

## *Secondment opportunity*

### **Developer in GNSS time/frequency transfer - One-year secondment** *Time Department*

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The International Bureau of Weights and Measures (BIPM) is an intergovernmental organization whose mandate is to provide the basis for a coherent system of measurements throughout the world, traceable to the International System of Units (SI). The BIPM is based in Sèvres, in the outskirts of Paris (France), and has an international staff of about 70. Further information can be found on [www.bipm.org](http://www.bipm.org).

The BIPM seeks a secondee to act as a **Developer in GNSS time/frequency transfer**:

|                                   |                                                 |
|-----------------------------------|-------------------------------------------------|
| <b>Department:</b>                | <b><u>Time Department</u></b>                   |
| <b>Deadline for applications:</b> | <b>20 June 2021</b> (midnight Paris time)       |
| <b>Starting date:</b>             | <b>September/October 2021</b>                   |
| <b>Duration:</b>                  | <b>1 year, may be renewed for a second year</b> |
| <b>Contract:</b>                  | <b>Secondment, Fulltime basis</b>               |
| <b>Location:</b>                  | <b>Sèvres, Paris suburb, France</b>             |

#### Principal tasks

Under the supervision of Dr Gérard Petit, the successful applicant will participate in the development of operational tools and software in the field of time/frequency transfer using GNSS Precise point positioning (PPP).

The activities will be focused on two main topics:

#### **Consolidate the software used to generate PPP links for UTC computation:**

Time links for UTC computation are generated on a monthly basis. GPS PPP is presently the main technique linking the vast majority of the 80+ participating time laboratories and has been based for many years on the GPSPPP software that was maintained by Natural Resources Canada.

So far, work has been initiated to study some options to perform this computation in the future. The successful applicant will continue these studies with the objective to choose one option considering the main needs to:

- allow processing multi-GNSS data;
- provide time solutions which are as much as possible free of discontinuities inside each monthly batch;
- provide robust solutions with respect to a wide range of data quality indicators;
- be easy to operate by any member of the Time department.

## **Operate, optimize and monitor the distribution of operational software for IPPP computation:**

PPP with integer ambiguities (IPPP) has been studied at the Time department for many years and a software tool has been developed interacting with the CNES geodesy software GINS. In this context, the successful candidate will be involved in:

- maintaining and upgrading this software tool;
- preparing its operational use for UTC links and for external collaborations to provide high-accuracy frequency transfer as needed by contributing laboratories;
- ensuring support in the aim of proposing the software tool for distribution to such external users;
- taking part in possible studies such as the extension of IPPP to multi-GNSS and to other sources of integer products.

The work may involve collaboration with time laboratories worldwide and/or with IGS analysis centres.

### Qualifications, Experience, Skills

The secondment is open to a staff member of an NMI, or a designated institute, or a scientific or academic institution with the following qualifications and experience:

- PhD level or equivalent in a field with direct connection to GNSS processing;
- Experience with different software for GNSS PPP analysis, especially for time/frequency uses, is a plus;
- Experience in integer ambiguity resolution techniques is a plus;
- Good knowledge of programming languages such as for example FORTRAN, Python. Knowledge of Perl and Unix shell script may be useful;
- Capacity to work in a team as well as to work in reliable autonomy;
- Sense of commitment, rigor, precision, transparency, and a proactive approach on attaining objectives;
- Ability to work in a multicultural environment and maintain effective working relationships inside and outside the organization;
- Good knowledge of written and spoken English.

### Conditions

**A full-time one-year secondment contract** will be arranged (**may be renewed for a second year**). The home institute continues to pay the secondee's salary and related costs for the secondment period. In addition, the BIPM pays an allowance to the Secondee, in Euros, so that he/she can cover living costs in Paris. The secondee remains an employee of his/her Institute.

The BIPM will also provide support in facilitating the issuance of specific visas if need be and in finding local furnished accommodation.

### Applications

Informal enquiries can, in the first instance, be made directly to the Director of the Time Department, Dr Patrizia Tavella, [patrizia.tavella@bipm.org](mailto:patrizia.tavella@bipm.org) or to Dr Gérard Petit [gpetit@bipm.org](mailto:gpetit@bipm.org).

Applications should be sent to [patrizia.tavella@bipm.org](mailto:patrizia.tavella@bipm.org) by midnight, Paris time, before 20 June 2021. Applications should include a CV with a cover letter and a letter of support from their Institution Director.