



Northern California Forest Yield Cooperative
Department of Forestry and Resource Management
University of California, Berkeley, Ca. 94720

Research Note No. 19

February 13, 1987

SDAVG Users' Guide:

The CACTOS Stand Description Averager

Version 2.0

by

W. J. Meerschaert and Lee C. Wensel

Abstract

The computer program SDAVG is designed to serve as a preprocessor of CACTOS stand description files. The program was written for the sole purpose of obtaining diameter distributions, stand profiles, and stand and stock labels for a composite stand description. The composite stand description produced should not be used for projecting growth. This program is written in standard FORTRAN 77 code. The current version is running on the University's Vax 11/780 computer system, the Apple Macintosh, and the IBM PC and compatibles.

INTRODUCTION

SDAVG, the stand description averager, was developed as a tool for using CACTOS (Wensel, Daugherty, and Meerschaert, 1986) to express the characteristics of stands of timber represented by multiple stand descriptions either on separate files or from multiple descriptions on a single file. The composite plot can be analyzed by CACTOS to produce average stand level estimates of diameter distributions, stand profiles, and stand and stock tables. Such stand level estimates are impossible to produce in CACTOS using separate stand descriptions. Stand level estimates can be produced before and after CACTOS simulations using the stand averager. CACTOS growth estimates can be averaged using the yield averager (Daugherty and Wensel, 1986).

SDAVG creates a composite file of up to 500 tree records. The number of files used as input is determined by the number of tree records in each file, SDAVG will proceed through the list of files until the 500 tree-record limit is reached. The output file created by the program consists the tree records in the input files, with the tree weights divided by the number of separate stand descriptions used for input. Since averaging the site indices and/or initial ages may have little meaning, they are not averaged and are not put into the composite file. SDAVG is not intended to produce input files for CACTOS, rather, it is intended for comparing. SDAVG should be used only for the report utilities of CACTOS listed above, it should not be used for growth projections due to the nature of the competition models used in CACTOS.

The SDAVG program is minimally interactive and requires only two keyboard entries from the user: (1) the name of the input file containing yield filenames (termed the filenames input file) and (2) a filename for the output file (i.e. the composite CACTOS stand description file). The program reads the separate stand descriptions from the filename file.

Input File Specifications:

SDAVG operates from the filename file that contains the names of the separate stand descriptions to be included in the composite stand description. The program expects that the filename file has one stand description filename (up to 15 characters long) on each line with the filename starting in column 1. This allows SDAVG to use the same file that was used as the input/output filenames file in CACTOS batch mode. When this file is used for SDAVG, the program ignores the other filenames included on each line (e.g. the report filename or externally saved file). CACTOS version 3.0 has the

ability to read concatenated stand descriptions when operating in batch mode. SDAVG can also read these concatenated stand description files and utilize the input/output filenames file used to produce them. The filenames starting with a minus sign in the input/output filenames file, which are used as a signal to cause concatenation in batch mode, are essentially ignored by the stand averager as they are dummy filenames. All stand descriptions contained in a concatenated stand description file are automatically included in the composite file and there is no way to specify otherwise.

While SDAVG can utilize the input/output filenames file used in batch mode, any file with the stand description filenames in the format described above (i.e. format a15) can be used as the filenames input file. This distinction is important as the user may wish to select the stand descriptions from a set of files that contain more than SDAVG's limit of 500 tree records. An example of a filenames input file is shown below:

```
columns:      123 . . .
              \cactos\comp3\stand1.sd
              \cactos\comp3\stand2.sd
              \cactos\comp3\stand3.sd
              \cactos\comp3\stand4.sd
              \cactos\comp3\stand5.sd
              \cactos\comp3\stand6.sd
```

See the CACTOS Users Guide (Wensel, Daugherty, and Meerschaert, 1986) for further discussion of CACTOS stand description files.

Output File Specification:

The composite file produced by SDAVG is a single stand description file similar to that described in the CACTOS Users Guide. The first line of the file has the stand identifier of "Avg. Stand Description", followed by the number of records in the file. The next two lines are blank, and the remainder of the file consists of up to 500 tree records as they appeared in the individual stand descriptions, with the per acre tree weights divided by the number of plots used.

Use of SDAVG:

To use SDAVG, the user would load the utilities disk and enter the command "SDAVG". The program will welcome the user to the program and request that the user enter <return> to continue. The program will then ask the for the name of the filenames file. After this file is successfully opened the user is asked for a name for the composite stand description file. The program will check with the user before overwriting a file that already exists. Once these two user entries are completed the program begins processing the stand description files, printing the filename of the file currently being processed to the screen. When all of the stand descriptions have been read, the program divides the tree weights by the number of stand descriptions used and writes the composite stand description file. If the any input file contains enough tree records to go beyond the limit of 500, that file is not processed, and the user is given the choice of stopping the program or creating a composite file with the tree records read in thus far.

Literature Cited:

- Wensel, Lee C., Peter J. Daugherty, and Walter J. Meerschaert. 1986.
CACTOS User's Guide: The California Conifer Timber Output Simulator. Bulletin 1920,
Agricultural Experiment Station, University of California, Berkeley, CA.