MOHID MODEL – HNS MODULE

AUTHORS

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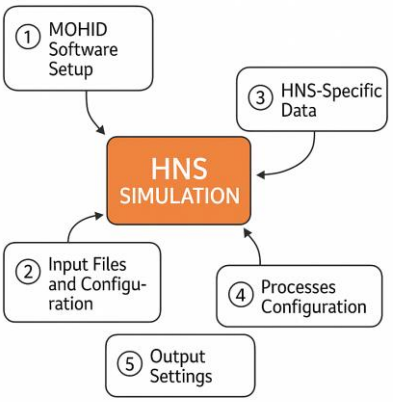
ACCESS/DOWNLOAD AT

https://github.com/Mohid-Water-Modelling-System/Mohid



APPLICATION AND USE

Purpose/objective of the tool

Predict and analyze the behavior of hazardous and noxious substances (HNS) in aquatic and atmospheric environments.

Applications of this tool

- Operational response
- Modelling
- Training and exercising

How to use it

1. Input Prep: Gather spill details (location, chemical type, volume) and environmental data (currents, winds, bathymetry).
2. Model Setup: Configure in Mohid - select HNS module, define domain & resolution.
3. Substance Properties: Choose from database or input custom chemical parameters.
4. Run Simulation: Execute with hydrodynamic forcing (waves/currents).

Key features and functionalities

Mohid HNS simulates chemical spills (oils, dissolved/sinking substances) using Lagrangian particle tracking. It models advection, diffusion, evaporation, dissolution, emulsification, and sedimentation. Integrates with 3D hydrodynamics (currents, wind, waves) for accurate spill behavior.

Practical examples where this tool can be used

Simulation of toxic cloud generation in ports due to atmospheric releases of HNS (e.g. methanol, methane, ammonia)

Results or outputs produced

Numerical data with information about particles position over time; concentration fields (pollutant levels in water column; mass balance (% evaporated/dissolved/sedimented).

Co-funded by the European Union

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TECHNICAL REQUIREMENTS

Operating system required

- Microsoft Windows
- Linux OS
- Android OS
- Apple iOS

Devices the tool can run on

- PC
- Tablet
- Mobile devices

Hardware requirements

A regular server

Integration with other software / systems / project tools

This tool integrates seamlessly with other project components such as the Knowledge Tool and the Exercise Tool. It has also demonstrated its ability to exchange information with external systems like Cedre's ARGEPOL, ensuring interoperability and enhancing coordination across platforms during contingency planning and response operations.

TARGET AUDIENCE

Target audience

- Scientific Community
- Consultancies
- Education and training professionals
- Environmental managers
- Students

Type of knowledge background required to use this tool/output

Some experience in using numerical models

ACCESS

Permissions required

The tool is open to the public.

USER GUIDANCE

User guides or manuals available

https://www.mohid.com/

Support documentation

Publications can be found at: https://wiki.mohid.com/index.php?title=Mohid_Bibliography

Dissemination materials available for this tool, or materials in which this tool is featured

User manuals & technical guides on https://mohid.com/

FREQUENTLY ASKED QUESTIONS

What types of chemicals can MOHID HNS simulate?

It models oils, dissolved toxics (e.g., ammonia), and sinking chemicals (e.g., heavy metals).

How accurate are the spill predictions?

Accuracy depends on input data quality (currents, wind, chemical properties) and model calibration.

Can it run real-time spill forecasts?

Yes, if linked to real-time hydrodynamic data (e.g., from sensors or operational ocean models).

Is coding expertise required to use it?

Basic runs need no coding, but advanced users can modify Fortran scripts. Python/MATLAB helps post-process results.

FEEDBACK

Support email

support@mohid.com (or check **mohid.com** for updated contacts).

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