

# Review of Pedestal Code and Installation in Onetwo

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## Summary

The NTCC Pedestal code was installed locally on our HP, SGI, and Linux operating system machines. The makefile for the code was extended to include the Portland group Pgf90 compiler. It was found that the code performed as expected in all cases, using the system provided default Fortran compilers on HP and SGI and both Lf95 and Pgf90 compilers on Linux. The four test cases included in the code distribution produced identical results.

The Pedestal code was also installed in the Onetwo transport code. This simplifies the running of the Pedestal code since Onetwo will automatically generate the necessary input file to run Pedestal once a tranport run has been created.

Since pedestal is a simple code there is not much that needs to be discussed in this document. Users should read the documentation that is part of the Pedestal package and which we found sufficent to describe all uses of the code. In the following we list the standards that the code is expected to adhere to and our comments.

### General Standards:

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#### Standard:

Provide source code for each physics module or code.

DONE

#### Standard:

Provide test case(s) with driver program(s) with input and output data and their documentation.

DONE

Standard:

Provide script to compile and link (e.g., makefile). The script should make at least some provision for portability to multiple brands of Unix (at minimum). Provide clear documentation (possibly in the README file) on how to use the script or makefile.

DONE

Gnu Make compliant makefile is provided for IBM/AIX, SUN/SOLARIS, HP/UX, SGI Origin 2000, DEC/ALPHA and Linux with the Fujitsu LF95 compiler. Requires an environment variable (CPU) to be set.

The supplied README file also give step by step instructions for compilation on non-supported systems.

Standard:

Provide a README file giving (a) the name of the module and its authors, (b) the location and form of general module documentation, and (c) information (or pointer to more detailed documentation) enabling a user to build binaries from the source code.

DONE

A README file is included in the distribution.

Standard:

Provide documentation about how the module should be used, for example, whether the module needs to be initialized or used sequentially. Important usability issues, such as the existence of state information in COMMON or other static memory, which persists between calls, must be described.

DONE  
information included  
in the README file as well.

Standard:

Eliminate graphics calls embedded in physics modules.

DONE

Standard:

The source code files (e.g., \*.f, \*.c or \*.cpp files) should be submitted rather than requiring extraction from another file.

DONE

Standard:

Authors may upgrade their modules with approval of the current chairperson of the NTCC modules committee. If the upgrade is extensive, the chairperson can require that the upgrade be subject to a full review.

N/A ( at this time )

Goal:

Multi-platform portability (code should run on different computers)

DONE

The reviewer has tested the code under HP/UX, SGI, Linux w/ LF95,Pgf90.

Goal:

Provide error checking (but not stops).

DONE

ierr flag passed through argument list in driver routine.

Goal:

Portability (code should run in different environments, e.g. different operating systems).

DONE

See portability comment above.

Goal:

Minimize external dependencies that cost money (i.e., avoid using expensive proprietary licenses).

DONE

No external dependencies

Standard:

Supply warnings in the documentation when the above goal has not been met.

N/A

Goal:

Arrays should be dynamically allocated.

N/A

Arrays passed in argument lists through driver routine.

Standard:

The characteristics of I/O should be clearly documented (i.e. the implementation of I/O unit numbers, if any).

DONE Unit numbers hardwired. nout variable used in driver.f and stripx.f and "6" is used in bdheight and bdshear routines.

Documentation Standards:

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Standard:

Provide Name of contact person for support.

DONE

Standard:

Provide date of last revision.

DONE

Revision history starts Mar 31, 2003 with a first revision

Standard:

Provide at least comments describing module or code, citations to publications (if any), and range of validity.

DONE

References to the underlying theory basis is provided in the source code and LaTeX documentation

Standard:

Specify the precision of floating point calculations.

DONE

Implicitely done in LaTeX document.

Standard:

Provide index of input-output variables for each module (include type of variable, dimensions, units).

DONE

Appears in the LaTeX doxumentation

Standard:

List dependencies -- names of external routines called.

DONE  
 No external dependencies

Standard:  
 Provide statement of known bugs.  
 DONE

Goal:  
 Index of modules, routines, variables.  
 DONE List of routines given in README file.

Goal:  
 Publication of code or module in journal (such as  
 Computer Physics Communications).  
 DONE List of relevant references given in Latex documentation.

Goal:  
 Online hyper-text reference documentation.  
 N/A

Goal:  
 Interactive online help menus.  
 N/A

Data Standards:  
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Goal:  
 Provide interface routines to data.  
 N/A

Goal:  
 Use self-describing data files (such as NetCDF).  
 N/A

Goal:  
 Use public domain, portable, available and well-documented  
 data file formats.  
 DONE PEDESTAL uses ascii files.

Goal:  
 Establish standards for variable names, units, dimensions  
 independent variables and grid descriptions as they appear  
 in the module interfaces.  
 N/A

