NASA SBIR 2006 Phase I Solicitation

X1.01 Full Data Coherency Systems for Engineering Systems Modeling and Simulation

Lead Center: MSFC

Participating Center(s): ARC, GRC, JPL, LaRC

In addressing the accuracy of analysis results, which are used to make program/project decisions, we typically assess the data, the models/simulations, and the analysts. This subtopic area will address the first of these concerns. Verification and validation approaches typically address the validity of the data used to perform the analysis. However, they do not address the issue associated with data cohesiveness and consistency. An issue in the development of integrated modeling/simulation for complex engineering systems arises when information is fed to the models with inconsistent coherency, where “coherency” is defined as appropriate versions, semantics/syntax, abstraction/resolution, and sequence. When, for example, serial/parallel simulations are run with revised input data from one source, other sources may or may not need to be held constant; similarly, input data of varying heritage, semantics, resolution, etc., may result in unexpected and inaccurate simulations. Proposals are sought for systems that manage full data coherency (not just version or sequence control) in modeling and simulation environments.