Introduction to PBSddesolve

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1 What is PBSddesolve?

PBSddesolve generates numerical solutions for systems of delay differential equations (DDEs) and ordinary differential equations (ODEs). The numerical routines come from Simon Wood's program solve95¹, originally written in C for the Microsoft Windows operating systems. With PBSddesolve, a user can write the gradient code for a system of DDEs or ODEs in the R language, rather than C. The code will then run on all platforms supported by R, and the results can be inspected using R's extensive graphics capabilities. Simon has generously given us permission to publish PBSddesolve (including his embedded routines) under the GNU GENERAL PUBLIC LICENSE Version 2.

PBSddesolve originally appeared on CRAN under the name ddesolve. That version is no longer supported. The current name emphasizes a close association with other PBS packages, particularly PBSmodelling.

2 What is PBS?

The initials **PBS** refer to the Pacific Biological Station, a major fisheries laboratory operated by Fisheries and Oceans Canada on the Pacific coast in Nanaimo, British Columbia, Canada. For more information, see: http://www.pac.dfo-mpo.gc.ca/sci/pbs/.

3 Where is the User's Guide?

The R library directory .../PBSddesolve/doc includes a complete User's Guide PBSddesolve-UG.pdf. To use this package effectively, please consult the Guide.

4 What demos are available?

PBSddesolve includes four examples that are fully documented in the User's Guide. To view them, run the PBSmodelling function runDemos(). This produces a GUI that shows all demos available from locally installed packages. Choose PBSddesolve. Note that the examples are run in the temporary working environment .PBSddeEnv.

References

Schnute, J.T., Couture-Beil, A., and Haigh, R. (2008) A user's guide to the R package PBSddesolve, version 1.05. 17 pp.

Wood, S.N. (1999) Solv95: a numerical solver for systems of delay differential equations with switches. Saint Andrews, UK. 10 pp.

¹URL: http://www.maths.bath.ac.uk/~sw283/simon/dde.html, file: solv95.zip