

Internship in Remote Sensing and Products Division

Internship title: Validation tools and user resources for EUMETSAT Ocean Colour satellite products

EUMETSAT operates space missions that observe the world's living aquatic environments in the visible and near-infrared range of the electromagnetic spectrum. These observations are called Ocean Colour and are used for a range of applications including water quality, health of aquatic ecosystem, fisheries and aquaculture, as well as climate. As a concrete example, Ocean Colour observations allowed scientists to understand the colossal "power" of the oceans in removing the excess carbon from the atmosphere coming from human activities - several Amazon jungles! However, this information is not easy to handle, it must be curated - corrected for instrumental biases, effects from the atmosphere, and others – and validated with in situ field measurements. All this is very challenging, making the science behind Ocean Colour even more exciting. In this context, EUMETSAT has developed a variety of tools and user resources for validation of its Ocean Colour satellite products. They include

- database of in situ, i.e. in-water or just above water, measurements (<https://ocdb.eumetsat.int/>) that are used to compare against satellite data;
- Python tools for extracting and matching satellite data with in situ measurements (Thomas: <https://gitlab.eumetsat.int/eumetlab/oceans/ocean-science-studies/ThoMaS>);
- matchup protocols (<https://www.eumetsat.int/media/44087>);
- framework to ensure the quality of the in situ data used for validations (<https://frm4soc2.eumetsat.int/>); and
- tools for presentation of validation results and satellite product performance in documentation (e.g. <https://www.eumetsat.int/media/47794>) and on a website (METIS-OC: <https://metis.eumetsat.int/oc/>).

The student intern will closely work with EUMETSAT's experts who developed the above tools and resources and will gain experience in satellite and in situ Ocean Colour data analyses and validations.

The internship will provide an overview of satellite visible imaging data as well as operational products from EUMETSAT. The internship will include a high level introduction to the physics of Ocean Colour satellite and in situ measurements, including specific challenges associated with the validation of satellite data with in situ measurements and operational constraints of an Earth Observation



LOCATION

Darmstadt, Germany



QUALIFICATIONS

The internships are open to bachelor and master students with mandatory internship requirements in relevant disciplines such as Computer Science, Informatics Engineer, Physics, Mathematics, Engineering, Biology, Environmental Science.



LANGUAGES

The official languages of EUMETSAT are English and French. It is necessary to be able to work effectively in English.



DEADLINE

20 November 2023

(EO) mission.

Duties

The specific work will cover developments to:

- Build a Graphical User Interface for ThoMaS matchups;
- Port in situ validation results to METIS-OC and METIS operationalization.
- In addition, the intern will support relevant day-to-day activities within the team.

Skills and Experience

- Have the ability to work effectively in English;
- Be computer literate;
- Be intrinsically motivated and curious about the internship subject;
- Be able to work independently and collaboratively;
- Have the ability to take the initiative in researching ideas;
- Have the ability to collect, collate, conceptualize and present information clearly.

Additional specific requirements:

- Hands-on knowledge of Python programming is required;
- Good analytical skills are required;
- Some knowledge of html/css/javascript would be an advantage;
- First experience with metadata-oriented or any self-describing data formats would be an advantage;
- Some knowledge of physics, remote sensing or environmental sciences would be an advantage.

Employment Conditions

Length of internship: **3 months**

Anticipated start date: **First quarter 2024**

The internship will require a non-disclosure agreement and potentially a basic background check for the intern, due to the sensitivity of the provided information.

No salary is paid to interns who are still in studies, however a daily allowance and contribution to travel / accommodation costs may be provided. The conditions will be established taking into account the requirements and policy of the intern's educational institution.

Interns are responsible for providing their own health and accident insurance and for finding their own accommodation in Darmstadt.

EUMETSAT is committed to providing an equal opportunities work environment for men and women.

Please note that only nationals of EUMETSAT Member States may apply. The EUMETSAT Convention requires that Staff shall be recruited on the basis of their qualifications, account being taken of the international character of EUMETSAT.

About EUMETSAT

EUMETSAT is Europe's meteorological satellite agency. Its role is to establish and operate meteorological satellites to monitor the weather and climate from space - 24 hours a day, 365 days a year. This information is supplied to the National Meteorological Services of the organisation's Member States in Europe, as well as other users worldwide.

EUMETSAT also operates several Copernicus missions on behalf of the European Union and provide data services to the Copernicus marine and atmospheric services and their users.

As an intergovernmental European Organisation, EUMETSAT has 30 Member States (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, The Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.)

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