

16 SOME HYDRO-METEOROLOGICAL PROBLEMS REQUIRING CLOSER ATTENTION. P.J. Grant, Hawke's Bay Catchment Board, Napier.

1. For the satisfactory definition of hydrological regions, differences of rock, soil, physiography and precipitation regime should be considered. For the latter it is desirable to have at least (a) the average annual rainfall pattern (b) intensity - duration - frequency data and (c) some knowledge of directional sources of rainfall. All aspects of precipitation regime studies require closer collaboration between hydrologists, meteorologists and climatologists. J.D. Coulter's analysis of easterly and westerly rainfalls in Hawke's Bay is a valuable contribution to regional hydrology. More studies of this type are required.
2. Rainfall stations in the Meteorological Service network should be inspected more regularly - perhaps annually in some cases. This becomes especially desirable when records are being used for special catchment studies. The maintenance of a good standard of general sampling is the responsibility of the Meteorological Service but hydrologists could assist.
3. High altitude rainfall sampling has many problems; the greatest is probably the exposure factor. This was discussed broadly and controlled exposure trials were suggested. An outline was given of the Type C storage raingauge which was designed in Hawke's Bay. Vertical and tilted (perpendicular to ground slope) raingauges were mentioned; it being considered in remote regions where regular maintenance is seldom possible and data on rain-wind directions is not usually available, that raingauges should be installed vertically. Tilted raingauges should be limited to intensive sampling of small accessible areas.
4. For regional catchment studies in remote areas of high relief it will be necessary to obtain more specific data on temperature, wind and precipitation gradients.
5. Hydrologists and allied workers look to meteorologists for assistance and co-operation, particularly in the field of flood forecasting. And to climatologists they look for the analysis of records, for the finer definition of climatic variation in space and for the determination of short-term and long-term cycles or trends, both in temperature and rainfall.