Review Comments for the Consolidated
Frequency Analysis (CFA) Program

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by Guy Vallières

The program Consolidated Frequency Analysis (CFA) is a very handy tool for flood frequency analysis. It offers a variety of frequency distributions that covers very well the types of flood series encountered in the B.C. and Yukon Region. In addition, it provides a group of non-parametric tests and many graphics options that enable the user to assess his data set. It also includes a data handling system that combines flexibility and efficiency.

The program has been used many times and several points were brought up: in terms of clarity of the prompts; the handling of missing data; some suggestions are made to adapt the program's output to a standard publication format; and some corrections are suggested to the USER'S MANUAL. The following is a list of these points in the same order as mentioned above.

- After having tested the data set for outliers, the program prompts the following question: "Do you want to change the number of low outliers"? Before asking this question we suggest that the program could, if there is any low outlier, indicate to the user that corrections for any low outlier found by the program or mentioned by the user, will be performed by the program.

- In the output of the homogeneity test on a time span split data set, the so-called subsample 1 corresponds to the smallest subsample regardless of its actual occurrence in time. We suggest that the subsample 1 be the earliest period in any case regardless of

its size.

- When the data are read from a PDP-11/44 file, the program interprets
  any missing data as a zero (0) value. Since zero values are being
  treated by the program and that a missing value should not be treated
  the same way we suggest that any missing data be rejected or at
  least noticed by the program. They can be recognized by the fact
  that when a maximum or a minimum is missing in the file, the month
  and the day are also missing unlike a zero value.
- In order to suit the formatting of our flood frequency report, some
  minor modifications are suggested:
  - When the data are read from a PDP-11/44 file, the program could
    ask for the name of the station sparing the user from having to
    use the file editor of the program.
  - It is suggested that the basin area, the mean and the standard
    error be printed at the end of the list of data with empiric
    probability and return period (Ref. Table 8, p. 66).
  - In the USER'S MANUAL, the ratio (N-L)/N should be replaced
    by N/(N-L) in equations B.31(a) and B.31(b), (p. 31) according
    to equation B.27(a), B.27(b) and B.30, since "1/T" is equal to
    "P(x)" in equation B.27(a) and B.27(b).
- In section B.3.3.3 (p. 131) of the USER'S MANUAL, strictly speaking,
  the return period for which P(x) = 1 is (N-L)/N which is smaller than
  N/(N-L), and the T cannot be less than (N-L)/N. The ratio N/(N-L)
  is more conservative but is not mathematically the lower boundary.
  The same applies to sections B.4.6.3 and B.7.3.3.