

# Reply to comments on Milestone E documents

April 21, 2003

## Requirements Document

1. The typo has been fixed.
2. Figure 2.1 has been changed to adhere to UML conventions.
3. A paragraph has been added addressing Figure 2.2, which is intended to show how the basic AMR/AMRLevel class structure is related to the main driver code.
4. Requirements F and G have been added to the non-functional requirements. There are no security requirements.
5. A few sentences have been added to Chapter 5 briefly detailing the general operational scenario; the reader is then referred to the AMRINS design document for a more complete list of possible input-file options.
6. A sentence has been added to section 2.3 which hopefully clarifies that the AMRINS code will be the base for the rest of the particle extensions; however, the other functionalities will be implemented in separate codes which will share common Chombo building blocks.

## Design Document

A UML-type figure has been added which shows the relationship between the AMRINS classes and the major Chombo classes it uses. Also, a separate Doxygen-generated manual has been provided showing the entire web

of inter-relationships (provided in both postscript and html form on the <http://davis.lbl.gov/NASA> website).

1. The text has been modified to clarify that each `AMRNavierStokes` object contains a `CCProjector` object as a member.
2. The text has been modified to indicate that the `LevelSolver` and `AMR-Solver` classes are the `Chombo` elliptic solver classes.
3. While `ParmParse` does not appear in the postscript `Chombo Design` document, it does appear in the HTML user's guide (which is available on the <http://davis.lbl.gov/NASA> website).
4. A section has been added to the document detailing the Fortran subroutine part of the interface. In general, either the initial velocity field or the initial vorticity field need to be specified in the FORTRAN.
5. The list of inputs file options has been corrected to contain all the inputs options in the sample inputs file.

## Test Plan Document

1. The introduction to the scope section has been modified to specify that the AMRINS developers are kept abreast of Chombo developments through CVS notification and through the ChomboUsers e-mail list.  
Also, a 7th test as been added – an AMRINS regression test, which will be run periodically (weekly for serial runs, monthly for the parallel suite of runs) and as required after library changes and bug fixes to determine that the code output has not changed. The output variables used to judge pass or fail will be the total number of cells advanced (which is quite sensitive to changes in refined-grid configurations) and the integral of the kinetic energy, which is quite sensitive to changes in the solution.
2. For the case of the AMRINS regression tests and system tests, the document has been modified to indicate that they will be run with the same benchmark initial condition and inputs that are described in the Baseline performance document.

3. A brief section has been added on bug tracking and resolution. We use ttpro software to manage bug reports in Chombo and AMRINS.