

ENS – IISER Network / BIOSANTEXC Project

Internship Proposal Form France to India

(Discipline/Field name)

---Exercise Physiology and Climate-----

Internship title: Physiological response of persons with chronic respiratory disorders to weather variability

Keywords related with the subject (minimum 3): Climate, Physiology, Wearable Sensors, Heat and Health

Name of the IISER: IISER Pune

Name of the laboratory(ies): Climate Science laboratory

Name of the internship supervisor(s): Joy Merwin Monteiro

Email(s): joy@iiserpune.ac.in

Prerequisites for the internship: Background in sports science and/or physiological measurements preferable

Requested level: M1/M2

Foreseen internship dates: Jan-June 2025

Internship type (refer to page 1):

☐ 3–6-month internship ☒ Research stays ☐ 6+6 months internship

For 3 to 6 months internships, please indicate the desired duration: ex. 4 months

For 6+6 months internships, please also fill in:

- **Name of the internship co-supervisor:**
- **Name of the co-supervisor's laboratory/entity:**
- **Email of the co-supervisor:**

Internship proposal (description and expected training outcomes / half page min, 1 page max):

One of the important questions in the context of climate and health is to understand how humans respond to changes in environmental temperature and how these changes affect their health and physical performance levels. It is well understood that persons with co-morbidities such as cardiac or respiratory disorders experience the maximum impact of weather changes due to their impaired ability to thermoregulate. This project will be one of the first of its kind in India to make systematic measurements of the impact of weather variability on human physiology and physical activity.

The intern will be part of team that is measuring the physiological responses (using wireless sensors for heart rate, skin temperature, oxygen saturation) and physical activity (using accelerometers) in persons with chronic respiratory disorders (CRDs) and a control group without CRDs. The measurements will be made during a 6 minute walk test, and will be conducted outdoors in both cold and warm environments. These measurements will be made 1-2 times a month for 6 months spanning January to June 2025.

The intern will be required to acquire the physiological data, process them and (depending on availability of time) analyze them to understand the difference in physiological strain and physical activity in persons with and without CRDs under different environmental conditions.

Expected training outcomes:

The intern will learn how to:

1. Work with a variety of sensors used in sports science to measure physical activity and physiological response.
2. Learn how to work with volunteers to attach sensors, download data and process the data.
3. Learn techniques/software to process raw sensor data and obtain physiologically relevant information from the data.

Internship conditions:

- hostel accommodation (subject to availability)
- stipend towards living costs on campus