clouds and the Atmosphere V, Barcelone Spain, September 2000
- “Photophysical properties of some C₆₀ and C₇₀ derivatives”, Workshop on the “Formation, Stability and Photophysics of Fullerenes”, Göteborg, Sweden, September 1998
- “Optical emission and reflectron time of flight studies of laser generated carbon clusters”, Workshop on the “Formation, Stability and Photophysics of Fullerenes”, Exeter (UK), April 1996

Poster presentations

- “Detecting and Assessing Trends of CFCs and Substitutes from IASI Measurements” EUMETSAT Meteorological satellite conference, Boston, U.S.A 30 September- 4 October 2019.
- “Near-real-time processing of IASI radiance spectra for applications in atmospheric chemistry and physics”. The 2009 Eumetsat Conference, Bath, UK, 20-24 September 2009
- “Retrieval of trace gas concentrations from the IASI nadir radiance spectra”, 12th “Atmospheric Spectroscopy from Space using Fourier Transform Spectroscopy” meeting, Quebec, Canada, 18-20 May 2005.
- “Atmosphit: a new tool for simulating and inverting atmospheric spectra”, 12th Atmospheric Spectroscopy from Space using Fourier Transform Spectroscopy meeting, Quebec, Canada, 18-20 May 2005
- “Potential use of IASI for volcanic clouds detection and monitoring”, 35th COSPAR, Paris, France, 18-25 July 2004
- “Retrievals of trace gases from IMG/ADEOS spectra for chemistry and climate applications”, 11th “Atmospheric Spectroscopy from Space using Fourier Transform Spectroscopy” (ASSFTS), Bad Wildbad, Germany, 8-10 October 2003
- “Fourier transform absorption spectroscopy of water vapour in the visible and near-infrared spectral regions”, Eighteenth Colloquium on High Resolution Molecular Spectroscopy, Dijon, France, 8-12 September 2003

- “Ground-based solar absorption FTIR spectroscopy at the Reunion Island”. **The 2003 Fourier Transform Spectroscopy and Optical Remote Sensing Topical Meeting, Quebec, Canada, 01 – 09 February 2003**
- “Absorption spectra of gas phase C₆₀ and C₇₀ in the visible and UV”, **The Second International Interdisciplinary Colloquium on the Science and Technology of the Fullerenes, Oxford, UK, 7-10 July 1996**

5.2.3. *Invited Seminars/Conferences*

- “La composition et la chimie de l’atmosphère terrestre vues depuis l’espace: Les résultats exceptionnels de la mission IASI”. **Conference at the “Institut de Physique de Rennes”, Rennes, France, October 2013**
- “La composition et la chimie de l’atmosphère terrestre vues depuis l’espace”, **Annual meeting of the “Société Royale de Chimie”, Louvain-la-Neuve. October 2012**
- “Monitoring our changing atmosphere; highlights from IASI mission”, **Sino-Belgian Workshop on Biodiversity and Climate change, Shanghai, China, October 2010**
- “Measurements of atmospheric pollution on global and local scales using infrared spectroscopy from space”, **Groupe de contact F.N.R.S. “photophysique et photochimie moléculaires”, UCL, Belgium. September 2006**
- “L’observation spatiale pour l’étude de la chimie atmosphérique et du climat”, **Ecole Doctorale Photomat, Parentville, Belgium. September 2005**
- “Spectroscopie électronique de fullerènes”, **Institute for Studies in Interface Sciences, FUNDP, Belgium. December 1999**
- “Propriétés photophysiques de C₆₀, C₇₀ et de leurs dérivés”, **Service de Chimie des Matériaux Nouveaux, Université de Mons Hainaut, Belgium. November 1997**

5.2.4. *Membership of science committees and institutions*

- Chairman of the Nitrosat Mission Advisory Group. **2021-2023**
- Chairman of the IASI Sounder Science Working Group (EUMETSAT-CNES). **2019-now (member from 2009)**
- Member of the IRS-MTG Mission Advisory Group (EUMETSAT). **2018-now**
- Lead Investigator of the Nitrosat Earth Explorer candidate mission (ESA). **2016, 2018, 2020, 2022**
- Member of the Local Committee for Chemistry of the Solvay Institutes. **2013-now**
- Member of the Science Committee of the FRS-FNRS Doctoral School “Sciences de l’Univers, de l’Espace, de la Terre et du Climat (UNITER)”. **2005-2010 ; 2015-now**
- Member of the scientific committee of the international IASI Conference series. **2006-now**
- Member of the Collège des Alumni” from the Belgian Royal Academy. **2005-now**
- Member of the ACE Science Team. **2004-now**
- President of the FRS-FNRS Doctoral School “Sciences de l’Univers, de l’Espace, de la Terre et du Climat (UNITER)”. **2010-2015**
- Member of the ESA Category-1 Advisory Group. **2007**

FRS-FNRS committees

- Member of the FRIA PE10-jury. **2016-2018 and 2021-now**
- Member of the SEN4 scientific commission of FRS-FNRS. **2016-2018**
- Member of the SEN1 scientific commission of FRS-FNRS. **2012-2014**
- Member of the FRIA scientific commission 16. **2013-2015**
- Member of the scientific commission for the attribution of the Boel-Sofina fellowships. **2018**

Academic recruitment and promotion committees (*italic when outside ULB*)

- *Member for promotion at SW3 - SW4 levels at the Belgian Institute for Space Aeronomy. 2020*
- Member of the scientific commission for the recruitment of an Assistant Professor in Physical Chemistry, ULB. **2016**
- *Member of the scientific commission for the recruitment of Professor in Physical Chemistry, Université de Lille 1, France. 2015*
- *Member for a promotion at SW4 level at the Belgian Institute for Space Aeronomy. 2013*
- Member of the scientific commission for the recruitment of an Assistant Professor in Analytical Chemistry, ULB. **2012**
- Member of the scientific commission for the recruitment of an Assistant Professor in Organic Chemistry, ULB. **2011**

5.2.5. Referee for international Journals

Regular referee for "Journal of Geophysical Research"; "Geophysical Research Letters"; "Atmospheric Chemistry and Physics"; "Atmospheric Environment"; "Journal of Quantitative Spectroscopy and Radiative Transfer", "Atmospheric Measurement Techniques"

Occasional referee for "Atmosphere"; "Remote sensing letters"; "Journal of Atmospheric and Oceanic Technology", "Nature food"

5.2.6. External reviewer and Follow up committees

Reviewer for national or international agencies, the "Swedish National Space Agency" (2020); the "Centre National d'Etudes Spatiales" (CNES, France); the "Agence de la transition écologique" (ADEME, France); the "National Institute of Space Research" (SRON, The Netherlands), the "Nederlandse Organisatie voor Wetenschappelijk Onderzoek" (NWO, The Netherlands), the "Fonds National de la Recherche Scientifique" (FRS-FNRS, Belgium), the "European Space Agency" (ESA)

Follow-up committee of Belpo projects "SynergistiC study Of the atmOsphere of terrestrial Planets (SCOOP)" **2014-2016**; "Belgian Urban NO₂ Monitoring Based on APEX hyperspectral data (BUMBA)" **2014-2016**; "Atmospheric research from ground (AGACC-II)" **2010-2014**

5.2.7 Selected active collaborations

- Laboratoire Atmosphères, Milieux, Observations Spatiales, Paris, France (C. Clerbaux, S. Turquety, C. Viatte).
- Koninklijk Nederlands Meteorologisch Instituut, The Netherlands (P. Levelt and coworkers)
- University of Waterloo, Canada; University of Old Dominion, MA, U.S.A. (P. Bernath)
- University of Harvard (Prof. D. Jacob)
- Imperial College London, UK (Dr. E. Marais)
- NERC Centre for Ecology and Hydrology, UK (M. Sutton, S. Reis)
- Leiden University, The Netherlands (J.W. Erismann)
- Laboratoire de Météorologie Dynamique, Ecole Polytechnique, Palaiseau, France (C. Crevoisier)
- The European Organization for the Exploitation of Meteorological Satellites (D. Coppens)
- Atmospheric Chemistry Division, National Center for Atmospheric Center, Boulder, CO, U.S.A. (D. Edwards, H. Worden)
- Finnish Meteorological Institute, Helsinki, Finland (J. Tamminen, S. Hasinen)
- Atmospheric Chemistry Group, Princeton University, U.S.A. (M. Zondlo)
- Belgian Institute for Space Aeronomy (BIRA/IASB), Brussels, Belgium (M. De Mazière, M. Van Roozendaal, J. Stavrakou, J.F. Müller, AC Vandaele)
- Université de La Réunion, France (N. Bègue, V. Duflot, H. Benchérif)
- Institute for Space Astrophysics and Planetology, Rome, Italy (M. Giurana)

5.3 Awards

- Frontiers Planet Prize, National champion, **2023**
- Certificate for outstanding contribution to the Mars Express mission (ESA), **2023**
- 2023 - Research.com Environmental Sciences in Belgium Leader Award **National ranking 10; World ranking 920; 2023**
- Supported Researcher of the Fondation Air Liquide **2021-now**
- Researcher of the "Fondation de l'Université". **2010-now**
- FNRS Mandat d'Impulsion Scientifique F.R.S.-FNRS. **2008-2010**
- A.Sc.Br (Association des Agrégés, Docteurs et Licenciés de la Faculté des Sciences de l'ULB) award for the best Master thesis in Sciences, **1994**
- Stas Award of the Royal academy of Sciences for the PhD Thesis, **1999**

5.4 Activities in relation to cooperation and development

- Collaboration with academic institutions in the South Indian Ocean (La Réunion, Madagascar, Comores). Maito Observatory summer school **2016**; TAMARIN Erasmus+ project – not selected. **2021**

5.5 Outreach

Articles

- S. Whitburn, C. Clerbaux, P. Coheur "Climat : ce que révèle le sondeur atmosphérique IASI et ses 45 milliards d'observations". *The Conversation* 2021. **69490 views, 2 comments, 8 republications** (as of December 2023)
- P. Coheur, C. Clerbaux, "Des satellites pour surveiller l'environnement et l'atmosphère , *L'artichaut*, 2020.
- C. Clerbaux, P. Coheur. Où sont passées les 400 millions de tonnes de CO₂ rejetées par les incendies australiens ? *The Conversation*, 2020. **55690 views, 6 comments, 12 republications** (as of December 2023)
- T. Phulpin, Camy-Peyret, C.; Taylor, J.; Clerbaux, C.; Coheur, P.; Crevoisier, C.; Edwards, D.; Gambacorta, A.; Guidard, V.; Hilton, F.; Jacquinet, N.; Knuteson, R.; Lavanant, L.; McNally, T.; Matricardi, M.; Revercomb, H.; Serio, C.; Strow, L.; Schlüssel, P.; Klaes, D.; Larigauderie, C "Les résultats exceptionnels de IASI, sondeur atmosphérique hyperspectral de Metop". *La Météorologie*, issue n°72, 2011
- C. Clerbaux, M. George, J. Hadji-Lazaro, L. Clarisse , D. Hurtmans and P. Coheur "Mesure du SO₂ et des cendres volcaniques avec IASI", *La Météorologie*, issue n°74, 2011.
- Clerbaux, C. and P.F. Coheur, "Suivi de la pollution depuis l'espace à partir de sondeurs infrarouge". *Ciel et Terre*, 122(3): p. 66-72, 2006.
- P.F. Coheur : "Fullerènes et Spectroscopie", A.Sc.Br (Association des Agrégés, Docteurs et Licenciés de la Faculté des Sciences de l'ULB), 1995.

Conferences

- Des satellites pour surveiller l'environnement et l'atmosphère. **Cepulb. 2021**
- Des satellites pour surveiller l'environnement et l'atmosphère. **Cepulb. 2020**
- La composition et la chimie de l'atmosphère terrestre vues depuis l'espace. **Congrès des Sciences. August 2013**
- Notre atmosphère : état des lieux, évolution future et solutions (with C. Clerbaux and G. Brasseur) : L'atmosphère terrestre vue du ciel. **The Royal Academy of Science, Letters and Fine Arts of Belgium. 16 May 2013**
- "L'Univers plein gaz", **Café Scientifique, Dijon, September 2011**
- « les couleurs des étoiles et des planètes et des couleurs pour surveiller l'environnement » **Scientothèque asbl, 2009**
- "La Chimie et les Jeunes" **Walchim/Bruchim/Fedichem Conferences in schools 1998-2000**

Group supervision

- Supervision of a school class for a project on atmospheric pollution, during the event "Bruxelles 2000 : la Science et la Ville". 2000
- Scientific workshops in primary schools. 2000

Medias

- Active participation to the "researcher-journalist" meeting. ULB. 2021
- Science highlights communicated on*
 - Several youtube movies on IASI
 - TV (Journal télévisé RTBF, 2011, 2014, 2016 ; Journal télévisé RTL 2016)
 - Radio (RTBF via live shows or podcasts, 2012, 2015; Radio Campus 2011, 2014; Euradio, 2023)
 - Featured researcher with frontiers Planet Prize: Le soir, La libre Belgique, L-Post, 2023
 - Newspaper (Le Soir, 2011, 2014, La libre Belgique, 2021, and several others)

VI. Administrative responsibilities

6.1. Research and teaching

6.1.1. As Principal, co-investigator of research projects (amounts given for projects started after 2010)

- 2024-2027: PI for ESA/Prodex project "Hyperspectral atmospheric IR sounding missions – phase 2" (HIRS). **1.9 M€ entire project; 1.1 M€ ULB.**
- 2023-2027: co-PI of the "O3BCCM" BELSPO FEDtWIN. **0.6 M€ entire project; 360 k€ ULB for the first 5 years**
- 2023-2026: co-PI of the "Win4excellence/Space4relaunch" project of the FWB. **17.7 M€ entire project; 402 k€ ULB.**
- 2023-2024: co-I of the ESA "O3 Climate Change Initiative O3-CCI+" **0.3 M€ entire project; 30 k€ ULB.**
- 2023-2025: co-I of the ESA "Other Long Lived Greenhouse gases"; **0.6 M€ entire project; 30 k€ ULB.**
- 2022-2027: PI for ARC project "SPectroscopy in support to the exploration of planetary atmospheres" (SPHERES). **657 k€.**
- 2022-2027: Co-I for the EUMETSAT "Satellite Application Facility on Atmospheric Composition Monitoring (ACSAF)" 4th phase. **7.2 M€ entire project; 569 k€ ULB.**
- 2022-2025: co-I of the BELSPO Brain project: "long-Term Assessment, Proxies and Indicators of Ozone and Water vapour changes affecting Climate and Air quality" (TAPIOWCA), **0.3 M€ entire project; 89 k€ ULB.**
- 2022-2023: co-I of the "Nitrosat Scientific study" in Phase 0. **600 k€ total; 175 k€ ULB.**
- 2021-2025: co-PI of the "ARENBERG" BELSPO FEDtWIN. **0.6 M€ entire project; 360 k€ ULB for the first 5 years**
- 2021-2023: PI for ESA/Prodex project "Hyperspectral atmospheric IR sounding missions" (HIRS). **1.7 M€ entire project; 1.0 M€ ULB.**
- 2021-2023: PI of the project "Tracking Ammonia Pollution from IR satellite observations (TAPIR)" for the Fondation Air Liquide. **149 k€**
- 2020-2021: PI for EUMETSAT study on "Utilization of PCA for atmospheric composition applications". **60 k€**
- 2019-2022: co-I of the ESA "O3 Climate Change Initiative O3-CCI+", **500 k€ total; 55 k€ ULB.**
- 2017-2022: Co-I for the EUMETSAT "Satellite Application Facility on Atmospheric Composition Monitoring (ACSAF)". **6.9 M€ entire project; 498 k€ ULB.**
- 2018-2019: PI for ESA/Prodex project "Infrared Atmospheric Sounding with IASI and Follow-on missions" (IASI.Flow) – phase II. **1.6 M€ entire project; 0.7 M€ ULB.**
- 2017-2020: Co-PI for the Belspo-BRAIN project "Oxygenated organic Compounds in the Tropical Atmosphere: Variability and atmosphere-biosphere Exchanges (OCTAVE)". **0.7 M€ entire project; 208 k€ ULB.**

- 2016-2020: PI for F.R.S.-FNRS project “CaRbon species in the Atmosphere of Mars from Infrared Composition sounders” (CRAMIC). **433 k€ entire project; 217 k€ ULB.**
- 2014-2018: PI or ESA/Prodex project “Infrared Atmospheric Sounding with IASI and Follow-on missions” (IASI.Flow) – phase II. **1.6 M€ entire project; 1.2 M€ ULB.**
- 2014-2017: co-I for EU-FP7 project “Quality Assurance for Essential Climate Variables” (QA4ECV); **5.0 M€ entire project; 100 k€ ULB.**
- 2014-2016: co-I for EU-FP7 project “Partnership with China on Space Data” (PANDA). **2.0 M€ entire project; 150 k€ ULB.**
- 2014-2016: co-I for ESA project “Climate Change Initiative for ozone” (O3CCI). **2.2 M€ entire project; 120 k€ ULB.**
- 2012-2017: Co-I for the EUMETSAT “Satellite Application Facility on Ozone and Atmospheric Chemistry Monitoring (O3MSAF)”. **6.3 M€ entire project; 300 k€ ULB.**
- 2012-2013 : co-I for ESA project “SIROCCO: The synergetic SWIR and IR retrievals of near-surface concentrations of CH₄ and CO for Earth and Planetary atmospheres”. **250 k€ entire project; 20 k€ ULB.**
- 2012-2013 : co-I for ESA project “SACS2 : Support to aviation Control Service”. **300 k€ entire project; 75 k€ ULB.**
- 2011-2015 : co-I for EU-FP7 project : “Effects of Climate Change on Air Pollution and Response Strategies for European Ecosystems (ECLAIRE)”. **7.0 M€ entire project; 40 k€ ULB.**
- 2010-2013 : co-PI for ESA/Prodex project A3C : “Atmospheric Composition, Chemistry and Climate”. **3.6 M€ entire project; 868 k€ ULB.**
- 2009-2012 : co-I for ESA project “SACS+ : Support to aviation Control Service”.
- 2009-2011 : co-I for EU-FP7 project : “European Volcano Observatory Space Services (EVOSS)”
- 2008-2010 : co-PI for ESA/Prodex project SECPEA : “Space based exploration of the Chemistry and Physics of the Earth’s Atmosphere”.
- 2008-2009: co-PI for ESA project “ON-TRAQ : Original and New Tropospheric Chemistry and Air Quality”.
- 2008-2009: co-PI for CNES project: “Etude de l’impact du contraste thermique sur l’inversion de l’ozone dans la couche limite”.
- 2008-2009: co-PI for EUMETSAT project: “potential of MTG-IRS to detect high pollution events at urban and regional scales” (EUM/CO/07/4600000447/SAT)
- 2005-2006: co-PI for EUMETSAT project ‘Capabilities of IRS-MTG to sound ozone, carbon monoxide and methane using ESA pre-phase A specifications’ (EUM/CO/05/1484/SAT)
- 2005-2007: Co-PI of ESA/Prodex project ‘Atmospheric Chemistry Experiment’ (Prodex Arrangement No. 90115)
- 2005-2007: PI of ESA/Prodex project ‘Tropospheric Chemistry using IASI (Prodex Arrangement No. 90220)
- 2004-2007 : Co-PI of FRFC project ‘Détection de constituants minoritaires de l’atmosphère par spectroscopie IR-UV-Vis et détermination des paramètres spectroscopiques nécessaires’ (Convention No. 2.4536.01)
- 2004 : PI of EUMETSAT project ‘CO retrieval from MTG IRS and UVS missions’ (EUM/CO/04/1296/SAT)
- 2002-2005 : co-PI of ESA/Prodex ‘ACE-IASI’ proposal (Arrangement No. 90115)

6.1.2. Organization of Erasmus, Socrates...programs

- Erasmus+ travel grant to Université de La Réunion (teaching mobility). **November 2017**

6.1.3. Organization of conferences, workshops etc.

- Scientific and Organizing Committee of the Solvay Workshop on “New Frontiers in Atomic, Nuclear, Plasma and Astrophysics”, **Bruxelles, Belgium, 2019**
- Science committee of the IASI international Conferences; **2007**, Anglet, France; **2010**, Sévrier, France; **2013**, Hyères, France; **2016**, Juan-les-pins, France; **2021**, Evian, France.

- Member of the Science Committee for the Solvay Workshop “Molecular Complexes in our Atmosphere and Beyond”, **Bruxelles, Belgium, 2010**
- Member of the local organizing committee of the workshop "Formation, Stability and Photophysics of Fullerenes", **Bruges, 17-21 September 1997.**
- Member of the local organizing of the "ACE Science Team Meeting ", **ULB, 16-17 October 2001**

6.2. Contribution to the ULB administration

6.2.1. At rectoral level

- Advisor for the Rector – Research in Science and Technology **2023-now**
- Member of the « Commission des classements des crédits internationaux » **2023-now**
- Member of the Research Council designated by the CA for excellence in research **2021-2023**
- Member of the selection committee of the Research Council and of the committee for strategic fundings **2021-2023**
- Member of the Commission on Ethics and Integrity in Research **2021-2023**
- Academic sponsor for an institutional research data repository **2023-now**

6.2.2. At Faculty – Chemistry Department level

- Chair of the Teaching Commission of the Chemistry Department, **2023-now**
- Secretary of jury for the Bachelor in chemistry, **2023-now**
- Board of Doctoral Committee, **2010-now** (President 2014-2021; secretary since 2021 and 2010-2014)
- Member of the Chemistry Department Board, **2020-now** and **2007-2015**
- Member of the Chemistry Department Nomination Committee, **2020-now** (as president in 2021 and 2022) and **2010-2015**
- Member of the Commission for Quality in Teaching for Chemistry **2016-now**
- Responsible of the library for Chemistry, **2010-now**
- Head of Chemistry Department **2021-2022** (vice-president in 2020 and 2023)
- Secretary of the Chemistry Department, **2007-2009**

6.2.3. Other

- Contribution to the Mentoring program **2022-2023** (Mentor of T. Magain) and **2019-2020** (Mentor of H. Valkenier)
- Academic sponsor for the institutional research repository. **2023-now**

VII. Additional information

Personal training:

- SWOT analyses (DTAS, ULB), **2021**
- Continuing education and self-evaluation (CAP, ULB), **2022**
- Active communication with medias (ReSIC, ULB), **2017**
- Team management (SH/RO) ; Base and consolidation courses (ULB). **2017**

VIII. Summary of research activities

The work carried out in my group consists in sounding the chemical composition of the low atmosphere from space. Molecular spectroscopy and atmospheric radiative transfer are at the heart of our research, which opens to the study of atmospheric and environmental processes. Specifically, we exploit the measurements of infrared satellite sounders to retrieve and analyze local-to-global concentration distributions of reactive trace gases in the Earth's atmosphere. This allows tackling some of the important questions in relation to stratospheric ozone destruction and the ozone hole, air pollution and local air quality; long-range transport of air pollution; climate change and chemistry-climate interactions; biogeochemical cycles.

Brussels, January 2024

Pierre Coheur
