



Olivier Burggraaff

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 **Work:** Climate & Earth Observation group National Physical Laboratory, TW11 0LW Teddington (United Kingdom)

ABOUT ME

My research experience covers earth observation, optics, physics, and environmental sciences, including data analysis at various spatial, temporal, and numerical scales. I focus on data quality, accessibility, and fitness for purpose.

WORK EXPERIENCE

 **National Physical Laboratory** – Teddington, United Kingdom

Email address: olivier.burggraaff@npl.co.uk | Name of unit or department: Climate & Earth Observation group

Higher Scientist

[Dec 2024 – Current]

At NPL, my primary research focuses on the quality and uncertainty of climate datasets derived from reanalyses, forecasts, projections, and satellite and in situ observations. I combine metrological rigour with user-driven requirements to ensure the fitness for purpose of climate data for public and private sector stakeholders. Customers include ECMWF (Copernicus Climate Change Service) and the UK's DSIT.

In addition, I serve as a line manager and technical reviewer both internally and externally.

 **Universiteit Leiden** – Leiden, Netherlands

Name of unit or department: Institute of Environmental Sciences (CML)

Postdoctoral Researcher

[Oct 2023 – Sep 2024]

As a postdoc, I worked on a Netherlands Space Office-funded project to develop a platform for retrieval of crop yields from earth observation data. I also co-led a project analysing the generalisation ability of probabilistic neural networks, a type of explainable AI, applied to remote sensing of inland water quality. We developed a framework for testing model performance under conditions equal, similar, and dissimilar to their training data, analysing their accuracy and uncertainty.

 **Universiteit Leiden** – Leiden, Netherlands

PhD Candidate

[Feb 2018 – Jul 2022]

My PhD, part of the MONOCLE Horizon 2020 consortium, was focused on accessibility and uncertainty in earth observation of inland waters. I led the development of smartphone-based remote sensing methods using RGB cameras and the iSPEX 2 spectropolarimetry add-on, including design, calibration, laboratory and field validation. Within the ESA-funded OP³ project, I developed spectropolarimetry-based methods for detection of marine plastic in laboratory and field experiments. Working with a natural history museum, I co-designed and calibrated a spectropolarimeter for classification of beetles. I found, quantified, and solved a common source of bias in satellite data processing relating to mathematical rigour, now incorporated in community-standard software. I led a case study on the effects of colour blindness on citizen science measurements of water colour, providing

recommendations for improving participant motivation and data quality now being included in measurement protocols globally.

EDUCATION AND TRAINING

PhD

Universiteit Leiden [Feb 2018 – Dec 2022]

City: Leiden | Country: Netherlands | Level in EQF: EQF level 8 | Thesis: Accessible remote sensing of water

Ocean Optics course

University of Maine [May 2019 – Jun 2019]

City: Walpole, Maine | Country: United States | Level in EQF: EQF level 7

Calibration & Validation for Ocean Color Remote Sensing class (supported by NASA, EUMETSAT). One month of full-time classes, labs, field work, and research projects.

MSc

Universiteit Leiden [Sep 2015 – Jul 2017]

City: Leiden | Country: Netherlands | Field(s) of study: Research in Astronomy | Final grade: Cum Laude | Level in EQF: EQF level 7

Included courses in astronomy, computer science (Advances in Data Mining, Neural Networks), and physics, and two research projects. The first project involved searching the time series of >50 000 stars from the MASCARA instrument leading to a scientific publication. In the second project, we used statistical methods to estimate the velocities of >2 million stars near the Sun using incomplete data from the Gaia satellite.

BSc

Universiteit Leiden [Sep 2012 – Jul 2015]

City: Leiden | Country: Netherlands | Field(s) of study: Astronomy | Final grade: Cum Laude | Level in EQF: EQF level 6

BSc

Universiteit Leiden [Sep 2012 – Jul 2015]

City: Leiden | Country: Netherlands | Field(s) of study: Physics | Final grade: Cum Laude | Level in EQF: EQF level 6

LANGUAGE SKILLS

Mother tongue(s): Dutch

Other language(s):

English

LISTENING C2 READING C2 WRITING C2

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

ORCID <https://orcid.org/0000-0002-2487-4533>

Google Scholar <https://scholar.google.com/citations?user=GMVQnbAAAAAJ>