

NWCSAF - Visiting Scientist (VS) announcement: : Towards a better characterization of the severity of thunderstorms by improving Cloud Top Features detection

Context.

The key objective of the NWC SAF is to provide to National Meteorological Services, Scientific Institutions and in general meteorological users from EUMETSAT member states and worldwide, with an advanced, robust and reliable system to support both operational and research activities in Nowcasting and Very Short Range Forecasting. The NWCSAF is responsible for the development, maintenance and support of appropriate software Packages. Two convection products are developed by Météo-France in the framework of NWCSAF: Convection Initiation (CI) and “Rapidly Developing Thunderstorm - Convection Warning” (RDT-CW). Both are applicable to geostationary satellites.

Objective

The objective of the proposed VS is to improve the RDT-CW product providing or improving several cloud top features: overshooting tops (the one that is already present in algorithm), AACP (Above Anvil Cirrus Plumes), Cold U/V and cold rings signature, relationship between between cloud top temperature and effective radius of particles, cold/warm couplets, etc. The synthesis severity attribute will take benefit of the new diagnosis. The work will start once v2024 of NWCSAF software will be available as this version will be compliant with MTG satellite. Data used by the VS will be L1c FCI (Flexible Combined Imager) data and L2 LI (Lightning Imager) data from MTG

Detailed Task

During this 8-months Visiting Scientist Activity, the following tasks will be realized:

- 1) Review of CTF including a cost/benefit analysis of their development in the NWCSAF software.
- 2) Generation of a database with multiple cases of RDT associated with various CTF.
- 3) Cross-Analysis of RDT/CTF database with severe database (European Severe Weather Database from European Severe Storm Laboratory, Météo-France radar-based product, participative observations, etc.)
- 4) Improvement of synthesis severity diagnosis
- 5) Final coding (C or Python Language) and GIT repository of selected CTF
- 6) Scientific Report describing the results and changes in algorithm

VSA host institute and supervisor

Host Institute: Météo-France, Nowcasting Department (DirOP/PI), Toulouse. Supervisor: J.-M. Moisselin. The visitor will work with MFT Local Manager (J.-M. Moisselin), M. Claudon and R. Houël (Product Developers).

Required qualifications

Ph.D. in atmospheric sciences or Masters Degree in Atmospheric Sciences, obtained before the date of the application. Following criteria will be taken into account for the evaluation of candidates

- Expertise in C, Unix, Python
- Experience in atmospheric science, meteorological satellite, image processing
- Fluency in English language, notions in French appreciated
- Experience of teamwork

Candidature Submission and practical information

For full consideration, an application letter shall include a detailed statement of research interest, along with a curriculum vitae (including research experience, publications and conferences, computing skills and different language practice) and the names, telephone and email address of two referees. The package will be sent to jean-marc.moisselin@meteo.fr and michael.claudon@meteo.fr. Selection procedure will be put in place by Nowcasting Department (DirOP/PI). Due to spam filters applied in Météo-France, without rapid acknowledgment of receipt by email from one of the two addressees, it is recommended to verify the correct receipt of the candidate's email with a phone call (J.-M. Moisselin +33(0)561078370, M. Claudon +33(0)561078663).

Dead line for submission: 15th March 2024

The successful applicant will be based at the Météopole Toulouse in Nowcasting Department. The position will start preferentially on the 1st May 2024 for 8 months duration divided in two periods, separated by one month break.

Candidates are invited to provide their availabilities for the period 1st May 2024-31st January 2025.

Visiting Scientists receive reimbursement of **travel costs** and a **daily subsistence allowance** (per diem). For the first two months of the visit (61 days) daily allowance is 221 euros (including weekends). For the remainder of the visit (183 days) daily allowance is 176,80 euros (including weekends).