

Activities of the Atmospheric Dispersion Modelling Liaison Committee (ADMLC)

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31st International Conference on Modelling,
Monitoring and Management of Air Pollution



Outline

- Background to the ADMLC
- Who are we?
- Recent/ongoing/future research projects
- Guidelines
- Webinars and seminars
- Website updates
- Future activities

Background

- Committee dates back to 1977, with focus on modelling of radioactive releases
- Membership has widened over time, but still primarily UK Government agencies
- Aim: to review atmospheric dispersion and related phenomena for application primarily to authorization or licensing of discharges to atmosphere resulting from industrial, commercial or institutional sites
- Mainly interested in fixed sources, rather than transport sources, including both routine releases and releases in accident or “upset” conditions

ADMMLC Membership



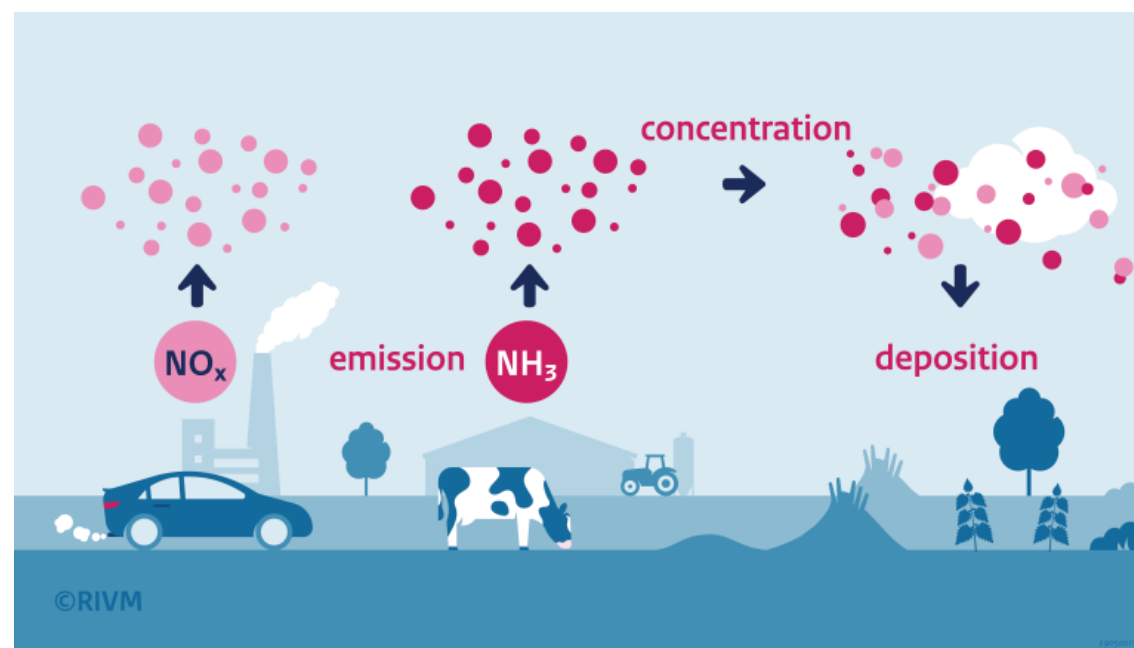
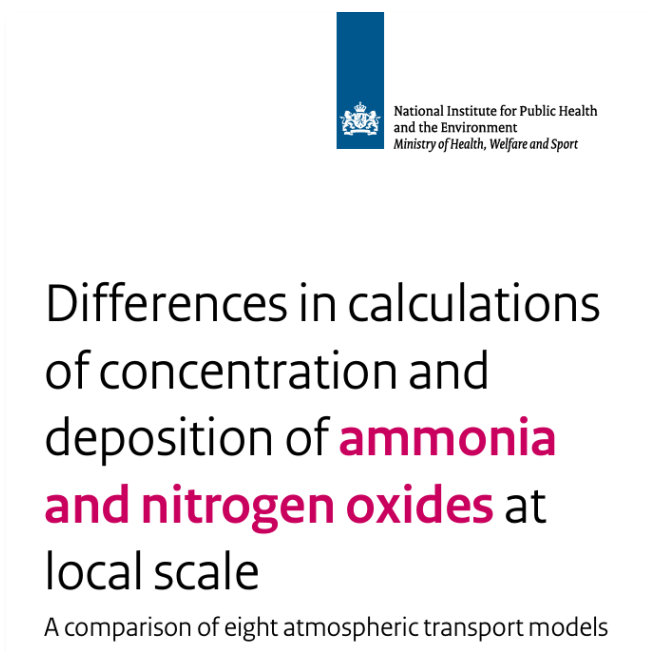
Recent research projects

- **2024:** Investigating the impact of applying different grid resolutions of Numerical Weather Prediction (NWP) data in atmospheric dispersion modelling
- **2021:** Review of approaches to dispersion modelling of odour emissions and intercomparison of models and odour nuisance assessment criteria
- **2021:** Review of dense-gas dispersion for industrial regulation and emergency preparedness and response

www.admlc.com/publications

Recent research projects

- **2025:** ADMLC financially supported CERC's participation a nitrogen-deposition model inter-comparison exercise coordinated by RIVM



<https://www.rivm.nl/publicaties/differences-in-calculations-of-concentration-and-deposition-of-ammonia-and-nitrogen>

Ongoing research

- Investigation of the uncertainties in dispersion patterns and predictions introduced by **climate change** in regulatory atmospheric dispersion models.
 - What are the limitations and challenges of continuing the use of historical met?
 - What is the potential ‘lifetime’ of model predictions based on historical met in the light of changing met patterns?
 - What are the challenges, uncertainties, and limitations of using future met?
 - Should future met be considered for regulatory and policy purposes?
- Contract awarded to CERC in 2026

Future research projects?

- Review of pollutant source conditions from fires for use in atmospheric transport and dispersion models, to support the generation of quantitative predictions for risk assessment, emergency planning and response
- Design and exploitation of sensor networks
- Other suggestions welcome: admlc@ukhsa.gov.uk

Ongoing research

- Review of methods used to assess the performance of atmospheric dispersion models
 - Literature review
 - Model evaluation metrics
 - Thresholds and acceptance criteria
 - Case studies
 - Conclusions and recommendations
- **ADMLC and CERC workshop on 11 June 2026 at UKHSA, Harwell**

Guidelines

ADMLC-R12

Guidelines for the Preparation of Short Range Dispersion Modelling Assessments for Compliance with Regulatory Requirements – An Update to the ADMLC 2004 Guidance

Endorsed by the Royal Meteorological Society

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www.admlc.com/model-guidelines

Webinars and seminars

- 2026: Dispersion model evaluation, UKHSA, Harwell
- 2025: Modelling of wildfire smoke, Met Office, Exeter
- 2024: Investigating the impact of applying different grid resolutions of NWP data in atmospheric dispersion modelling, UKHSA, Harwell
- 2023: Katabatic flows, Online
- 2023: Dry deposition and surface chemical reactivity, UKHSA, Harwell
- 2023: Dense gas dispersion modelling in complex terrain, with a focus on carbon dioxide pipelines, Online

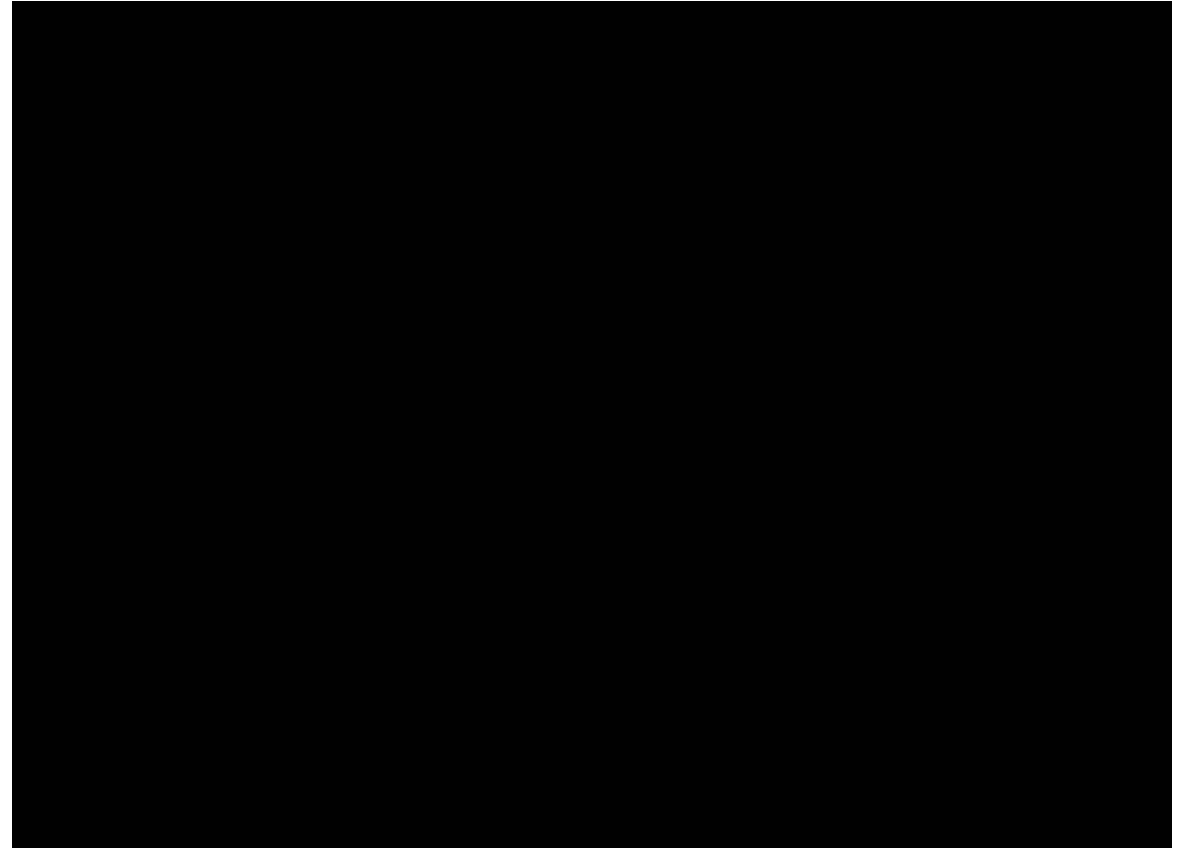
www.admlc.com/events

ADMLC website

- H1 Tool www.admlc.com/h1-tool
 - H1 (formerly D1) was the Environment Agency's software tool to calculate the stack height for satisfactory dispersion of various substances
 - Withdrawn in 2016 and not Environment Agency current guidance
 - Still a useful method for calculating effective stack heights
- Safety and Reliability Directorate (SRD) Reports
 - Historical reports produced by SRD (UK Atomic Energy Authority)
 - Examples:
 - The accidental release of anhydrous ammonia to the atmosphere – a systematic study of factors influencing cloud density and dispersion
 - Discharge rate calculation methods for use in plant safety assessments
 - www.admlc.com/safety-and-reliability-directorate-srd-series-reports

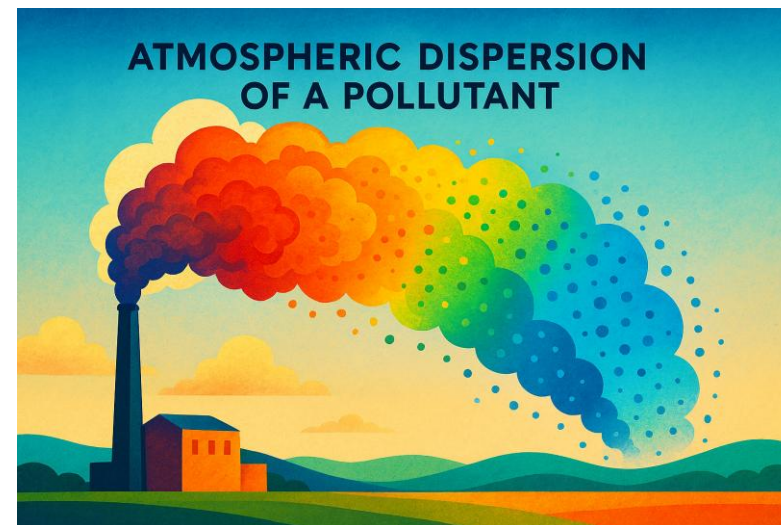
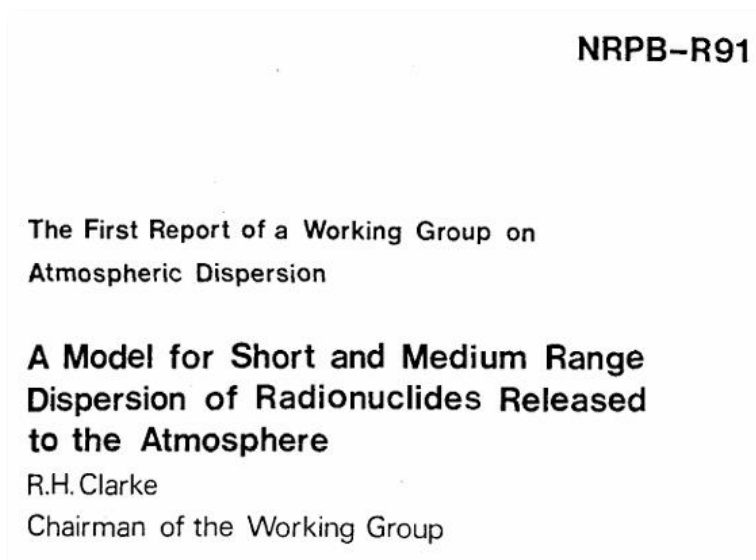
ADMLC website

- Atmospheric dispersion datasets
 - **Thorney Island**: dense gas
 - **SMEDIS**: dense gas
 - **Jack Rabbit III**: ammonia
 - **URAHFREP**: hydrogen fluoride
 - **MODISAFE**: evaporation, deposition, buoyant sources
 - **HSE hydrogen venting** (2027)
- If you have a dataset that the ADMLC could host, please get in touch:
admlc@ukhsa.gov.uk



Future activities

- 2027 is the 50th anniversary of the ADMLC
- Aim to hold a celebratory in-person seminar/conference
 - Looking back: Previous notable projects and activities
 - Looking ahead: AI and machine learning?



With thanks to
Microsoft Copilot



31st International Conference on Modelling, Monitoring and Management of Air Pollution

Thank you

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