Open Call H_AVS22_02

Do you have an interest in Earth Observation data and good skills in making them better accessible? Do you know how to better visualize and use these data? Do you have skills in programming language? Then consider applying to the Visiting Scientist Activity "**H SAF data easy access and handling tools**" to be funded by the **EUMETSAT H SAF Consortium.**

Research Fields: Precipitation, Soil Moisture, Snow, Validation, Scientific computing and data processing

Visiting Scientist Proposal Abstract:

The EUMETSAT Satellite Application Facility on Support to Operational Hydrology and Water Management (H SAF) generates, distributes and archives several satellite-derived soil moisture, rainfall and snow products to support operational hydrological applications. These data are essential for numerical weather prediction, natural hazard monitoring and mitigation, water management and agricultural applications.
With the start of the fourth Continuous Development and Operational Phase (CDOP 4), the H SAF product portfolio has reached a high level of maturity, allowing to foster the consortium effort in the user promotion and data access activities. Considering the already wide availability of products and taking into account the exploitation of the new MTG and EPS-SG programs foreseen in the next few years, the H SAF data offer will become even richer. This poses the need to guide and help the user in the access and use of the provided products. In this contest, the main objective of this VSA is to collect the material already prepared by the H SAF Clusters during the training and dissemination activities and to draw guidelines for the creation of tools focused on data access and handling. The guidelines will be in line with the requirements of the already developed platforms and tools within EUMETSAT training and dissemination activities, i.e. EUMeTrain (https://eumetrain.org/) and TrainHub (https://trainhub.eumetsat.int/) as examples [1]. This starting step will set the stage for the H SAF Clusters to update and to develop new access tools for the target products provided during the CDOP 4. The tools will be tailored for data access and data exploration over a user defined area and/or temporal extent. Moreover, the tools will allow to visualize the data also in near-real time and to save and store the data extracted for further analyses. Facilitating the access and the data preprocessing is a mandatory step in order to attract users with particular focus on the less experienced ones. The use of access tools created and developed in collaboration with the products developers will allow to:

1) Provide access tools for the target products developed within the CDOP 4;
2) Define protocols for the access and download of data through the FTP server;
3) Provide the required preprocessing steps needed for data reading and usage (masking, conversion, …);
4) Define routines for data extraction over a user defined area and period;
5) Create effective ways for data visualization also in near-real time;
6) Allow data preparation and storage for further analysis (in case of remote use of the developed tools);
7) Carry out a training day for all H SAF partners on the protocols, tools and guidelines developed.

The use of such protocols and routines will allow users to take advantage of all the information collected and disseminated in the data files without a deep knowledge of programming languages, speeding up the use of the products for different applications. All the activities will be carried out in collaboration with the Precipitation, Snow and Soil Moisture Clusters, in order to cover all the types of provided products.

References

[1] Julia Wagemann, F. Fierli 2, S. Mantovani 3, S. Siemen 4, B. Seeger and J. Bendix, "Five Guiding Principles to Make Jupyter Notebooks Fit for Earth Observation Data Education", Remote Sens.2022,14,3359. https://doi.org/ 10.3390/rs14143359

General contacts:

H SAF Science Manager

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Host Institute: Research Institute for Geo-Hydrological Protection – National Research Council under the supervision of Dr. Luca Ciabatta and Dr. Luca Brocca.

The supervising activity will be carried out in collaboration with:

1. Simone Gabellani, CIMA Research Foundation;

2. Nicoletta Roberto, Dipartimento della Protezione Civile (DPC).

Benefits and salary

The financial contribution to a VSA will consist of, cost reimbursement on a per diem basis (VS), contribution to salary costs (AS) and travel cost reimbursement.
The total cost of the activity will depend by the work plan proposed by the attender (see the VSA proposal) and it can't exceed 10000 Euros.
It is foreseen a total of 8000 Euros as fixed costs and 2000 Euros for visiting the Host Institute for 1 week.

Eligibility criteria
We are seeking a candidate with a Ms. C. (or equivalent) in Information Technology, Atmospheric Science, Earth Science, Physics, Civil and Environmental Engineering, or related topics.
The best candidate will be proficient in scientific programming languages (e.g., Python, R, etc.), UNIX/Linux scripting language, scientific graphical software packages and Jupyter Notebook experience.
She/He must have good-quality written and oral communication skills in the English language.
Evidence of published research in these areas will be a plus.
Only experts/scientists from entities (NMSs or other public Institutions e.g. Universities or Research Centres) not involved in the concerned SAF cooperating entities' organization or their controlled sub-entities can be selected as VS.

Conditions of international mobility of researchers: Researchers are required to undertake transnational mobility (i.e. move from one country to another) when taking up the appointment.

Recruitment procedure
Description of the motivation and expected objective of the proposal are described below

Applications must include:
- Application Letter
- CV
- copy of valid identity documents

Applications must be sent by email to:
H SAF Science Manager

Dr. Giulia Panegrossi
g.panegrossi@isac.cnr.it

Application deadline is February 28 2023 (or until the positions is filled).