Videos and associated files produced by the Quantitative Fisheries Center, Michigan State University

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(printable handouts added for some videos Nov 2011, see release notes)

BACKGROUND INFORMATION AND USAGE

The videos and associated files listed here are copyrighted works of Michigan State University. The videos were jointly authored by Jim Bence and Angie Leslie. In some cases the example files we used were developed from earlier versions originally developed by others at the Quantitative Fisheries Center and we acknowledge their contributions. These files were developed with financial support from the AD Model Builder foundation, and several of them were revised from earlier videos whose development was supported by the Great Lakes Fishery Commission.

We provide to anyone who directly obtains these videos from the Quantitative Fisheries Center at Michigan State University, the non-exclusive right to watch them for their own instruction or use in the instruction of others.

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These videos were created as a good faith attempt to include accurate information on the use of AD Model Builder. However Michigan State University and its agents and employees are not responsible for any damages that result from analyses implemented based on the information contained in these videos.

GENERAL INSTRUCTIONS

These videos were developed using Adobe products and were tested using Adobe Flash Player 10.3.181.26 in a windows environment. These should be watchable using software compatible with the most recent releases of Adobe Flash Player available across Windows, Mac OS X, Linux, Solaris and a variety browsers (see http://www.adobe.com/software/flash/about/ for information on the latest releases of Adobe Flash Player across operating systems and browsers). We note, however, that we did not check for consistency across platforms and would appreciate feedback if the videos fail to play in your environment.

All these videos were developed demonstrating AD Model Builder using ADMB-IDE on a windows machine. Most of the content on AD Model Builder concepts is transferable and useful for other platforms and approaches to using AD Model builder, but specifics on how to edit files, translate *.tpl files and build executable files will differ if you are using a different system.

Videos either stand alone or assume you have access to associated template (*.tpl) or data (*.dat) files. These associated files are listed below along with the videos. The *.tpl and *.dat files are given unique names below to facilitate keeping track of which file is which. In the videos we often rename these files. For example for the video "ADMB 3 – Coding Data and Parameter Section" we assume you start with the tpl file named "growth_loglike_ADMB3_Start.tpl but the video tells you to rename this file "growth_loglike.tpl" and put it in the same director as "growth_loglike.dat".

The videos listed below in an order it makes sense to watch them if you have not had previously had any experience with AD Model Builder. Some strong dependencies are noted below.

ANNOTATED LIST OF VIDEOS

STARTING VIDEOS

Downloading ADMB

- No files needed

  Content: How to download ADMB-IDE from the ADMB project site and install it on a windows machine.

Quick Overview

- simple.tpl
- simple.dat

  Content: basic structure of a tpl and steps needed starting with a tpl to complete an analysis using AD Model Builder demonstrated using ADMB-IDE.

FIRST SERIES OF VIDEOS – CREATING YOUR FIRST AD MODEL BUILDER APPLICATION

Content: This series of videos should be considered as a unit broken up into parts to avoid overly large video slides. This steps you through the writing of your first AD Model Builder program starting only with a data file.

ADMB 1 – Data

- growth_loglike.dat

ADMB 2 – Coding Template

- growth_loglike.dat
- growth_loglike_ADMB2_End.tpl

ADMB 3 – Coding Data and Parameter Section

- growth_loglike.dat
- growth_loglike_ADMB3_Start.tpl
- growth_loglike_ADMB3_End.tpl

ADMB 4 – Modeling

- growth_loglike.dat
- growth_loglike_ADMB4_Start.tpl
- growth_loglike_ADMB4_End.tpl

SECOND SERIES OF VIDEOS – MORE CONTROL OVER THE PROCESS FOR SEARCHING FOR THE BEST FITTING PARAMETERS

Content: All these videos assume the background from the previous videos

Bounds (as of November 2011 there is printable handout)

- growth_loglike.dat
- growth_loglike_Bounds_Start.tpl
- growth_loglike_Bounds_End.tpl

  Content: How to set bounds that restrict the range of values within which parameter search occurs.

Phases

- growth_loglike.dat
- growth_loglike_Phases_Start.tpl
- growth_loglike_Phases_End.tpl

  Content: The idea of phases and how to use them to help in parameter searches. Assumes you are familiar with bounds.

Starting Values (as of November 2011 there is printable handout)

- growth_loglike.dat
- growth_loglike_SV_Start.tpl
- growth_loglike_SV_End.tpl

  Content: Different ways of setting starting values where parameter search begins

Default Convergence Criteria (as of November 2011 there is printable handout)

- growth_loglike.dat
- growth_loglike_DefaultConv_Start.tpl
- growth_loglike_DefaultConv_End.tpl

  Content: How to change the default stopping rules AD Model uses to terminate a parameter search

THIRD SERIES OF VIDEOS – LOOPING AND CONDITIONAL EXECUTION

Content: These three videos should be considered as a unit. The first two cover for loops and the third covers if-else statements, but the third video further demonstrates loops and assumes familiarity with them.

Looping 1

- multiLinf.dat
- multiLinf_Loop1_Start.tpl
- multiLinf_Loop1_End.tpl

Looping 2

- multiLinf.dat
- multiLinf_Loop2_Start.tpl
- multiLinf_Loop2_End.tpl

Looping 3

- multiLinf.dat
- multiLinf_Loop3_Start.tpl
- multiLinf_Loop3_End.tpl

OTHER VIDEOS

Dev Vector

- multiLinf.dat
- multiLinf_DevVec_Start.tpl
- multiLinf_DevVec_End.tpl

  Content: Introduces a special vector type defined in parameter section that is constrained to sum to zero. Useful for reducing correlations among parameters and making searches more robust.

Safe Mode

- multiLinf_safemode.dat
- multiLinf_safemode.tpl
- multiLinf_safemode_End.tpl

  Content: How to turn on “array checking” when an AD Model Builder program is running so arrays do not read outside their defined index ranges.

Random Effects

- Linf_re.dat
- Linf_re.tpl
- Linf_re_End.tpl

  Content: A very simple introduction to a model that includes random effects. The coding demonstrated assumes familiarity with loops and other programming shown in earlier videos.