Science.

Technology.

Innovation.

FRAMES: *A plug-and-play modeling platform*

Today's complex problems, from environmental cleanup to international finances, require fast, flexible analytical tools that can handle new computer models, databases, and simulations in addition to products built 20 years ago. Enter FRAMES, Version 2, built by Pacific Northwest National Laboratory. FRAMES, short for Framework for Risk Analysis Multimedia Environmental Systems, is a flexible systems-modeling software platform that capitalizes on the analyst's existing models, simulations, and databases.

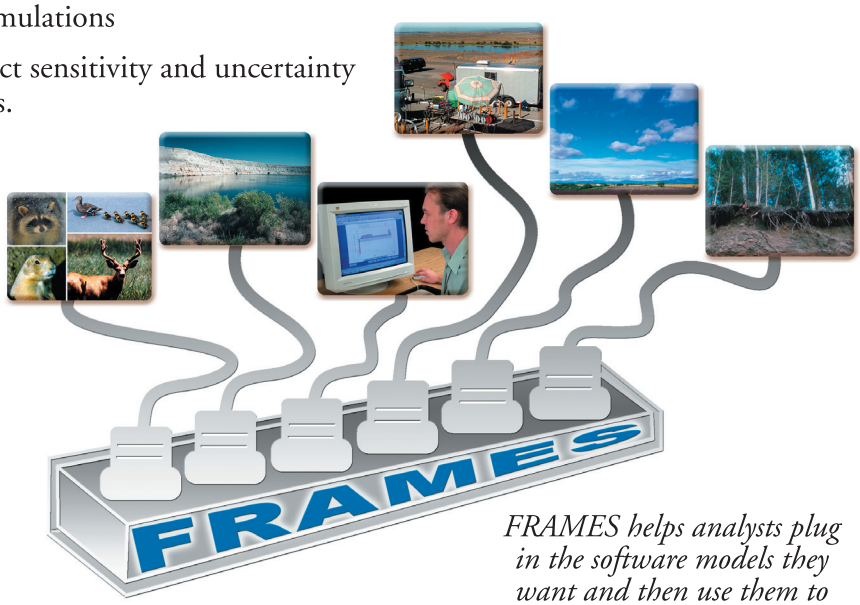
Version 2 of FRAMES features quality from the inside out. Automated testing, streamlined coding, and online documentation make this multiple-model operating system easy to use and reliable.

Quickly Manage Data

FRAMES makes the job of creating and running simulations easier by allowing analysts to "plug" in their software tools and modules, such as models, simulations, and databases, and then "play," that is, perform analyses. FRAMES does not limit the analyst to a small set of compatible data products, like other analysis platforms.

FRAMES allows users to dynamically introduce software modules. Analysts can connect their information through a simple drag-and-drop interface. This reduces the time of adding and connecting modules from weeks and months to hours or days. It also avoids the cost and time required to have the data hardwired together by computer programmers. The modules can be commercial or customized products, from off-the-shelf financial modeling systems to site-specific environmental cleanup databases. This allows analysts to

- Add or remove modules quickly
- Connect modules
- Manipulate module attributes
- Run simulations
- Conduct sensitivity and uncertainty analysis.



FRAMES helps analysts plug in the software models they want and then use them to conduct analyses.

Pacific Northwest National Laboratory
Operated by Battelle for the U.S. Department of Energy

Streamline Model Integration

FRAMES, Version 2, also supports model developers. With these new tools in FRAMES, model developers can use FRAMES to create products that meet their clients' needs and are easy to use. FRAMES offers:

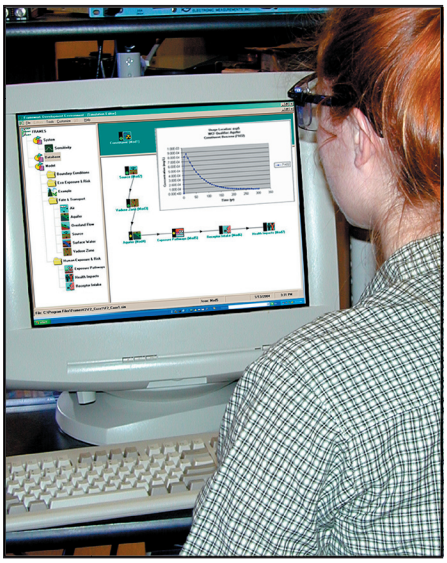
- Units conversion editor: Choose from a set of existing units or add new ones
- Dictionary editor: Learn the formatting and content necessary for a well-formed dictionary specification
- Domain editor: Design or enhance a set of module options and create or edit multiple domains to meet specific needs
- Module editor: Create a module file, including linkage schemes, executable names, and references
- Dataset editor: Populate datasets to test that the module fully functions in the system before deploying it with other modules.

Key Clients

Today, FRAMES is supported by

- U.S. Environmental Protection Agency
- U.S. Department of Defense
- U.S. Army
- U.S. Nuclear Regulatory Commission
- U.S. Army Corps of Engineers
- U.S. Department of Energy
- Domestic industrial companies
- International organizations.

Also, PNNL researchers use the system to conduct risk analysis and reviews for clients, such as the American Chemistry Council.



FRAMES won a Technology Merit Award in the annual Business Achievement Awards competition sponsored by the Environmental Business Journal.

FRAMES helps analysts at the Department of Defense and Army determine cleanup targets for chemicals and other materials at military bases and evaluate remediation alternatives to reach those target levels.

About Pacific Northwest National Laboratory

A multiprogram national laboratory, PNNL conducts breakthrough research in environmental and energy science and technology, national and homeland security, and fundamental science. Located in Richland, Wash., PNNL has approximately 3,800 researchers and staff. In addition to its main Richland complex, PNNL operates the Marine Sciences Laboratory in Sequim, Wash., and has offices in Portland, Ore.; Seattle, Wash.; and Washington, D.C.

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