



PACIFIC REGION TECHNICAL NOTES

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Evaluation of the CMC Four Panel
Cloud and Precipitation Charts for B.C.

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In this preliminary assessment of CMC's four panel cloud and precipitation charts, emphasis was placed on their ability to forecast the occurrence of large scale or convective precipitation, and CB development. An example of the four panel chart is shown in figure 1. The nature of the charts requires that the forecast clouds and precipitation at any station must be interpreted subjectively. In order to determine the charts performance in the B.C. forecast regions, the verification was done for Vancouver (YVR), Prince Rupert (YPR), Penticton (YYF), and Prince George (YXS).

The charts were verified for the period from May 6, 1979 to June 8, 1979 and since both 00Z and 12Z charts were verified there were 68 time periods. In determining the actual weather at each forecast time, 9 hour intervals of observations were used consisting of four SA observations before and four after the 00Z and 12Z chart times. In each time interval, the occurrence of steady rain, showers, and heavy convective development were recorded. Showers were divided into two types; isolated airmass type, and those associated with synoptic scale systems. The synoptic system showers were combined with steady rain from the same systems in the recording of precipitation. During each period the precipitation and convective activity, with or without showers, were recorded for each station. If either or both occurrences were forecast then they were recorded as a "good forecast".

The occurrence totals for these events and the forecast totals for the 68 forecast periods studied are shown in table 1.

As the numbers in figure 1 illustrate, the accuracy of the forecast charts is such that they cannot be used with any confidence to forecast precipitation. YPR for example, although there were 24 periods during which rain fell, and there were 18 forecasts of rain, only 10 of the 18 were correct. Thus the forecasts were good only 10 of 24 times, plus 8 times they forecast rain when no precipitation occurred. In addition, there were 7 occurrences of showers which were not forecast at all. In the interior, YYF and YXS, virtually no large scale precipitation occurred during this test period but the charts forecast only 5 of 15, and 3 of 23 respectively, of the occurrence of convective activity and showers.

Another aspect of the progs is a strong tendency to bring moisture into central and southern B.C. from Alberta and northeastern B.C. Penetration of this moisture into southern B.C. is not nearly this frequent or in the amounts indicated by the charts.

Since this is only a preliminary study of these charts there was no attempt to determine under which circumstances, if any, these progs are accurate in forecasting precipitation and no explicit study of non-precipitation producing cloud types and amounts was done at this time. The only noticeable feature of the charts in this regard is that they appear to do well over the south coast when they forecast clear skies.

With precipitation being a far more serious forecast problem than cloud amounts, and in view of the lack of skill of these forecast charts there seems little point in continued study of these charts to determine how they could be used as forecast aid in B.C.

Shortly after this study was concluded the four panel charts were deemed of low priority and were discontinued. (editor)

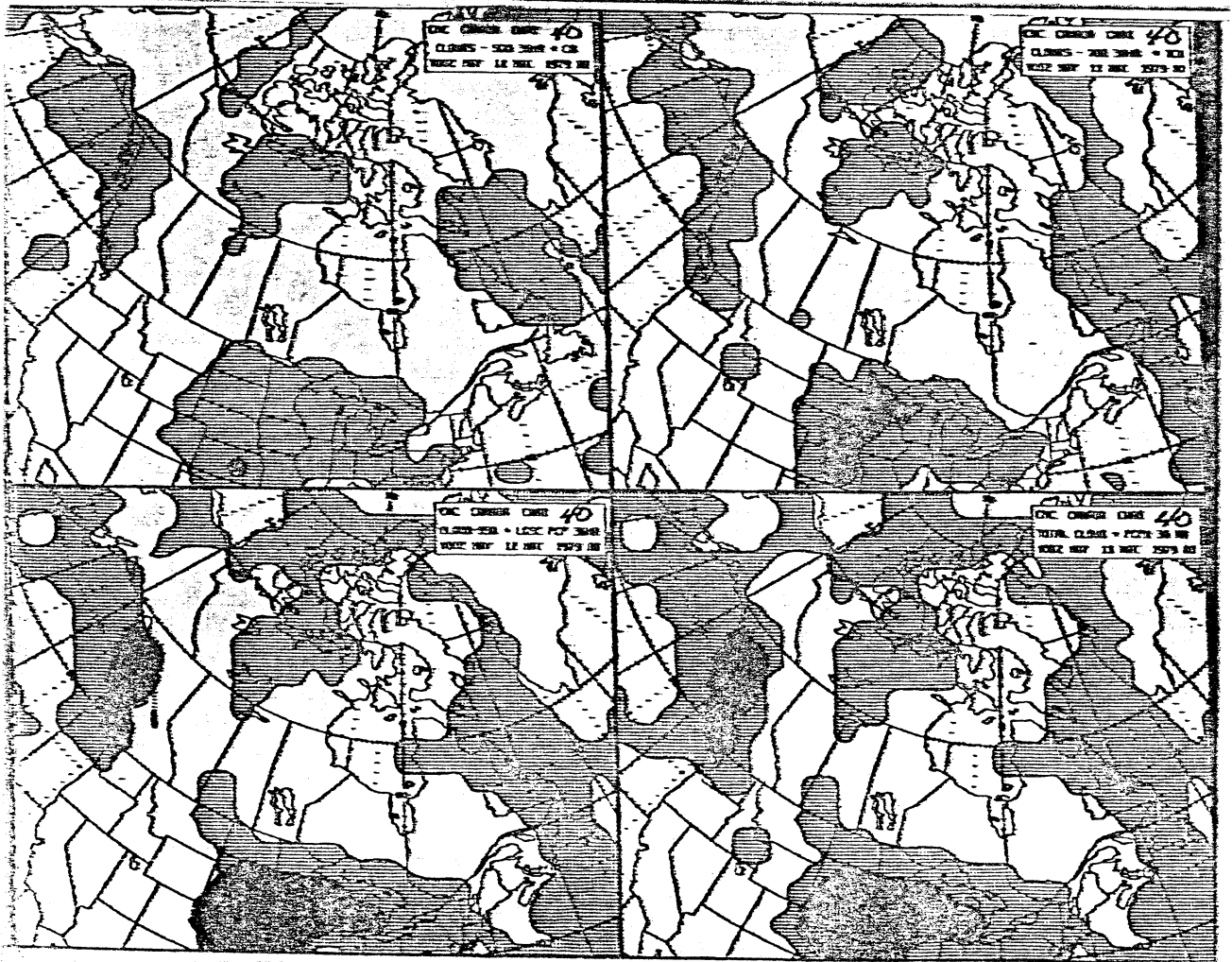


FIGURE 1. EXAMPLE OF FOUR PANEL CLOUD AND PRECIPITATION CHART.

TOTAL NUMBER OF EVENT OCCURRENCES

STATION	ACTUAL		FORECAST		GOOD FORECAST	
	PCPN	CONVECTION	PCPN	CONVECTION	PCPN	CONVECTION
YVR	2	15	9	4	2	4
YPR	24	7	18	2	10	0
YYF	1	15	4	5	0	5
YXS	7	23	7	3	3	3