

INTRODUCTION

HYSSR (Hydro System Seasonal Regulation) is the name given to a main regulator program and its twenty-seven ancillary programs. HYSSR, the main regulator program, simulates the operation of a hydro system as it meets various requirements such as power generation, flood control, fish requirements, navigation, water quality, irrigation, etc. The program is not written to operate a specific river system, however a majority of HYSSR's use is for the Columbia River System in the Pacific Northwest.

Some of HYSSR's ancillary programs are pre-processor programs, which organize the vast amounts of required input data into binary files for the HYSSR main regulator to use. Other ancillary programs use the binary output file from the HYSSR main regulator to compute rule curves or otherwise process the output data. And some of the ancillary programs turn HYSSR output data into various types of reports.

The entire system of HYSSR programs was moved from the mainframe computer environment to PC in 1993-94. This move made HYSSR transportable to other offices and more user-friendly. During the move some programs were re-written to make them interactive while others remain in the "batch" format.

SYSTEM REQUIREMENTS. The HYSSR system of programs were compiled and linked using Lahey 5.1 extended memory FORTRAN. The programs require at least a 486 DOS PC. HYSSR execution requires approximately 20mb available hard disk space. Execution of the HYSSR main regulator and HYSSR ancillary programs each require from just seconds to less than twenty minutes depending on the program being executed and the speed of the PC.

OTHER REQUIREMENTS. The HYSSR system of programs require that certain subdirectories be available on the local C: hard drive. These subdirectories include certain file names, which are required by some of the programs, and if these files are not available, complete with the correct pathnames, program execution will fail. These required subdirectories and their contents are described below:

SUBDIRECTORY	CONTENTS
C:\HYSSR\PGM	HYSSR program executables (extension .EXE)
C:\HYSSR\CONFILES	HYSSR control files (extension .CON)
C:\HYSSR\DATA	HYSSR data files required by certain programs
C:\HYSSR\SORT	Sort control files
C:\HYSSR\SORT\COENWPP	Sort control files for the COE-NWPP C conversion program
C:\HYSSR\SORT\RETRIEVE	Sort control files for the Retrieve program
C:\HYSSR\SORT\SUMMARY	Sort control files for the Summary program
C:\HYSSR\SORTEX	SORTEX program and some sort control files

HYSSR DATA FILES. The HYSSR main regulator program and many HYSSR ancillary programs share most data through three input files. These input files are the Study Characteristics file (STCHAR), the Time Dependent Data file (TDDATA), and the Time Dependent Modifications file (TDMODS). (All three of these input files are binary files which means that the user may not read the information contained in these files directly. The data may only be read by a program.) The data in the STCHAR and TDDATA files may change from one year to the next as new data is developed or project characteristics change to meet new requirements. When changes occur, these files are recreated to reflect the new information. Data in the TDMODS file represents changes or additions to the data in the TDDATA file from one study to the next or during the progression of a study. Together these three files could be referred to as the HYSSR database for studies.

HYSSR OUTPUT FILE. The HYSSR main regulator program writes three output files that are designed to be viewed either on the screen or as printed output. These files are described in the documentation of the HYSSR main regulator program. The HYSSR main regulator program also creates an output file that is referred to as “the output file”, the TABLE OUT file, and most frequently as the TABOUT file. This file contains data for each project for every period of the study. The TABOUT file is large (nearly 5 mb for a fifty year study) and is a binary file which is not directly readable by the user. The TABOUT file is required as input to several ancillary programs. Some of these ancillary programs extract data from the TABOUT file to build other files (e.g., the RETRIEVE program), create reports about the data (e.g., the SUMMARY program and the RCLIST program), and analyze the data (e.g., the REFTEST program and the MICATEST program).

HYSSR CONTROL FILES. The HYSSR programs run on the PC either interactively or in batch mode. When a program runs interactively, the program will request input from the user about the file names to be used for input and output data and the options to be used by the program. When a program executes in batch mode, the program uses the information contained within the program and in control files that the program accesses during execution.

Control file (CONFILE) names are preset within the program, so the control file name used must be the name specified in this documentation. All of the control files used by the HYSSR programs must be in the local C:\HYSSR\CONFILES subdirectory. The control file tells each program which data files to use as input and output data files and gives the program information about each file. The user may change the names of the files within a control file to match the data to be used, but the unit number, format, status, access, and recl information may not be changed. Also it is essential that the column format within the control file be maintained. Comments may be added within the control file but must be preceded by an asterisk (*) in column 1.