Project title:	Satellite-Based Air Pollution Data Extraction
Hours of engagement & delivery mode	36 hours per week In person, Herston Campus, Public Health Building 887
Description:	Air pollution remains a significant global public health challenge, with fine particulate matter ($PM_{2.5}$, particles with a diameter of less than 2.5 micrometres) posing one of the most critical threats to respiratory health. Exposure to $PM_{2.5}$ has been linked to impaired lung development in children, exacerbation of existing respiratory diseases, and increased hospital admissions for respiratory distress. These effects are particularly pronounced in vulnerable populations, such as individuals living with Cystic Fibrosis (CF), whose compromised lung function makes them more susceptible to pollutant-related inflammation and infection. This Summer project will focus on collecting recent short-term $PM_{2.5}$ exposures—specifically, concentrations in the 1–7 days preceding events of interest—using high-resolution satellite-derived air quality datasets. Data will be sourced from publicly available online repositories, such as NASA's Moderate Resolution Imaging Spectroradiometer (MODIS) or equivalent open-access environmental monitoring platforms.
Expected learning outcomes and deliverables:	The student will learn to collect and process environmental exposure data using Geographic Information Systems (GIS), specifically ArcGIS. They will gain skills in handling spatial and temporal data and working with publicly available environmental monitoring and satellite-derived datasets. In addition, they will enhance their understanding of environmental epidemiology, particularly how air pollution can be assessed. The student will produce a dataset of short-term $PM_{2.5}$ exposure values as guided by the supervisor.
Suitable for:	Coursework students from public health, epidemiology, environmental sciences, or related coursework disciplines who have a strong interest in the project topic. Ideal for enthusiastic students able to attend on-campus at Herston for the duration of the project.
Primary Supervisor:	Dr Darsy Darssan d.darssan@uq.edu.au (07) 3365 5272
Further info:	The supervisor MUST be contacted by students prior to submission of an application