

EDITORIAL

In order to increase the Journal's value to its readership, we will raise the quality of published papers by requiring the authors to include two key features in submitted papers *beginning* 1 January 1995.

1. The problem statement and method description must be sufficiently clear and complete that the results presented could be essentially reproduced by an interested reader. This requires (at least) a statement of the governing equations, all (physical and numerical) boundary conditions, initial conditions, and values of associated physical parameters. If a new method is being introduced, its description must be sufficiently clear and detailed that others could implement it and replicate the presented results.
2. The numerical solution must be supplemented with an acceptable accuracy estimation of both the method employed (general) and the results presented (specific).

The accuracy estimate may be based on one or more of the following:

- Comparison with the results of using the method on a *sufficiently similar* model problem with a known exact or highly accurate approximate analytical solution (a multi-term series expansion, for example) or an *established*, high-accuracy, very-fine-grid numerical solution (benchmark) of the problem.
- A serious (meaningful) grid-refinement study, possibly coupled with Richardson extrapolation when appropriate. Marginal refinement showing a qualitative convergence trend is not acceptable. For 3-D problems, it may sometimes be the case that only grid *coarsening* is feasible for error estimation.
- For methods using either inherent or explicitly added artificial viscosity (or diffusivity), an estimate of the relative magnitude of these terms or the corresponding artificial grid Reynolds (or Péclet) numbers. This is *especially* important for methods based on switching or blending strategies using combinations of first- and higher-order methods.
- Any other method found acceptable by the Editors and the referees.

The error estimate should not, in general, be based simply on 'reasonable agreement' with experimental data, especially if adjustable empirical parameters are involved.

Realizing that computer facilities and budgets are often not 'adjustable parameters' for authors, the Editors and referees will entertain arguments as to why quantitative error estimates are *not* provided—which arguments should be stated in the paper, not in a plea-bargain letter of transmittal.

Determining how well authors meet/achieve the above criteria will be at the discretion of the Editors and will be based, in part, on advice from the referees.

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