ECMWF

EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS

Senior HPC Application Analyst

1. Position information

Vacancy No.: VN20-17	**Department:** Computing
Grade: A3	**Section:** High Performance Computing and Storage
Job Ref. No.: STF-C/20-17	**Reports to:** Section Head
Publication Date: 11 September 2020	**Closing Date:** 8 October 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/.**

3. Summary of the role

ECMWF's High-Performance Computing Facility (HPCF) is a mission-critical central service provided by two Cray XC40 clusters installed in Reading. ECMWF has signed a four-year contract worth over 80 million euros with Atos for the supply of the successor system. The new system is being installed in ECMWF's new Bologna Data Centre and will deliver an increase in sustained performance of about a factor of five compared to ECMWF's current system.

The position is in the High-Performance Computing and Storage Section of ECMWF's Computing Department. The successful candidate will lead a small team and will support research scientists and code developers in achieving the most efficient use of ECMWF's petascale high-performance computing systems. This will involve providing advice and assistance in writing, maintaining, debugging, profiling and optimising large and demanding scientific codes. The successful candidate will also contribute to the long-term strategic direction of the Centre by bidding for and working with externally funded projects and programs and participating in the ECMWF Scalability Programme. The Scalability Programme aims at developing the next generation forecasting system, investigating the performance of ECMWF's main codes on different computer architectures, and benchmarking future systems.

4. Main duties and key responsibilities

- Assisting developers with the profiling, optimisation, restructuring and debugging of large scientific codes used by ECMWF
- Liaising closely with users and vendors to identify and resolve current performance and functional issues with ECMWF's main codes
- Investigating and improving the performance and efficiency of ECMWF's main codes on different computer architectures and with different software paradigms
- Full life cycle support and ownership of ECMWF's HPC benchmark suite built around its own Integrated Forecasting System code base, including acting as focal point to support vendor benchmarking efforts
- Testing and evaluating new versions of software, compilers, run-time libraries, profiling and debugging software; making recommendations for their use and developing business cases to support purchase
- Technical direction and leadership of a small team and prioritisation of different work streams to satisfy the needs of ECMWF
- Exploring and cultivating opportunities for collaboration with external organisations and projects
- Working with the ECMWF Communications Section to organise the ECMWF biennial workshop on the use of high-performance computing in meteorology

5. Personal attributes

- Excellent analytical and problem-solving skills, work methodically and proactively
- Excellent interpersonal skills
- Excellent written and oral communication skills
- Ability to work collaboratively with other members of a small team, but also able to work independently
- Enjoy, and seek opportunities, to work with subject matter experts from other fields to understand users' needs, consider complex technical circumstances, and translate the findings into requirements that can be delivered
- Ability to communicate with and understand the complex requirements of scientists, engineers and professional staff in the development, deployment and documentation of software

6. Qualifications and experience required

Education	Advanced university degree, preferably in computer science or in a technical or scientific subject, or equivalent professional qualification and experience.
Experience	Considerable recent experience in high-performance scientific computing; running, debugging, profiling and performance tuning of codes using Fortran, C, MPI and OpenMP on massively parallel processing computer systems, is required. Considerable user experience with using UNIX/Linux tools to automate tasks and analyse results, including shell and at least one scripting language, ideally Python or Perl, is required. Relevant experience with C++ is highly desirable. Relevant experience in working with GPGPU and other accelerator technologies would be an advantage.

	A track record in identifying, investigating and resolving technical problems. Familiarity with methodologies of professional software development is essential.
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 **A3** grade, according to the scales of the Co-ordinated Organisations and the annual basic salary will be **£74,764.08 net of tax**. This position is assigned to the employment category **STF-C** 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: Four years, with the possibility of a further contract.

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

Successful applicants and members of their family forming part of their households will be exempt from immigration restrictions.

Videoconference interviews (via Blue Jeans) will take place on 9th and 10th November 2020.

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.**

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.

Applications are invited from nationals from ECMWF Member States and Co-operating States, listed below:

Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Hungary, Germany, Greece, Iceland, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Montenegro, Morocco, the Netherlands, Norway, North Macedonia, 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.