Documentation
for
slope_to_stage, Version 1
March 16, 2004

1.0 General Information

The slope_to_stage program takes Alaska Region-style slope-profile readings ("slope readings") and converts them into (estimated) stage heights. Slope readings consist of a distance (in feet and 10ths of feet) and a marker (alphabetic, typically in the range a-f). This application is written in esql/C and is new with Build OB4. The executable for this application is:

slope_to_stage (esql/C)

The application is intended to be run manually and can be run by any user.

2.0 Configuration Information

2.1 apps_defaults tokens

Two apps_defaults tokens are used by this program, these are::

adb_server   archive Informix server name
adb_name   archive database name

3.0   User How-To

There are two ways the user can run this application; both ways are described below. It doesn't matter which way the user chooses; it is basically user preference.

Method 1 is to use the arcmenu program; steps follow..

1) open a terminal window
2) enter the command xhost +
3) login to the ax
4) export the display (export DISPLAY=lx1-xxx:0.0)

5) at the prompt, type arcmenu   This will bring up the main menu as shown in Figure 1
6) select option "p", the Data Processing menu.   This will bring up the Data Processing menu as shown in Figure 2.
7) Select option "8" from this menu. This will run the application.

Method 2 is to run the script from the command line; steps follow.

1) open a terminal window
2) login to the ax
3) at the prompt, type cd /rfc_arc/bin
4) at the prompt, type slope_to_stage   This will run the application.

Once in the application, the program asks for the station ID and slope reading and estimates the stage by interpolating between surveyed distances and stages. If the measured slope distance is greater than the longest surveyed distance, a stage value of "missing" will be returned along with a notice that the reading is off the slope profile (the program does not extrapolate to distances past the surveyed slope).

An example of the program dialog (***user input in bold italics***):

SLOPE_TO_STAGE CALCULATION
Note: this program only accepts alphabetic markers

Enter sta_ID value_marker (i.e. rbya2 25.6b) (qq to quit): ***acla2 23.0a***

ACLA2   Slope = 23.00a   Stage = 15.00

SLOPE_TO_STAGE CALCULATION
Note: this program only accepts alphabetic markers

Enter sta_ID value_marker (i.e. rbya2 25.6b) (qq to quit): ***acla2 53.6a***
The ACLA2 slope value 53.60 is off of the a slope profile

SLOPE_TO_STAGE CALCULATION
Note: this program only accepts alphabetic markers

Enter sta_ID value_marker (i.e. rbya2 25.6b) (qq to quit): ***acla2 42.6c***
 Could not find the requested slope profile (ACLA2 c)

SLOPE_TO_STAGE CALCULATION
Note: this program only accepts alphabetic markers

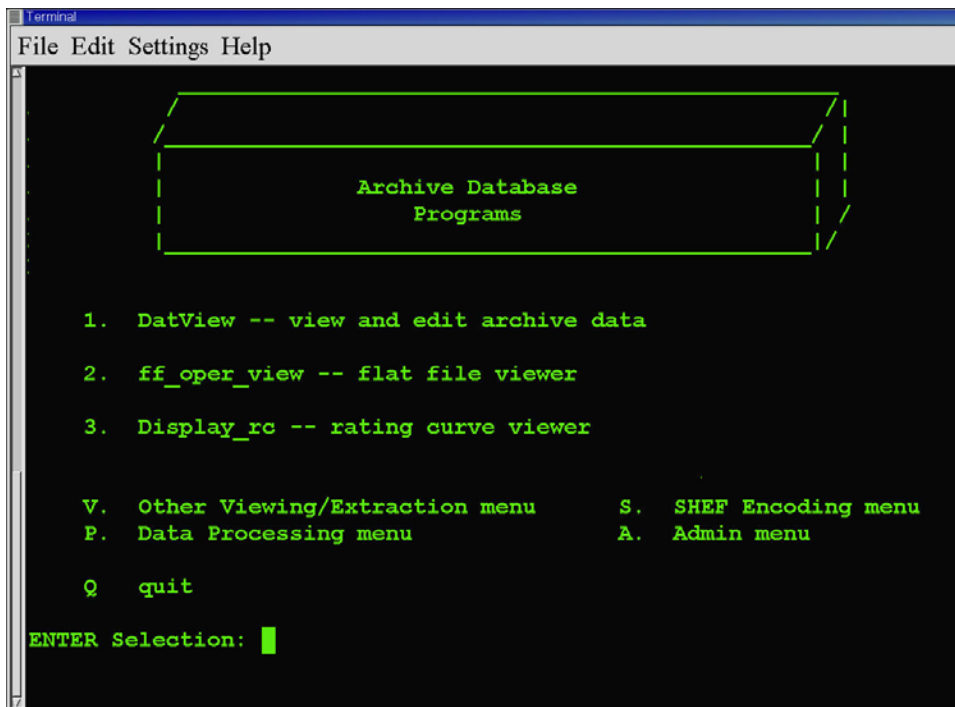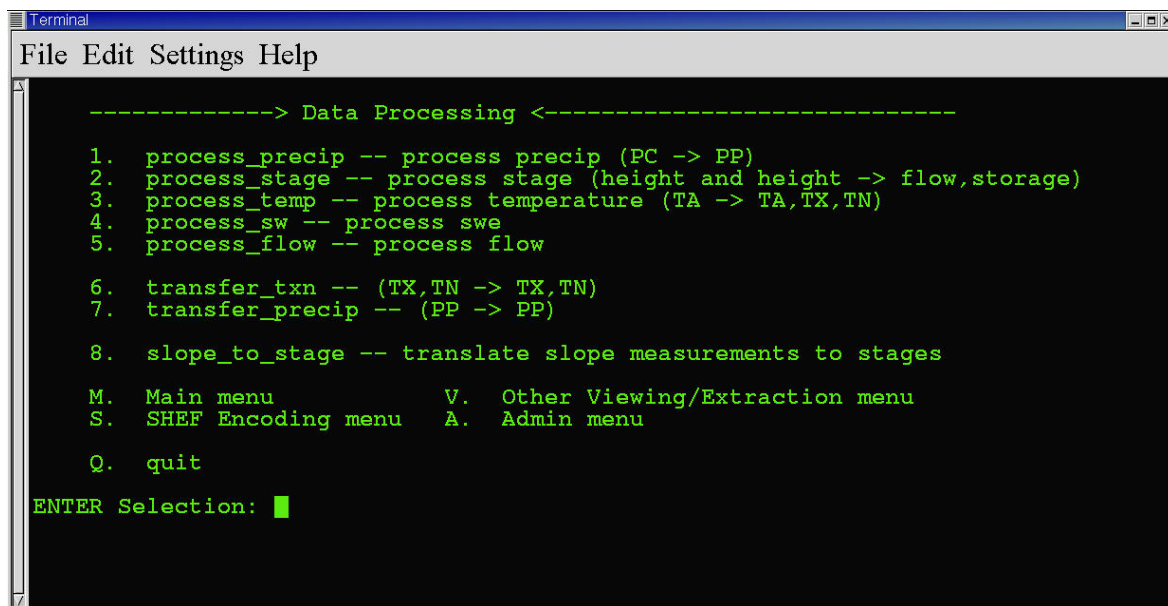Enter sta_ID value_marker (i.e. rbya2 25.6b) (qq to quit): ***qq***

Figure 1.   main menu

Figure 2. Data Processing menu

4.0   Additional Information:

Slope profiles are referenced by the station and marker (e.g.; slope profile "RBYA2 a" is different than "RBYA2 c"). This program will use the most recent slope profile for the given station/marker combination. (This program is meant to be used for quickly getting an estimated stage, and so use of current data is assumed. The subroutine which reads the profiles and calculates the stage can use a date-of-reading to determine if an older profile is needed, thus it can be used in other programs which may use older data.)

Slope profiles in the Alaska Region are in the form of a table of slope distance-elevation (stage) relations determined by surveying down a stream bank from a gage marker to the stream. A slope gage consists of one or more slope markers placed at different elevations on the bank. The stages determined from these slope profiles are estimates because there are several possible errors in the measurements, including: observers not taking the same line as the surveyors from the gage marker to the stream edge, observers not properly connecting the tape to the marker and/or not pulling the tape taut, and stream bank profiles changing between surveys due to erosion/deposition processes (and/or human activities).

Readings are taken by hooking a measuring tape (marked in 10ths of feet and provided by the APRFC) to the slope marker closest to (but above) the waters edge and measuring the (shortest) distance to the waters edge. This distance and the associated marker form the "slope reading."

5.0 Troubleshooting Information

If for some reason the application fails, contact RFC Support.

6.0   Maintenance Information

Originating Programmer/Office: Lunsford, Arleen
Alaska-Pacific River Forecast Center
Anchorage, Alaska

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