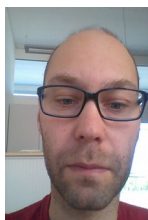


April 16th, 2019



Alexandre Caseiro

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May 24th, 1979 in Liège, Belgium

Academic education

February 2004 – November 2008

PhD on atmospheric aerosol (*Composition of the european atmospheric aerosol*) at the University of Aveiro/Technical University of Vienna.

September 1997 – September 2003

Graduate studies on environmental engineering, University of Aveiro (5-years study).

Final thesis: Responsible for SO₂, NO_x, O₃, CO as well as some PM₁₀/PM_{2.5} measurements and data handling for the SAPPHIRE and CARBOSOL european projects. (October 2002 – September 2003)

Professional experience and capabilities

March 2015 – present:

Post-Doc researcher at the
Max Planck Institute for
Chemistry, Mainz, Germany

[GFS3](#) – Development of a method to detect gas flares and compute their emissions with remote sensing (BIRD/FireBIRD, VIIRS, AATSR, SLSTR).

[FireSense](#) – Development of an improved fire information system by integrating sensor-derived data from drones, planes and satellites with improved algorithms.

Main tasks: Level 1 to Level 2 processing, drone operation with IR cameras, ground campaign management, IR image processing.

February 2011 – September 2014:

Technician at UVW,
Environmental Systems
Modelling Centre

Air quality studies using local to regional atmospheric dispersion models. Meteorological prognostic and environmental risk modelling. Development of task automation scripts. Development of tools to assist in air quality evaluation based on remote sensing data (Level 3). SIG operation. Analysis of climate model outputs.

May 2004 – January 2011

Atmospheric chemistry
scientist at the Vienna
University of Technology and
the University of Aveiro

Liquid chromatography (inorganic ions by IC and sugars by HPAE-PAD), with QA/QC and method development/optimisation, enzymatic determination of polysaccharides, Chemical Mass Balance modelling, statistical analysis (Principal Component Analysis, hypothesis testing), online and offline air quality monitoring.

March 2006 – September 2012

Teacher in higher education

2011 – 2012: Guest associate professor at the Tomar Technology College (Polytechnic Institute of Tomar) (ESTT-IPT): *Environmental Management Systems, Atmospheric Pollution, Gaseous Effluents Treatment Systems*

2008 – 2009: Associate professor at the Technology and Management College of Oliveira do Hospital (Polytechnic Institute of Coimbra) (ESTGOH-IPC): *Hydraulics, Sustainable Construction, Waste Management, Environment and Nature Protection*

2006 – 2007: Technical University of Vienna, Institute of Chemical Technologies and Analytics: *Ion Chromatography*

Skills and competences

Technical

Atmospheric dispersion models, indoor air quality models, meteorological prognostic and environmental risk: TAPM, AERMOD, CALPUFF,

AUSTAL2000, CALROADS, SLAB, EDMS, CONTAM and ALOHA.

Experience with atmospheric pollutants analysers, aerosol sampling systems and their data acquisition systems.

Experience with ion chromatography systems, particularly with High pH Anion Exchange Chromatography – Pulsed Amperometric Detection. Good knowledge of chromatography software: Chromeleon (Dionex) and PeakFit (Systat).

Delignification/saccharification enzymatic methods and XAD/DAX resins.

GIS: some ArcGIS and QuantumGIS, but mainly R and GDAL/OGR.

Experience with multivariate data analysis (Principal Components Analysis/Multilinear Regression and Positive Matrix Factorization) and with the model Chemical Mass Balance.

Basic knowledge of SPSS, good knowledge of the R statistical software.

Experience of remote sensing data processing and manipulation (Levels 1, 2 and 3) and GCM outputs manipulation under diverse formats (grib, NetCDF, HDF, ...), mainly with R and python.

Languages French and Portuguese (first languages), English (very good oral and writing skills); German and Spanish (good oral and writing skills); Dutch (regular); Finnish (basic).

IT, Programming and scripting Good knowledge of *moodle* tools. Good knowledge of Windows® tools (MS Word, Excel, Access, ...); advanced knowledge of Linux systems (bash, zsh, etc.); good knowledge of LaTeX.

R: statistical testing, GIS (*raster*, *sp*, *rgeos*, *rgdal*, ...), data analysis, visualization and modelling, literate programming (*knitr*);

bash / *zsh*: task automation, simple data manipulation (with *grep*, (*g*)*awk*, *sed*, ...), GIS (with *GDAL/OGR*);

python: manipulation, analysis and visualization of large datasets (scientific programming with *scipy/numpy*, *matplotlib*, parallel processing and object-oriented programming, among others), image processing (*imageio*), XML processing (*lxml*).

perl: data manipulation; *pascal* and *FORTRAN*: basic knowledge.

Scientific Production (A larger list of the scientific production can be found [here](#).)

Publications in peer-reviewed journals (37) *Most relevant*: Persistent hot spot detection and characterisation using SLSTR (submitted to Remote Sensing, 10 (7), 1118, 2018)

Communications (51) *Most relevant*: [Monitoring of gas flaring using Sentinel-3 SLSTR. Fourth Sentinel-3 Validation Team meeting.](#)

Diverse

Personal portfolio and other resources
<https://www.linkedin.com/in/alexandre-caseiro-90b1a635/>
<https://github.com/AlexCaseiro1979>
<https://anaconda.org/AlexCaseiro1979/>
https://www.researchgate.net/profile/Alexandre_Caseiro
<https://scholar.google.com/citations?user=IJSgFU4AAAAJ&hl=en>