



Air Quality Assessment & Modelling

Assessment of the impact of activities on air quality forms part of an Environmental Impact Assessment, an environmental licensing authority requirement for most industrial or infrastructural Development Approval applications. The process involves the determination of the quantity and character of emissions to the atmosphere and the application of an atmospheric dispersion model to predict the transport and dispersion (mixing) of the emissions in the surrounding environment. The process provides a means of estimating the impact of emitted pollutants on the environment, the concentration of individual pollutants in the air we breathe and the rate of accumulation on the soil or water bodies on which we and our children interact.

Application of atmospheric dispersion models is the most cost effective means of estimating the impact of air pollutants emitted by specific individual industries or more general local or

regional emissions such as individual roads, regional traffic or even emissions from solid fuel heating. Atmospheric dispersion models enable assessment of the spatial extent of pollutant concentrations and compliance with air quality limits and guidelines set by regulators (state or regional government authorities). Dispersion models can also be used to assist in plant design and mitigation strategy development, providing detail of relative source contributions and the affect of critical design parameters such as the optimum stack height or emission source characteristics.



Engineering Air Science has extensive local and international experience in air quality assessment and the application of fluid and dispersion modelling tools to better understand the behaviour and impact of atmospheric pollutants. Experience that includes the use of traditional stability-class based Gaussian Plume models (ISC, AUSPLUME), 'New Generation' Gaussian plume tools (AERMOD, ADMS) and three dimensional wind field codes (CALPUFF, TAPM) to industrial and regional investigations.

We offer expertise encompassing the direct application of models to assess the impacts of aerial emissions, enhanced through involvement in studies and investigations to develop advanced modules and improve model capability and reliability.



Our extensive knowledge and hands-on experience of the application of fluid modelling tools (CFD, wind tunnel) enhances understanding and improves representation of large, and often controversial, industrial sites. The integration of modelling tools in the initial conceptual and design stages of a project can help highlight and avoid potentially costly environmental compliance issues.

With experience across many industries including mining, processing, manufacturing, nuclear, defence, agriculture, transport, waste water, landfill, research and development, Engineering Air Science works with clients and regulators to achieve sustainable solutions.



Notably, the skills that differentiate **Engineering Air Science Pty Ltd** from the many other environmental air quality consultancies are:

Experience across a broad spectrum of industries and the selection and application of the most appropriate tools and methods to their individual circumstances.

Knowledge of both regulatory and fluid modelling tools to understand and advise on capabilities and limitations and the advantages and disadvantages of their applications to your specific issues.

Expertise in fluid mechanics and boundary layer meteorology, and particularly their application to atmospheric flow and dispersion in relation to complex industrial sites, the urban environment and complex atmospheric stability and turbulence issues.

Services

- Meteorological Modelling & Monitoring
- Complex Flow Modelling, CFD & Physical
- Air Quality Modelling & Monitoring
- Data Analysis & Statistics
- Peer Review

Engineering Air Science provides be-spoke solutions on issues relating to **air quality** and the **environment**, **atmospheric flow** and **meteorology**, industrial **fluid mechanics** and **thermodynamics**.

Contact us to discuss your specific needs.