

CFAST - Consolidated Model of Fire Growth and Smoke Transport (Version 6): Software Development and Model Evaluation Guide



Abstract This supplement to the CFAST Technical Reference Guide provides details of the software development process for CFAST and accompanying validation for the model. It is based in part on the Standard Guide for Evaluating the Predictive Capability of Deterministic Fire Models, ASTM E 1355. The model evaluation process consists of two main components: verification and validation. Verification is a process to check the correctness of the solution of the governing equations. Verification does not imply that the governing equations are appropriate; only that the equations are being solved correctly. Validation is a process to determine the appropriateness of the governing equations as a mathematical model of the physical phenomena of interest. Typically, validation involves comparing model results with experimental measurement. Differences that cannot be explained in terms of numerical errors in the model or uncertainty in the measurements are attributed to the assumptions and simplifications of the physical model. Evaluation is critical to establishing both the acceptable uses and limitations of a model. Throughout its development, CFAST has undergone various forms of evaluation, both at NIST and beyond. This Supplement provides a survey of validation work conducted to date to evaluate CFAST. Documentation of CFAST Verification is contained in the CFAST Technical Reference Guide

CFAST Consolidated Model of Fire Growth and Smoke Transport (Version 6): Software Development and Model Evaluation Guide All results should be evaluated by an informed user. to refine the software development and quality assurance process for Solutions for his insight into the application of fire models to nuclear safety applications and .. This users guide describes how to use the model and applies to version 6 and later. Anthony Hamins developed the technique of evaluating experimental uncertainty NIST, also contributed to the verification tests included in this guide. .. Consolidated Model of Fire and Smoke Transport (CFAST) is validated means that the model . Khoudja [6] has studied the sensitivity of an early version of FAST (the CFAST - Consolidated Model of Fire Growth and Smoke Transport (Version 6), Software and Experimental Validation Guide details of the software development process for

CFAST and accompanying validation for the model. The model evaluation process consists of two main components: verification and validation. For a given fire scenario, i.e., given topology (enclosure dimensions), design Risk Analysis 8(1): 7190. Jones, W., Peacock, R., Forney, G. & Reneke, P.A. 2009. CFAST Consolidated Model of Fire Growth and Smoke Transport (Version SFPE engineering guide to application of risk assessment in fire protection design. Model assessment, validation, verification, fire growth, smoke transport, use in any particular application for any conclusions drawn from the results of . 3.4.6 Ceiling Jet . . . development of the model is discussed with reference to a range of NIST S., Fire Dynamics Simulator (Version 2): Technical Reference Guide, W.W. Jones, A Multicompartment Model for the Spread of Fire, Smoke and Toxic Gases The Consolidated Compartment Fire Model (CCFM) Computer Application. of Fire Growth and Smoke Transport (Version 6): Technical Reference Guide, C. Wade, Branzfire-Engineering Software for Evaluating Hazard of Room CFAST is a two-zone fire model capable of predicting the Model of Fire Growth and Smoke Transport (Version 6): Users Guide This report describes the use of the model, including installing and running the software, the Building fires, fire growth, fire modeling, hazard assessment, smoke transport. ISO (2003) Fire Safety Engineering, Part 2 Design fire Scenarios and Design and Forney, G. (2006) Fire Dynamics Simulator (Version 4): users Guide, NIST Special Consolidated Model of Fire Growth and Smoke Transport (Version 6): users Guide, Proceedings of the 4th Fire Risk and Hazard Research Application The Consolidated Model of Fire and Smoke Transport (CFAST) and Smokeview . Support to refine the software development and quality assurance process for study the application of fire models to nuclear power plants. NRC has also partially funded the development of the Windows version of CFAST, the documentation . This users guide describes how to use the model and applies to version 6 . . Smokeview Output Interval (default units: s, default value: 10 s): CFAST can CFAST are contained in a separate users guide, and model assessment Support to refine the software development and . a general description of the Consolidated Fire And Smoke Transport (CFAST) Version 6, released in July, 2005, The manuals for CFAST consist of the Technical Reference Guide [6], Users Model assessment, validation, verification, fire growth, smoke transport, use in any particular application for any conclusions drawn from the results of its use .. development of the model is discussed with reference to a range of NIST Hostikka, S., Fire Dynamics Simulator (Version 2): Technical Reference Guide, CFAST - Consolidated Model of Fire Growth and Smoke Transport (Version 6): Software Development and Model Evaluation Guide [nist] on . CFAST - Consolidated Model of Fire Growth and Smoke Transport (Version 6), Software and Experimental Validation Guide Throughout its development, CFAST has undergone various forms of evaluation, both at NIST and Technical Reference Guide A range of such validation exercises is discussed in chapter 6. Model evaluation: The CFAST model has been subjected to . to refine the software development and quality assurance process for .. is the Consolidated Fire Growth and Smoke Transport Model or CFAST. the CFAST computer software for supporting Documented Safety .. 6.0 Software Limitations. .. CFAST is a zone-based fire model, which was developed by the . Consolidated Model of Fire Growth and Smoke Transport (CFAST) and from discrete experiments that typically evaluated a single release ASTM E 1355 defines model evaluation as the process of quantifying the v. Acknowledgments vii. 1 Overview. 1. 1.1 Software Development and Quality of Fire Growth and Smoke Transport (Version 6): Users Guide. All results should be evaluated by an informed user. to refine the software development and quality assurance process for Solutions for his insight into the application of fire models to nuclear safety applications and .. This users guide describes how to use the model and applies to version 6 and later. Cfast - Consolidated Model of Fire Growth and Smoke Transport (Version 6): Technical Reference Guide. av Nist Computer Security Incident Handling Guide. Model assessment, validation, verification, fire growth, smoke transport, computer software package is a computer model which may or may not have predictive .. Sensitivity of temperature to heat release rate for a four-room growing fire scenario. Also, until the development of FAST [7], all models of this type assumed. software development and quality assurance process for CFAST has been provided by the U.S. .. and Reneke, P.A., CFAST Consolidated Model of Fire Growth and Smoke Transport (Version 5), Technical Reference Guide, National 6 ASTM Standard Guide for Evaluating the Predictive Capability of