



## POSTDOC IN ATMOSPHERIC SCIENCES

### Operational irradiance forecast in the inter-tropical zone

#### Research laboratory

UMR ESPACE-DEV is a joint research unit that develops and implements cutting edge technologies for environment and remote sensing. UMR ESPACE-DEV research have several teams located in French Guiana, Martinique, Montpellier, and Reunion Island. UMR ESPACE-DEV research promotes sustainable development for territories. French Guiana research team has developed an expertise for solar energy assessment using satellite images and forecasts using numerical weather prediction method and data assimilation methods.

#### Research Framework

The combination of increasing energy needs, increasing concern for global warming, fossil fuel depletion and cost decrease established solar energy as a viable solution to meet the needs. Recently French government published the “programmation pluriannuelle énergétique” (PPE). This document defines the energetic policy and investment in France and French Territories for the future. French territories such as French Guiana are not connected to the mainland grid. These territories have fragile supply and demand equilibrium because they have to produce their energy locally. In 2014, solar photovoltaic has a 6% (48 GWh). The goal set for French Guiana is to increase it by 110% by 2023. However increasing the penetration level of intermittent solar energy comes with technical challenges. For this reason UMR ESPACE-DEV in French Guiana has developed a methodology to forecast the solar irradiance incoming to photovoltaic power plants up to 48h so that the uncertainty related to the intermittent nature of the solar energy is reduced. This methodology uses Weather and research forecast (WRF) numerical weather prediction model conjointly with data assimilation methods and post-processing algorithms.

#### Job description:

As part of the SPESIS project supported by the UMR, the candidate will be in charge of the following missions:

- Suggest and implement optimization that further improve the accuracy methodology
- Extend the validation of the methodology to the inter-tropical zone
- Make the developed methodology operational-ready
- leading the dissemination of project results via journal publications, conference presentations, media presentations, etc.

#### Requirements/expected profile:

The successful candidate will have:

- Successfully completed a PhD in Atmospheric science or computational science
- Strong programming skills including Fortran 90, C, bash and parallel programming (OpenMP, MPI)
- Proven experiences on Linux programming environment and library installation
- A knowledge of Weather and research forecast (WRF) and libraries used in atmospheric science (ncl, netcdf-fortran, grib-api/ecCodes) would be highly appreciated.

**Location:** Cayenne - French Guiana (973), South America

**Contract length:** 12 months + 6 months

**Remuneration:** - 2200 € / month net - full time (35h / week) - 1 round trip by plane for residents outside French Guiana

**Send CV and letter of application** by mail to Laurent linguet [laurent.linguet@univ-guyane.fr](mailto:laurent.linguet@univ-guyane.fr) before October 31, 2018. Information: Laurent Linguet Tel 0694 47829