

## LETTER

Dear Sir

The New Zealand Meteorological Service has for many years extracted monthly maximum rainfalls for the following periods: 10, 20, 30 minutes and 1, 2, 6, 12, 24, 48, 72 hours. Prior to January 1986 these were extracted manually and since then a digitisation system has been used, the details of which are in "Digitising Pluviographs" by John Sansom in the Journal of Hydrology (N.Z.) Vol. 26, No. 2 1987.

A prime purpose for extracting these maxima is to use them in estimating, for the periods given above, the amounts of rainfall that have certain return periods — the so-called depth-duration-frequency (DDF) tables which are used in drainage and flood design. In 1980 the Met. Service published a set of such tables for about 160 places in "The Frequency of High Intensity Rainfalls in New Zealand" (N.Z. Met. Service Miscellaneous Publication 162).

For another purpose pluviographs from Albert Park in central Auckland were digitised for the years 1962 (when the auto-graphic raingauge was installed) until 1985 (after which they had already been digitised). The maxima from these digitised data were found to be generally a little larger than the manually extracted ones. Also it was noted that many of the heaviest rainfall events had occurred in the period after the one on which the published DDF table was based. Therefore, the DDF table has been re-calculated and some large differences have been found:

- Amounts generally bigger for the longer return periods.
- For periods of 2 hours or less, the new amounts are generally 20% more than the published ones and for 20 minutes to 1 hour and return periods of 10 years or more are up to 45% larger.
- For periods of 6–24 hours the new amounts are 10–15% higher.
- For 48 hours the new amounts are about 5% higher.
- For 72 hours there is little difference.

The new DDF table is now available at a cost of \$22.50 plus GST. Other products made possible by the digitisation system include the extraction of maxima for any length period; extraction of fixed (with respect to the clock) falls i.e. hourly falls, 10 minute falls etc.; exceedence counts in which for a given period length and amount the number of times that amount is equalled or exceeded is counted; total duration of rain above given threshold intensities.

For further details please do not hesitate to contact me.

Yours faithfully

*John Sansom*  
Manager, Data Archive  
for General Manager