



Environment International

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Professional profile

Chris Balouet is environmental expert specialized in environmental forensics, site assessment, contaminant release, transport, fate, impacts and control in air, soil and water. He is managing director of Environment International, a company he established in 1993. He served for seven years the United Nations Environment Program, Division for Industry, Technology and Economics as consultant; as well as international research organizations as a research scientist for eight years.

Chris Balouet has developed and lead research programs ; served major industrial companies worldwide as environmental consultant , chaired and served new industry standards ; served as expert in different environmental diagnostics, investigations, legal cases at international level. He authored 96 publications, and keeps teaching environment in universities. His international experience is multidisciplinary, from regulatory or standard compliance to establishing / evaluating scientific chemical, biological, physical or historical evidence, from local to global standpoints.

Chris BALOUET has developed, over recent years, the use of dendroecology in environmental forensics. He has worked on 120 sites, 150 trees (52 species) for fingerprinting, characterizing and age-dating pollutants releases (see short bibliography below).

He is listed in France as judicial expert by Amiens' Appeal Court and Secretary General of the Compagnie Nationale des Experts Judiciaires en Environnement.

Credentials

1986 : PhD / Post Doc : Smithsonian Institution.

1984: Doctorate (3° cycle): Earth Sciences, University Paris VI, Jussieu /La Sorbonne

1982: Degree of Advanced Studies (DEA): Evolutionary Biology and Genetics, University Paris VII

1981: Graduate (Maîtrise): Earth Sciences, University Paris VI

Relevant Experience

1993 to Present, Manager, Environment International.

The company specializes in environmental forensics, consultancy and expertise, science and technology, regulations and standards, surveys, analysis, compliance, anticipation and

management issues in various industries. The company consists of 14 specialists located in various countries of the world including United States and Europe.

Environment International Ltd deals in pollution events, environmental impact, occupational and public exposures to the environment.

Expert witness in international legal cases and governmental enquiries (USA, Europe, Australia).

1989-1994, Consultant, United Nations Environment Program,

Scientific consultant UNEP's Industry Technology and Economics Office, in charge of technology, scientific and regulatory survey worldwide, and editor of the OzonAction, an international newsletter, including technology transfer. Collaboration with over 1000 private and public Parties.

1978- 1986 Scientific research

Post Doctorate Scientist, Smithsonian Institution, Washington DC. 1984-1986

Research Scientist, National Museum of Natural History, Paris; 1978-1986
and University Paris VI

29 research field expeditions in Europe, North America, Australia, Pacific. List available on request.

Areas of experience / expertise :

Environmental forensics, regulations and standards, compliance along with authorities & industry.

- Soil pollution & contaminants release : forensics, expertise, consultancy, fieldwork and site assessment, regulations & standards, scientific/regulatory/technology survey at international level. In recent years, he developed the use of dendroecology and proxy-recorders, including microanalysis, in environmental forensics.
- Aerospace materials and chemicals, including environmental impact & toxicity, standard setting, expert witness, consultant to OEMs in product development, scientific/regulatory/technology survey at international level.
- International Protocols : Ozone layer protection, Global warming, Cleaner Production, PICs : consultant, technology transfer, scientific/regulatory/technology survey & communication at international level.
- Landslides : forensics, geology and remediation, expertise.
- Air pollution & air conditioning : airborne chemicals and pathogens : consultant, technology transfer, standard setting, scientific/regulatory/technology survey at international level. Expertise.
- Comparative osteology : forensics, systematics and biogeography, expertise, research.

Collaborations / Organizations

Secretary General of the French National Company of Judicial Experts in Environment (CNEJE).

Collaborator of United Nation's (e. g. UNEP, WB, UNDP, WHO, UNIDO, WMO), intergovernmental bodies (e. g. EU / EC), governmental (Ministries and Administrations), Interpol, national and international- NGOs including professional organizations and industry activities.

On Board of International Society of Environmental Forensics and Associate Editor.

Environmental forensics expert : US & European companies, attorneys, expert witness to over 5 legal cases; environmental expert listed in Florida State ; consultant Interpol /Europol Environmental crime.

President of Environmental Forensics Conference, Paris, 2012 ; President of First World Conference on Age dating in Environmental forensics, Paris, 2016.

Founding member, scientific coordinator and head of Pollution Investigation by Trees (PIT), an international program (51 members, 6 nations) funded by French Ademe.

Member of the Aerospace Medical Association, Former Chair of Occupational / Environmental Safety sub-Committee, member of Air Transport Medicine, Safety and Crew Health /Passenger Health Committees.

Member of ASTM E50 (Environmental Assessment) sub-committee on Environmental Forensics (E 50-06), vice-chair of its Legal admissibility task group.

Member of the International Society of Automotive Engineers, Aerospace division, Chairman of AC-9 "Ozone", "Cabin Air Quality", "Particulate Contaminants", "Airborne Chemicals" Technical Standards,

Member of ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) in charge of international reports, International Member of TC 9.3

Member of the *Institut International Francophone d'Évaluation Environnementale*, and *Institut de l'énergie et de l'environnement de la francophonie* 2000/2001

Member of the Conférence des Professions de l'Environnement, French Ministry of Environment, in charge of "ethics" and "contracts" working groups.

Founder and Moderator of two international egroups dealing with Environment.

Member of 6 egroups dealing with Environment, Engineering, Occupational Sciences.

Contributed to several international organizations (IUCN –including ICZN-), several national and international scientific associations (including SZF, SGF ; American, Italian, French and Russian Academies of Sciences...).

Founder and Manager of the Clinic for Oiled Sea Birds (Britanny-France), 1976-1978, that was established for the Boehlen supertanker's wreck to the Amoco Cadiz's (250 000 tons). Supervised the activities of 25 staff members, 3000 volunteers and 200 visiting scientists.

Founder member and President Planet CO2, 2008, and of Environmental Forensics International Task Force (2015)

Member of Advisory Scientific Committee to Association, of Environmental Health and Sciences AEHS (2012).

Publications / communications

Author, Editor and Series Director 1986-2011

43 scientific publications, 14 International newsletters, 26 books, 7 book chapters and 12 book adaptations. Three publications pending.

List of available publications on request. Some selected publications :

"The use of dendroecological methods to estimate the time frame of environmental releases", in Environmental claims Journal,

"OzonAction" newsletter published by the United Nations Environment Program.

"Aviation and Exposure to Toxic Chemicals", 1999-01-5603, World Aviation Conference, International Society of Automotive Engineers & American Institute of Aeronautics and Astronautics.

"Extinct Species of the World", foreword by Jacques Cousteau (192 pages).

The above publications have been translated into Arabic, Chinese, Dutch, English, German, Italian, Japanese, Portuguese, Russian, Spanish.

- Contribution to over 300 newspaper articles, 150 radio and 70 TV programs in 12 countries.
- Participation in over 90 International Meetings, more than 50 presentations at international conferences, contribution to four international standards committees as chair and to three committees as member.
- Some references to peer-reviewed publications : International Society of Environmental Forensics, United Nations Environment Program, International Social Security Association, Smithsonian Institution, French Academy of Sciences, Italian Academy of Sciences, Russian Academy of Sciences, International Society of Automotive Engineers, Bulletin de l'Institut Pasteur, French Geological Society, French Zoological Society, American Museum Novitates, European Commission / ICRP, Aerospace Medical Association, American Institute of Aeronautics and Astronautics, Journal of Occupational Health and Safety – Australia & New Zealand, ASHRAE....
- Peer-reviewer : Environmental Forensics, E S & T, EHP, French Academy of Sciences ...

Short bibliography in dendroecology :

Balouet Jean Christophe, 2005 : Dendroecology, a key forensics age-dating tool.
Environmental Forensics, 6:1–2, ISSN: 1527–5922 print

Balouet Jean Christophe and Oudijk Gil, 2006 : The Use of Dendroecological Methods to Estimate the Time Frame of Environmental Releases, Environmental Claims Journal, 18(1/winter):1–18 (2006) Copyright _C 2006 Taylor & Francis Group, LLC ISSN: 1040-6026

Balouet Jean Christophe & Smith Kevin T., 2006 : Elemental line-scanning of cores : from fundamental research to environmental forensics applications. Dendroecology, International Conference. Beijing, June 2006. A separate paper is in print in Dendrochronologia.

Balouet Jean Christophe: 2007; Dendroecology, In Introduction to Environmental Forensics, Emerging Technologies. Elsevier publisher. Bryan Murphy and Bob Morrison, Eds.

Balouet Jean Christophe, Oudijk Gil, Petrisor Ioana, Stlocklassa Bengt and Grudd Hakan 2007.: Applied Dendroecology and Environmental Forensics. Characterizing and Age Dating Environmental Releases: Fundamentals and Cases Studies. Taylor & Francis Eds. Environmental Forensics, 8:1–19, 2007 , ISSN: 1527–5922

Balouet, Jean Christophe, Smith, Kevin T., Vroblesky, Don and Oudijk, Gil (2009) 'Use of Dendrochronology and Dendrochemistry in Environmental Forensics: Does It Meet the Daubert Criteria?', Environmental Forensics, 10: 4, 268 — 276, First published on: 16 December 2009 (iFirst)

Burken, J. G.; Vroblesky, D. A.; Balouet, J. C., Phytoforensics, Dendrochemistry, and Phytoscreening: New Green Tools for Delineating Contaminants from Past and Present. *Environmental Science & Technology* **2011**, 45, (15), 6218-6226.

Limmer, M. A.; Balouet, J. C.; Karg, F.; Vroblesky, D. A.; Burken, J. G., Phytoscreening for Chlorinated Solvents Using Rapid in Vitro SPME Sampling: Application to Urban Plume in Verl, Germany. *Environmental Science & Technology* **2011**, 45, (19), 8276-8282.

Balouet J. C.; Burken J. G.; Karg F.; Vroblesky D.; Smith K. T ; Grudd H.; Rindby A.; Beaujard F.; Chalot M. : Dendrochemistry of multiple HVOC releases at a former industrial site. Submitted to *Environmental Science & Technology* , January 2012

Education / teaching

Chargé de Cours / Lecturer : International Environment, Sustainable Development Industrial Environment, ISO 1997-2011

Post-graduates, Masters, DEA, DESS, DRT, Université Paris VI & VII (La Sorbonne), Marne La Vallée. Scientific Tutor and Thesis Jury, for 23 Master students.

Also Lecturer to The Dept of Environment, Universidad Autonoma de Catalunya,

Professor of Anthropology, Ministry of Health (France). 1983-1992

Professor of Sciences : Biology, Maths, Physics, Chemistry 1982-1984

Rectorat d'Académie -France-

Public and private training sessions / seminars / conferences : over 70 worldwide.

Professional honours

Académie des Sciences (Paris,1983), Academia dei Lincei (Rome, 1984), American Government (Smithsonian Institution, 1985/86), Compagnie Française des Pétroles (1980), Fondation de la Vocation (1980), Fondation Singer Polignac (1979), Fondation Ushuaia (1992), Government of New Caledonia (1984), Prix Littéraire F. Sommer (1988), Society of Automotive Engineers – Standards Development Program, Aerospace Branch, Certificate of Appreciation (2003 and 2005), Selected by Who's Who in the World (Marquis Ed. 2010), ; 2000 outstanding Intellectuals of the 21st Century (International Biographical Center, 2011) ; Top 100 scientists 2011 (IBC), Nicole Innovative solutions for soil monitoring (Baden-Baden, 2012).

Others

Informatics : IBM (MS office) and Mac, management, databases and publication softwares, internet.

Languages : English, French (mother-tongued), German (spoken-read though not fluent), Spanish (editing).