# PHYSICAL RESEARCH LABORATORY
Navrangpura, Ahmedabad - 380009, India

Advt. No. – 03/2023

## Position available for Research Associate-II

Applications are invited from highly motivated and eligible candidates for the project entitled "**Role of Physical and Chemical Processes on the Climate of Mars**" under the Core Research Grant (CRG) Scheme of the Science and Engineering Research Board (SERB), Government of India at Physical Research Laboratory, Ahmedabad.

| Name of the Post | No. of Vacancy | Age as on last date of application | Qualifications/ Experience | Fellowship per month (Consolidated) |
|---|---|---|---|---|
| Research Associate-II (RA-II) SERB-CRG project | 1 (ONE) | Maximum 35 Years | Ph.D. in Physics, Atmospheric Science, or allied fields<br><br>**Desirable:** Postdoc experience; good knowledge of programming languages and some experience in numerical simulations. | Rs 49,000/- + HRA<br><br>HRA as per prevailing rates for Research Associate-II. |

Interested candidate may send a letter of motivation and latest Curriculum Vitae (should include educational qualifications from 10$^{th}$ onwards, date of birth, research experience if any, internship details, programming skills etc.) along with scanned copies of all the relevant documents through e-mail (with subject "RA-II application for SERB-CRG Project") to the project investigator:


Prof. Varun Sheel
Senior Professor & Head,
Planetary Science Division
Physical Research Laboratory
Navrangpura, Ahmedabad- 380 009.
E-mail:varun@prl.res.in


Last date of receipt of applications: ~~**14$^{th}$ April 2023**~~ **extended till 30$^{th}$ April, 2023**

**Terms & Conditions:**

1. The above position is purely contractual and coterminous with the project.
2. Initial appointment is for one year, which is extendable up to three years upon successful annual evaluation of the candidate.
3. Only shortlisted candidates will be intimated for an online interview.
4. Participation in selection process is subject to possessing relevant original documents substantiating online application submitted by the candidates.

**Project Summary:**

The current climate of Mars is controlled by interactions between trace constituents and dust aerosols, coupled through dynamics and radiative processes. Dust devils are believed to inject dust into the atmosphere, but the dust lifting mechanisms are still under research.

For the past several years, many of these aspects of the climate have been studied by us at the Physical Research Laboratory, through modelling and observations from planetary missions. For example, we now understand many mechanisms governing the gobal distribution of dust and ozone and their coupling to dynamics and temperature. However, due to lack of continuous long term global in-situ observations near the surface, we do not have a clear understanding of the effects of boundary layer processes on spatio-temporal variability of dust lifting and photochemistry. Models are unable to quantify the contribution of dust devils to total dust loading in the atmosphere. All these will be addressed by coupling photochemistry to a Martian mesoscale model (analogous to WRF-Chem for Earth). As an outcome of our scientific study, we would have identified seasons and regions favouring dust devils and their quantitative contribution to Martian dust loading and their effect on local meteorology and photochemistry. A first ever prediction of dust devils and local chemical climate would emerge.

The primary goal of the project is to investigate the impact of local topography, surface properties and solar radiation on the spatio-temporal variability of turbulent mechanisms (such as dust devils) in the Martian Boundary Layer, which in turn affects the dust lifting, associated electric fields, and meteorology in the lower atmosphere.