GEC14-2014-020033

Validation and Verification with Applications to a Kinetic Global Model[1]

J.P. VERBONCOEUR, Michigan State University

As scientific software matures, verification, validation, benchmarking, and error estimation are becoming increasingly important to ensure predictable operation. Having well-described and consistent data is critical for consistent results. This presentation briefly addresses the motivation for V&V, the history and goals of the workshop series. A roadmap of the current workshop is presented. Finally, examples of V&V are applied to a novel kinetic global model for a series of low temperature plasma problems ranging from verification of specific rate equations to benchmarks and validation with other codes and experimental data for Penning breakdown and hydrocarbon plasmas. The results are included in the code release to ensure repeatability following code modifications.

In collaboration with G. Parsey, J. Kempf, and A. Christlieb, Michigan State University.