

Graduate Hydrological Impact Forecast Analyst

1. Position information

Vacancy No.: VN20-09	Department: Forecast
Grade: A1	Section: Evaluation
Job Ref. No.: STF-PS/20-09	Reports to: Environmental Forecast Team Leader
Publication Date: 16 March 2020	Closing Date: 14 April 2020

2. About ECMWF

ECMWF is both a research institute and a 24/7 operational service, producing global numerical weather predictions and other data for its Member and Co-operating States and the broader community. ECMWF carries out scientific and technical research to improve its forecasts, runs one of the largest supercomputer facilities in Europe and manages a long-term archive of meteorological data.

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 floods are among the costliest natural disasters in Europe, the European Commission instigated the development of the European Flood Awareness System (EFAS) at its Joint Research Centre (JRC). Development and testing were carried out in close collaboration with national hydrological and meteorological services, European civil protection agencies (through the Emergency Response and Coordination Centre (ERCC)), and other research institutes. Since 2011, EFAS has been part of the Copernicus Emergency Management Service - Early warning for floods (CEMS-Floods) and it became fully operational in 2012, with ECMWF being the computational centre responsible for the production of its forecast and their dissemination through its own web service.

Alongside this, ECMWF co-operates with the JRC in the provision of the operational Global Flood Awareness System (GloFAS), a scaled-up version of EFAS covering the global domain as a Copernicus EMS operational service since 2018. In addition, ECMWF is also part of the Aristotle-ENHP project, providing briefs to the Emergency Coordination Response Centre of the European Commission on possible upcoming floods in Europe and the world.

ECMWF is also involving in a number of projects aiming to develop and evaluate new tools and products, and to test their operational readiness. Funded by the Union Civil Protection Mechanism, TAMIR aims to improve and enhance EFAS's flood impact forecasting service through:

1) **Scientific innovation:** State-of-the-art science related to impact assessment will be used in TAMIR to deliver more accurate predictions of flood impact. Associated outputs include new products, new methods described in scientific and technical reports, case studies analyses, and real-time flood impact forecasting products.

2) **IT solutions:** Code optimisation and integration of developed algorithms in existing operational forecasting platforms will insure that all scientific solutions developed in TAMIR can be executed and delivered in real-time as actionable products available to Civil Protection (CP) agencies in case of emergencies. Outputs include IT applications in the form of new prototype forecasting products in EFAS, new WMS-T services, and technical specifications for implementation in local CP tools.

3) **End-user demonstration:** Collaboration with CP partners and stakeholders (through workshops and case study analyses) will ensure that all services and products are fit-for-purpose as scientific and IT solutions to support decision-making before and during weather-related emergencies. Outputs include end-user consultation, demonstration through pilot studies and adapted operating procedures.

ECMWF's technical involvement focuses mainly in scientific innovation and IT solution activities outlined above.

3. Summary of the role

ECMWF has an exciting opportunity for a Graduate Hydrological Impact Forecast Analyst to provide general hydrological impact forecast support to the Environmental Forecasts Team within the Evaluation Section of the Forecast Department. The team is responsible for the development of tools to improve flood impact forecasts and for the evaluation of their performance.

Amongst current CEMS-Floods products, flood impact forecasting is delivered through the Rapid Impact Assessment RRA method highlighting regions of highest risk over the next 10 days. Through the TAMIR project, the RRA products and services will be improved by:

- Enhancing the exposure and vulnerability information used for the impact assessment
- Harmonising flood thresholds used in the forecasting for short (~1 hour) to medium range (~5 days) lead time for a seamless forecasting
- Developing data services to increase the integration of the flood impact forecasts in local decision-making tools
- Migrating the new flood impact products in a pan-European pre-operational service

The role of the Graduate Hydrological Impact Forecast Analyst is to support the team in the generation, analysis and evaluation of flood impact forecasts and related products.

The selected candidate will work closely with the other members of the Environmental Forecast team and ECMWF scientists and other staff.

The role will enable the Graduate Hydrological Impact Forecast Analyst to get hands-on experience with developing methods for improving flood forecast products, and to work with colleagues in a science driven, highly reputable international organisation.

4. Main duties and key responsibilities

- Contributing to the development of the flood impact forecasting by modifying, adapting and running existing scripts
- Contributing to improving exposure and vulnerability information used in pan-European flood impact forecasting
- Setting-up, scheduling and executing flood impact forecast experiments
- Contributing to project deliverables as required (e.g. reports, presentations, academic papers, meeting attendance, etc.)

- Providing general support to the Environmental Forecast Team
- Other similar duties as assigned from time to time

5. Personal attributes

- Very good problem-solving skills with a proactive approach, together with an interest in identifying, investigating and solving technical problems
- Strong communication and interpersonal skills, with the ability to build strong working relationships, both within and outside the team
- Excellent attention to detail
- Ability to work to tight deadlines
- Open-minded attitude
- Ability to work with people from different backgrounds
- Dedication and enthusiasm to work in a multi-national team
- Eager to learn

6. Qualifications and experience required

Education	A university degree in environmental/hydrological science, physics, applied mathematics, computational science, engineering or similar is required.
Experience	A recent graduate. Experience in developing/ maintaining computer codes would be an advantage.
Knowledge and skills (including language)	Good knowledge of Python or similar language. Good knowledge of UNIX and code versioning with git or similar software would be an advantage. Knowledge of QGIS or other GIS package would be an advantage. 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 **A1** grade, according to the scales of the Co-ordinated Organisations and the annual basic salary will be **£47,420.16 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: As soon as possible.

Length of contract: Until 31 January 2022.

Location: The position will be based in Reading, United Kingdom. Successful applicants and members of their family forming part of their households will be exempt from immigration restrictions.

Interviews for this position are expected to take place on 30 April 2020 and 1 May 2020.

8. How to apply

Please complete the online application form available at: www.ecmwf.int/en/about/jobs.

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

Please refer to the ECMWF Privacy Statement. For details of how we will handle your personal data for this purpose, see: <https://www.ecmwf.int/en/privacy>.

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.

Staff are usually recruited from among nationals of the following Member States and Co-operating States:

Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, 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.

Staff from non-ECMWF States may be considered in exceptional cases.