# Future Plans for MACCS2*

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**Abstract**

MACCS2 is a probabilistic, accident-consequence code that estimates the risks from the operation of nuclear installations based on the postulated frequencies and severities of potential accidents. Risks are quantified in terms of doses, predicted early fatalities and health effects, longer-term heath effects from cancer, and economic consequences. MACCS2 and a Windows-based front end, WinMACCS, are currently being developed by Sandia National Laboratories for the USNRC. This presentation outlines the work that is in progress.

Development of MACCS2 is focused on fixing known bugs, extending limits to allow more flexibility, use of more modern memory management capabilities, and enhancing compatibility with the front end. In addition, a pool-fire model has been added to treat dispersion from a bouyant, finite source. The possibility of extending and improving the economic consequence model has been explored but not initiated at this time. Other areas for future development will be presented.

The objectives for the development of WinMACCS are as follows:

- Develop a Windows-based tool (as opposed to the current DOS-based tool),
- Facilitate and reduce errors in the process of creating or modifying an input file,
- Integrate the capability to assign and evaluate uncertain input values (in addition to the existing MACCS2 capability for uncertain meteorological data), and
- Provide tools for quickly evaluating results.

These objectives are realized because of the following features of WinMACCS:

- Logical organization of the MACCS2 input variables;
- Color coding of input variables to show which variables are needed for a given calculation and which have already been assigned;
- On-line description of the meaning, type, units, and limits of an input variable;
- Automated capability to assign a probability distribution to most of the real-valued input variables;
- Automated capability to correlate uncertain input variables;
- Capability to export or plot data to facilitate evaluation of the results; and

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- Automated regression analysis to determine which input variables most influence uncertainties in the predicted consequences.

These capabilities will be described in the presentation.