ECMWF

EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS

Scientist - to work on fire forecasting products

1. Position information

Vacancy No.: VN19-28	**Department:** Forecast
Grade: A2	**Section:** Diagnostics
Job Ref. No.: STF-PS/19-28	**Reports to**: Fire Forecast Project Manager
Publication Date: 16 July 2019	**Closing Date:** 29 August 2019

2. About ECMWF

ECMWF is both a research institute and a 24/7 operational service, producing and disseminating numerical weather predictions to its Member States. ECMWF carries out scientific and technical research directed to the improvement of its forecasts, collects and processes large amounts of observations, and manages a long-term archive of meteorological data. Satellite and in situ observations provide the information for up-to-date global analyses and climate reanalyses of the atmosphere, ocean and land surface.

For details, see **www.ecmwf.int/**.

ECMWF has long recognised the value of high-quality forecasts in mitigating the effects of natural disasters.

Recognising that fires are among the costliest natural disasters in Europe, the European Commission at its Joint Research Centre (JRC) instigated the development of the early warning system to monitor fire danger. Since 2018 ECMWF has been the computational centre for the Copernicus Emergency Management Service, acting at the heart of model calculations and modelling products generation for fire forecasting.

In its daily duties ECMWF provides model outputs to the European Forest Fire Information System (EFFIS) and its global equivalent the Global Wildfire Information System (GWIS). Moreover, as part of the ARISTOTLE-ENHSP network, it customises products in support of the expert advice service provided to European Response and Coordination Centre (ERCC) activities.

3. Summary of the role

Traditional fire weather indices predict conditions that are conducive to unmanageable fire events rather than modelling probability of ignition and spread. The Fire Weather Index that is at the core of the modelling component of the European Forest Fire Information System (EFFIS), only considers weather parameters. This means that non-vegetated areas, where fire cannot occur due to unavailability of fuel (e.g. deserts), can be wrongly associated with high fire danger values. As a workaround, these areas are typically masked out using climatological land-vegetation maps. Establishing the link with the actual fuel availability in these models is regarded as one of most important single improvements to the field by the fire danger modelling community. As opening the way toward the inclusion of these aspects, this position is an exciting opportunity for a motivated individual to work at the forefront of fire forecasting.

The focus of the position will be the development of new products to enlarge the portfolio of what is already available. To this end the post-holder will investigate the availability of newly available remote observation (in terms for example of fuel load, soil moisture, active fires) and model outputs (as for example lightning prediction and atmospheric instability indices) to complement the information provided by classical fire danger indices. The integration of such information into GIS based platforms (e.g. QGis or complaint programming languages) to provide impact-oriented products is also considered a high priority development.

This role calls for a Scientist with a strong background in data analysis and computer science and experience in working in an operational environment. It requires someone with good technical skills and problem-solving capabilities able to adapt to changing priorities as provided by an evolving system.

The post-holder will be expected to:

- Lead the deployment of new products that fully explore the potential of the availability of both new observations and new weather forecast parameters.
- Lead the work necessary to generate impact-oriented products for fire forecasting.
- Collaborate with other scientists to develop products that fully exploit the probabilistic information contained in the ensemble prediction system.
- Engage with scientists and operators to understand the workflow associated with the forecast production and offer technical solutions related to product generation.
- Participate in training activities and provide second line of support to the flood and fire forecast systems.

This position is assigned to the Diagnostics Section of the Forecast Department. The Scientist will also report to the fire forecast Project Manager for all specific activities related to the development of EFFIS operational products.

4. Main duties and key responsibilities

- Leading the development of the new impact-oriented products for fire forecasting, taking into consideration user requirements and operational constraints
- Ensuring all developments are compatible with operations and have appropriate levels of optimisation and reliability
- Monitoring the generation of products and solving problems as they arise, using operational tools, procedures and internal expertise
- Supporting the team in other tasks related to the analysis of product quality
- Contributing to documentation and training of users as required

5. Personal attributes

- Ability to communicate with and understand the complex requirements of scientists, engineers and professional staff
- Good analytical and problem-solving skills with a proactive approach
- An interest in identifying, investigating and resolving technical problems
- Ability to work in a heterogeneous working environment
- Flexibility to adapt to changing organisational priorities and user needs
- Dedication and enthusiasm to work in a small team
- Committed to helping users in their work

6. Qualifications and experience required

Education	A university degree in geography, environmental science or an equivalent discipline.
Experience	Extensive experience with GIS systems and satellite data analysis. Experience of UNIX and/or Linux environment. Knowledge of programming with scripting languages, such as Shell or Python on UNIX systems. Knowledge of spatial data analysis for environmental applications. Some knowledge of meteorology and fire-related processes would be an advantage.
Knowledge and skills (including language)	Candidates must be able to work effectively in English and interviews will be conducted in English. A good knowledge of one of the Centre's other working languages (French or German) would be an advantage.

7. Other information

Grade remuneration

The successful candidate will be recruited at the **A2** grade, according to the scales of the Co-ordinated Organisations and the annual basic salary will be **£59,228.40** net of tax. This position is assigned to the employment category **STF-PS** as defined in the Staff Regulations.

Full details of salary scales and allowances are available on the ECMWF website at www.ecmwf.int/en/about/jobs, including the Centre's Staff Regulations regarding the terms and conditions of employment.

Starting date: 1st of January 2020, or as soon as possible thereafter.

Length of contract: 12 months.

Location: The position will be based in the Reading area, in Berkshire, United Kingdom.

8. How to apply

Please apply by completing the online application form available **at www.ecmwf.int/en/about/jobs**.

To contact the ECMWF Recruitment Team, please email jobs@ecmwf.int

At ECMWF, we consider an inclusive environment as key for our success. We are dedicated to ensuring a workplace that embraces diversity and provides equal opportunities for all, without distinction as to race, gender, age, marital status, social status, disability, sexual orientation, religion, personality, ethnicity and culture. We value the benefits derived from a diverse workforce and are committed to having staff that reflect the diversity of the countries that are part of our community, in an environment that nurtures equality and inclusion.

Applications are invited from nationals from ECMWF Member States and Co-operating States, listed below, and all EU Member States.

Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland France, Hungary, Germany, Greece, Iceland, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Montenegro, Morocco, the Netherlands, North Macedonia, Norway, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Applications from nationals from other countries may be considered in exceptional cases.