2 ADAPS FRAMEWORK

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This section describes the basic framework of ADAPS. General information is presented on system access, database structure, and programs and processing application categories and attributes.

2.1 General Information

ADAPS is available on the USGS servers, and can be accessed by various workstations. ADAPS is used to process, compute, store, and display hydrologic data. Most ADAPS processing is interactive; however, some applications may submit long-running jobs to the batch environment. Batching primarily allows processing tasks to execute independently of a terminal. This independence is called a background process.

Database information used and/or maintained by ADAPS is structured as INGRES tables. The tables are managed by INGRES utilities and user-written software. The tables allow rapid and efficient retrieval of records on the basis of selected data elements defined as key indexes (elements).

A multilevel access and security system are used in ADAPS to restrict access to the data files and to limit the ability of some users to perform certain program operations in the system. User classes of ADAPS Database Administrator (adba), System Administrator (syst), User (user), and Cooperator (coop) have been established, and record-level protection is also provided. Security measures are implemented by the local administrator or manager in consultation with USGS supervisory personnel, and in some instances, in consultation with Headquarters personnel.

Hydrologic data stored in ADAPS results from the processing of data collected or recorded at field installations operated by USGS offices. The field data are processed by USGS personnel using ADAPS and following established methodologies and procedures. The data are reviewed for validity and correctness, and subsequently are published in USGS State annual water-data reports. The various methods of data collection and processing are discussed in detail in Chapter 3 and other selected chapters or sections of this manual.

2.2 Program Categories

Several different categories of programs make up the hydrologic data processing system. The major categories are:

- System utility programs
- General-purpose programs
- General-application programs
- General-graphics programs

- UNIX shell scripts

The programs in each of the above categories are used for a specific function or purpose. For example, the utility programs are used to initialize, create, update, and maintain the numerous support, processing, and data (time-series) tables that make up the database. The general-purpose programs are used to process many different types of water data along with the subsidiary calculations and computations that go into computing and producing a water-data record. The application programs are used primarily to compute statistical information about the hydrologic data. The graphics programs are used for preliminary viewing of the data, for comparison purposes, for graphical editing of the data, and for report purposes. The UNIX shell scripts may be used in any of the programs, depending on the application.

2.3 Common Program Attributes

All programs in ADAPS, regardless of their category or who can invoke them, have some common attributes.

The system programs are designed to be run using most character-based terminals. The graphics programs require terminals that will support the various graphical packages.

1. The programs can be run using either uppercase or lowercase letters, if the terminal supports this feature.
2. The programs in most instances can be exited (break out) due to a problem or emergency, and files are not damaged or lost. However, arbitrarily breaking out for no reason should be avoided. Keying EX in response to any query in any program will exit the user to the operating system (UNIX) level.
3. Most data processing programs are run interactively. However, the long-running jobs are set up interactively and are run in batch mode. These programs use a preprocessor program to create a control file that is used by a postprocessor program. The control file contains user-supplied and retrieval information and this enables the postprocessor program to run as a background job. If processing is not too lengthy, the user may have the choice to either run interactively or in batch mode.
4. Many ADAPS programs use a common set of routines to handle startup of the individual programs and to handle queries within the individual programs. Use of these common routines standardizes this phase of the processing. The startup routines initialize ADAPS.
5. Some programs use a screen input form for entry of data. The layout of the form is similar for those programs that use it. Entry of data to the form is controlled by similar options that control page (screen) and cursor movement.

6. Outside users of the system have limited functional capabilities in use of the system due to the security system. They are granted access to the system principally to display and table data, to retrieve and create their own work files, and to use (run) specific application programs. Therefore, outside users' selections through the system menus are limited. Update or maintenance activity by outside users is not allowed.