



**TETRA TECH**



# **CHEMMAP**

**Chemical Spill Modeling Software**



### Applications of CHEMMAP

- Hindcast/forecast trajectories
- Unplanned spill response training
- Contingency planning - including worst-case scenario
- Evaluation of point source discharges
- Drills and education



### Features

- Contains RPS' own GIS or can be used in other GIS software such as ArcView®
- Location specific environmental data applied to any fresh or salt aquatic environment in the world
- Can utilize a variety of hydrodynamic file formats
- Easily interpreted visual displays of concentrations over time
- 3D Viewer capabilities
- Licensing available for trajectory model, stochastic model available as service only
- MSDS database linked to the physical-chemical database
- Extensive chemical database providing physical- chemical data
- Seamless integration of RPS' EDS: Environmental Data Server™ real-time and historical global environmental data from top data providers



### Chemicals Included

- Acids & bases, including caustic soda
- Petroleum hydrocarbons
- Ammonia
- Plastic nurdles (as floating material)
- And other commonly shipped HNS

## Leading with Science

100+

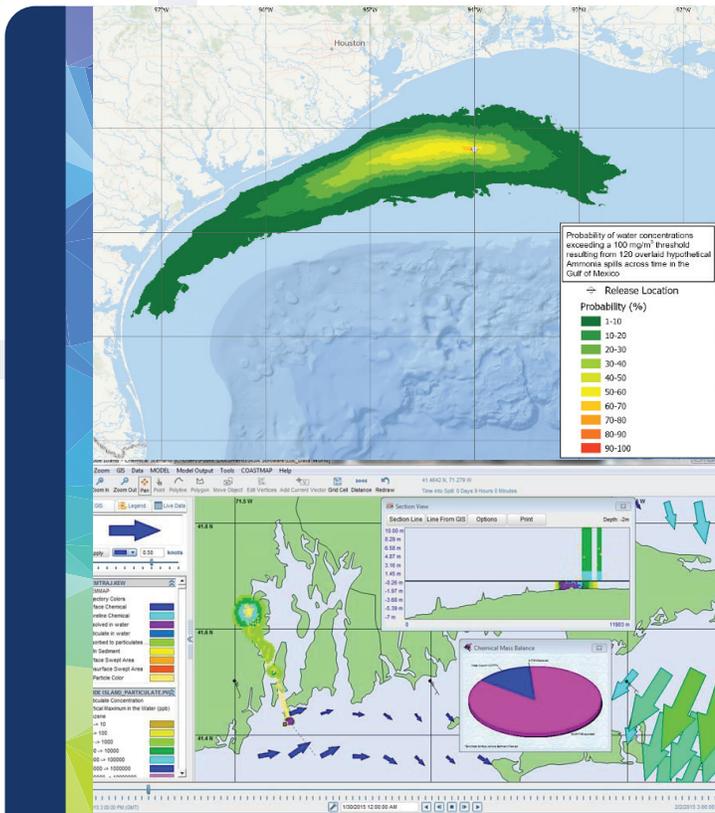
Map Application Users

100+

Environmental Data Types

100+

Chemicals Included



## Stochastic Modeling Services

The stochastic model can be applied as part of RPS service contracts and predicts:

- Range of expected contamination and the probability of exceeding thresholds of concern from a chemical discharge
- Frequency distribution of model results, for which statistics are calculated and plotted Environmental, Chemical and Biological Databases

Supported by:

- Environmental database - includes coastline, bathymetry, shoreline type, and temporally varying ice coverage, temperature, and salinity
- Chemical database - includes physical-chemical parameters that allow for RPS to add new chemicals, duplicate chemicals already in the database and make changes to chemical data while preserving the original values.

## Model Modules

### Chemical Fates Model

CHEMMAP simulates the following processes:

- Slick spreading, transport, and entrainment of floating materials
- Evaporation and volatilization (to atmosphere)
- Transport and dispersion of dissolved and particulate materials in the water column and in the atmosphere
- Dissolution and adsorption to suspended sediments
- Sedimentation and resuspension
- Natural degradation
- Shoreline entrainment

### Trajectory & Fates Model

Determine trajectory and fate for a variety of chemicals from a reference list including acids, bases, ammonia, and other HNS chemicals. The Trajectory and fates model module can be licensed for use in response planning and training. Environmental data supplied by the RPS Environmental Data Server.

### Mass balance output

The trajectory and fate model provides:

- Detailed mass balance output files and graphical results in user interface
- Time varying results including volatilization, degradation, dissolved mass, surface concentration, and accumulation in sediment
- Sensitivity to a variety of environmental factors including release depth, currents, wind speed, or river flow.

**For more information:** [solutions@rpsgroup.com](mailto:solutions@rpsgroup.com)