

# Introduction to PBSadmb

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## What is PBSadmb?

The R package **PBSadmb** gives complete R support to the external program AD Model Builder (ADMB, <http://admb-project.org/>) released into the public domain in 2009. The program offers users a remarkably efficient tool for estimating parameters and their uncertainty, based on complex nonlinear statistical models. Installation instructions for ADMB can be found at:

Windows – <http://www.admb-project.org/tools/admb-tools-for-windows>

Linux & MacOS – <http://www.admb-project.org/documentation/install>

In a standard ADMB installation, users would interact with the program via a DOS command shell (in Windows) or a bash shell (in Linux or MacOS X). The package **PBSadmb** makes it possible to interact entirely from an R console, as a common interface for all operating systems. A single R script can encapsulate commands to ADMB, as well as all analyses that follow. The package includes protocols for writing code to make the integration between R and ADMB almost seamless.

**PBSadmb** also provides a Graphical User Interface (GUI) that facilitates the steps required for a complete ADMB analysis. Both new and experienced users can use the GUI for tutorial and educational purposes.

You can obtain **PBSadmb** from the Comprehensive R Archive Network (CRAN, <http://cran.r-project.org/>). Always use the current version of **PBSadmb** with the most recent version of **PBSmodelling**, another package available from CRAN. The web site <http://code.google.com/p/pbs-admb/>, hosted by Google Code, features the most recent revisions to **PBSadmb**, and the latest source code and binary package for Windows can found at **PBS Software Repository**, hosted by Google Drive. These may be slightly more recent than those available on CRAN.

**PBSadmb** represents just one of a series of R packages developed at the Pacific Biological Station (PBS). For further information about the series, see <http://code.google.com/p/pbs-software/>.

## 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/science/facilities-installations/pbs-sbp/index-eng.html>.

## Where is the User's Guide?

The R directory `../library/PBSadmb/doc` includes a complete User's Guide `PBSadmb-UG.pdf`. To use this package effectively, please consult the Guide. Note: once **PBSadmb** has been loaded, you can access the UG from the R console using a **PBSmodelling** function: `openUG("PBSadmb")`.

## Reference

Fournier, D.A., Skaug, H.J., Ancheta, J., Ianelli, J., Magnusson, A., Maunder, M.N., Nielsen, A., and Sibert, J. (2012). AD Model Builder: using automatic differentiation for statistical inference of highly parameterized complex nonlinear models. *Optim. Methods Softw.* **27**:233-249.

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