

Opportunity for African Research Fellowships

Reference	Title	Duty Station
ARF-2021	African Research Fellowship (ARF) within the ESA EO AFRICA Initiative.	ESA, ESRIN

Overview of the Data Application Division and EO AFRICA initiative:

The Data Applications Division in the Department of Science, Applications and Climate based at ESA/ESRIN in Frascati, Italy, is in charge of engaging scientific, public and commercial sector user communities, identifying their needs, implementing EO data exploitation projects, tools and platforms to address these needs, and progressively transferring validated results and applications from research to operations. The Division builds up new scientific and end-user communities and works with them in targeted R&D and demonstration activities, that range from science up to pre-commercial applications development, to advance Earth system knowledge, maximise ESA missions impact in society and underpin the definition of future EO systems. The Division is responsible for coordinating ESA's EO training and education activities.

EO AFRICA stands for African Framework for Research, Innovation, Communities and Applications Building an African-European R&D partnership. The EO AFRICA initiative will build an African-European R&D partnership to facilitate the adoption of Earth Observation and related space technology in Africa, in full coordination with the operational GMES & Africa initiative led by the AUC and will take into account requirements and capacities from African regional centres and programmes. The initiative will be driven by African user needs, and following a long-term vision (>10 years) for the emergent digital era in Africa.

Overview of activity proposed:

The ARF may propose an R&D topic in relation to one of the following EO AFRICA Initiative domains:

- Water resources management, in topics related to water cycle assessment, water pollution monitoring, drought/flood risks assessment/mitigation/adaptation and agricultural water use.
- Food security, in topics related to agriculture / aquaculture practices monitoring, also responding to ecosystem management (e.g. regenerative agriculture, water productivity, food crisis forecast and management, irrigation systems, nutrients management, infestations).

The R&D activity shall aim at developing innovative and reliable evidence-based solutions, enabling policy makers and the civil society to address social/environmental/economic policies.

In relation to the R&D topic proposed by the ARF, the activity will include the following tasks:

- Review of the relevant policy frameworks
- Literature review (e.g. multi-mission perspective, algorithms, models, assimilation methods)
- EO application development with an agile approach and the related publication of an open source Jupyter notebook algorithm
- Quality assessment of the developed methods with scientifically robust validation steps
- Submission of a paper to at least one scientific journal
- Production of final presentation material

The R&D activity will be coordinated and aligned with the EO AFRICA Initiative which would provide training opportunities and scientific tools for the selected African research fellows. The EO AFRICA Space Academy and its Digital Campus will give access to a wide range of expertise and knowledge to be shared with research fellows. Whereas the EO AFRICA Innovation Lab will allow the African research

fellows directly collaborate with European scientists and implement their research ideas. Further details can be found at:

<https://eo4society.esa.int/eo-africa/>
<http://www.eoafrika-rd.org/>

Required education and skills:

- PhD (or Master degree with extensive research experience) in a relevant technical or scientific discipline.
- Good interpersonal and communication skills
- Ability to work in a multi-cultural environment, both independently and as part of a team
- Demonstrated experience in using Python and developing Jupyter Notebooks Fluency in English and/or French, the working languages of the Agency. Ability to produce scientific papers to a high standard in English and to interact effectively with the international scientific community in English.

Required documents :

- Research Proposal (see template)
- CV and most recent publication list. The document with the CV and publication list shall not be longer than 3 pages max.
- Copy of ID
- Scan of PhD or Master Diploma
- 2 Reference letters.
- Approval of privacy statement

Fellowship logistics related aspects:

- 1-year length fellowship. Not extendable.
- Computer Laptop/Desktop provided by ESA
- Shared office in ESA/ESRIN
- Support to obtain VISA through Ministry of Foreign Affairs (i.e. MFA/MAE) (*)
- ID card from Italian Ministry of Foreign Affairs (i.e. MFA/MAE) Card and Codice Fiscale (**)
- Assistance for opening Bank account at ESRIN
- Option to request housing hunting service (***)
- As for the personal health/accident/civil responsibility insurance, the ARF will have to arrange autonomously his/her own insurance coverage. If needed, ESA/ESRIN can provide contacts with:
 UniPol: <https://www.unipol.it/en>
 Cigna: <https://www.cignahealthbenefits.com/en/contact/>
- Travel to/from original country (3000 EUR for travel)
- Standard International Research Fellow salary (circa 2500 EUR x 12 months)
- Scientific network activities (e.g. conference) (maximum ceiling of 2000 EUR)

(*) For non-EU nationalities, the staff member must request prior to arriving to Italy a type-D Visa at the Italian Consulate where he/she resides. ESA will provide the staff with a letter which will facilitate the Visa request, but to do this ESA will need a copy of the passport and the name and address of the Consulate where the request will be submitted.

(**)

The MFA/MAE Card is issued once the staff member is here in Italy, and will exempt him/her from requesting the "permesso di soggiorno" in case of non-EU nationals. At Take Up Duty ESA will be asking for some information/documentation to initiate the process, but beforehand ESA will need a copy of a valid passport of each staff member (i.e. valid for at least six months from the moment the staff is here in Italy). Once the staff is here in Italy, with the type-D Visa, a valid passport and other information, ESA will submit the request to the Ministry of Foreign Affairs for the MFA/MAE Card. Standard time frame of delivery of the MFA/MAE Card is about 2 weeks, but it could take more depending on the Ministry's workload. The Codice Fiscale is also released via ESA Facility Management.

(***) House hunting service is outsourced to an external company with whom ESA has an agreement. The ARF can either search on his/her own or may avail of the assistance of the relocation company. The ART may choose freely, but should they decide to request the relocation service's help, they will have to commit to their assistance. Although ESA will pay the service package, please note that if the ARF wishes to use the relocation company to assist in finding a home, he/she will be charged the relocation company's fee which is normally one (1) month's rent or 10 – 15% of the annual rent plus VAT.