

Title : ACSM Interactive Data Visualization Web Application

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## ABSTRACT

The Aerosol Chemical Specifications Monitoring (ACSM) project is an atmospheric science initiative of the National Astronomical Research Institute of Thailand that aims to measure aerosol chemical composition in the atmosphere. The ACSM instrument continuously monitors non-refractory aerosols in real time using Aerosol Mass Spectrometry (AMS) technology. The obtained data can be analyzed to identify sources of air pollution and support broader research in atmospheric science.

This study focuses on the design and development of an interactive web application within the ACSM project to improve access to and interpretation of aerosol composition data. The system presents project information and visualizes measurement data from multiple locations in a clear and comprehensible graphical format. Users are able to filter data by location, component type, and measurement time range.

The frontend was developed using Vue.js, while FastAPI was employed for the backend following RESTful API architecture. System testing demonstrates that the application operates reliably and effectively supports data exploration and analysis for atmospheric research.

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