



PACIFIC REGION TECHNICAL NOTES

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July 30, 1978

FAILURE OF COMPUTER PRODUCTS TO HANDLE CONVECTIVE PRECIPITATION

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DISCUSSION.

The following copies of charts or satellite imagery are attached:

1. Enhanced Ir picture for July 26, 1245Z, 1978.
2. Enhanced Ir picture for 1645Z, July 26, 1978.
3. Visible picture for 2315Z, July 26, 1978.
4. 12 hour forecast of relative humidity and vertical velocity valid 0000Z July 27, 1978.

This forecast is based on the 7-Level PE prog.

5. 12 hour forecast of precipitation and 700 mb vertical velocity valid 0000Z July, 27, 1978.

This forecast is based on the LFM prog.

6. Precipitation for 12 hour period ending 0000Z July 27, 1978.

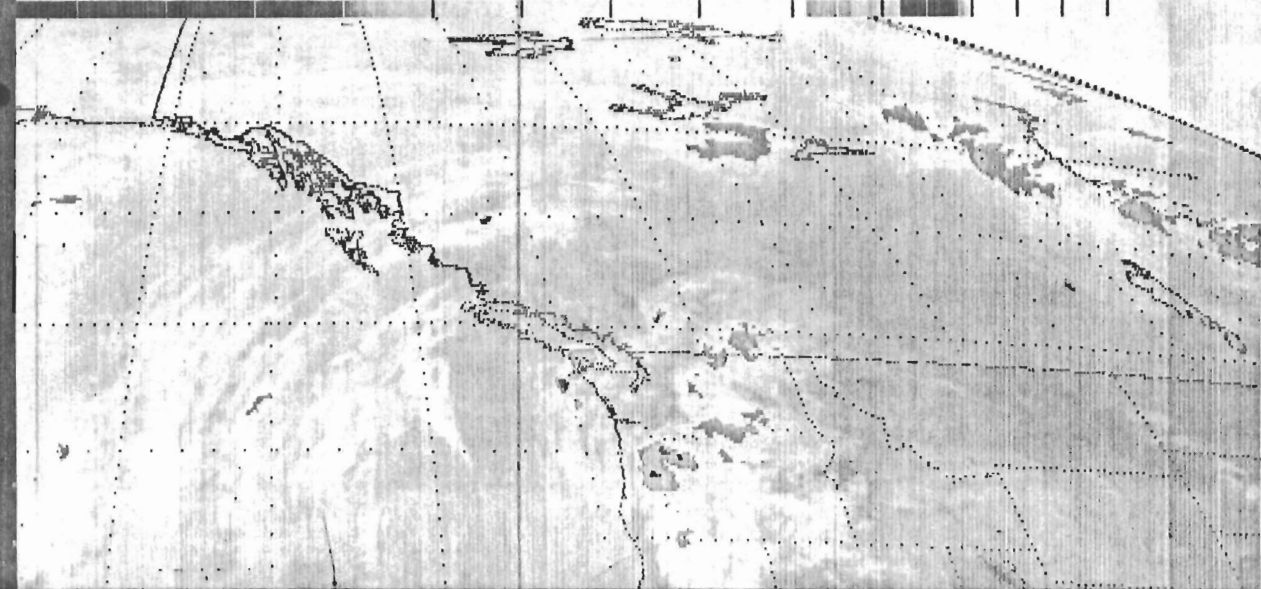
This forecast is based upon the CMC Spectral model.

The satellite imagery for 1245Z of July 26 showed considerable cloudiness over southern and southwestern B.C., Washington, Oregon and Northern California. The imagery shows some cloud top temperatures of -60 degrees C. These temperatures agreed with a tropopause temperature of -60 degrees C. near 40,000 feet. In fact some showers and thunderstorms were reported over the cloud covered areas. The imagery at 1645Z of July 26 showed that the cold cloud top temperatures expanded rapidly and clouds now advanced rapidly into south-central B.C.. By this time rain, showers or thundershowers were reported from all of southwestern B.C. and these conditions were beginning to spread into southern and southeastern B.C. By 2315Z as illustrated on the visible imagery convective activity covered all of southern and southwestern B.C. All reporting stations in southern and southwestern B.C. received some precipitation but the amounts varied considerably, 5 to 10 mm. occurred over most regions affected by this system and reports of 20mm were reported at some stations.

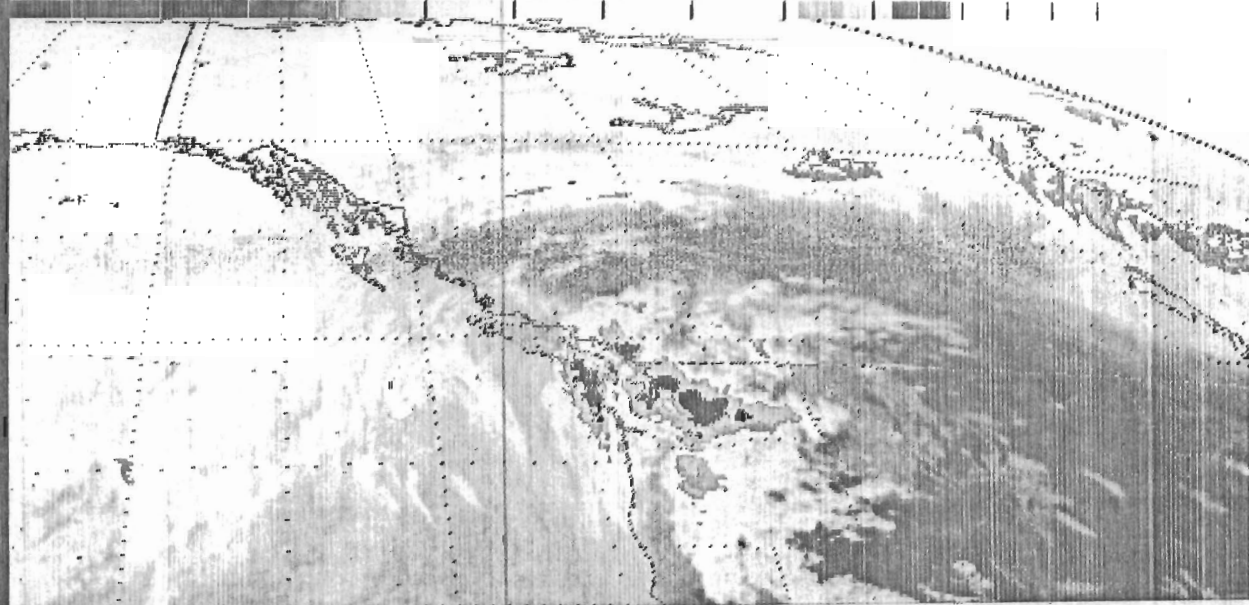
The relative humidity, vertical motion and precipitation progs produced by three different numerical models, based upon 1200Z data at which time precipitation was already occurring over the area would all imply that one could expect no precipitation over southern B.C. during the next 12 hours. The question of course is ;" How could all these progs miss an important precipitation event covering an area in excess of 40,000 square miles?" The answer probably lies in the fact that most of the precipitation was of a convective nature--- a mesoscale phenomena. Can one in such a situation still apply this term? It should be pointed out that the CMC spectral prog did forecast some precipitation over extreme southeastern B.C. in the following 12 hour period as was the implication for the other two computer models. Also, the CMC cloud forecast did indicate some cloud for southern B.C.

It would appear that if the precipitation that is expected is primarily of a convective nature (apparently no matter how large the area of influence) then the computer produced precipitation progs should be regarded with some skepticism.

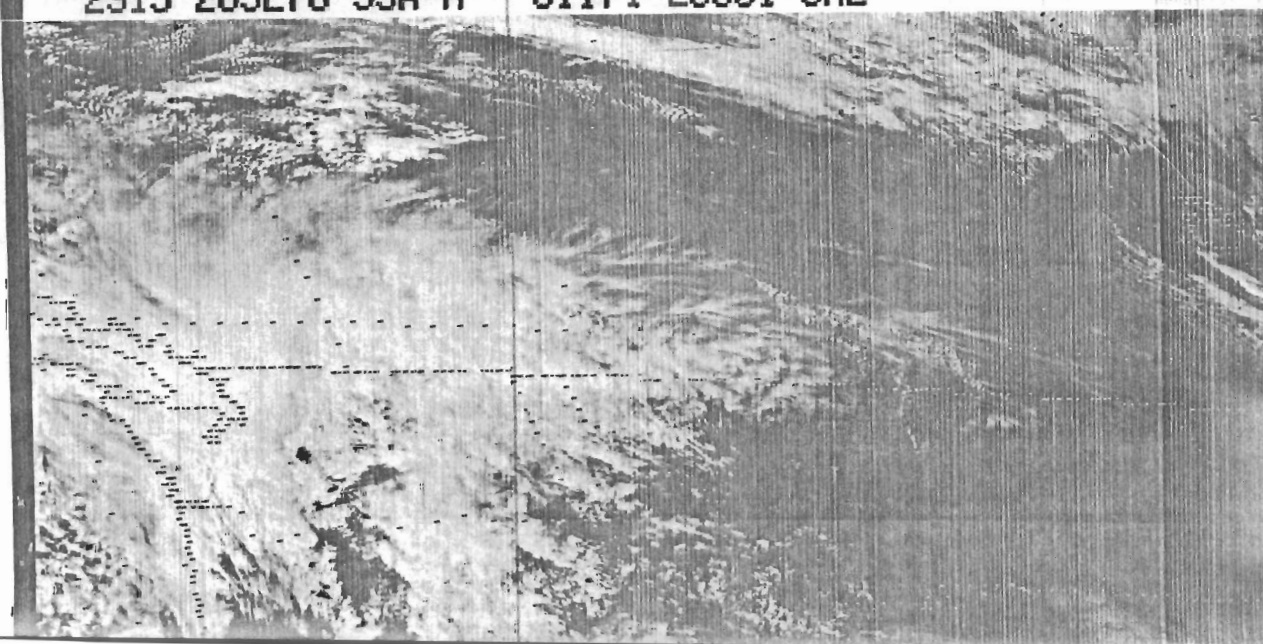
1245 26JL78 35E-1CA 00721 22041 SB6

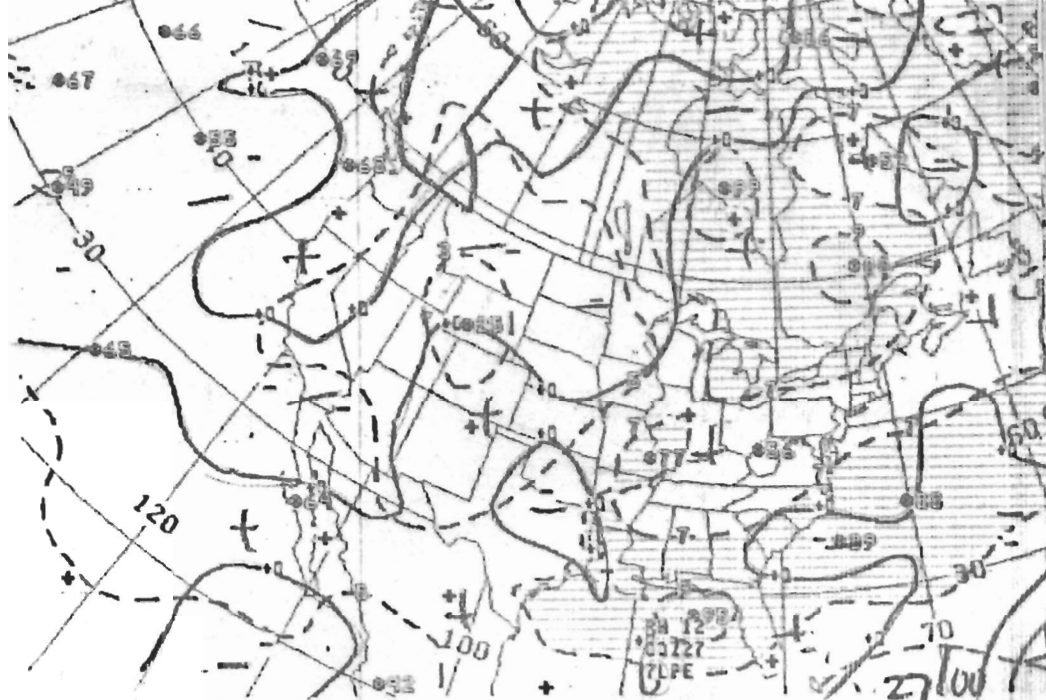


1645 26JL78 35E-1CA 00631 21631 SB6



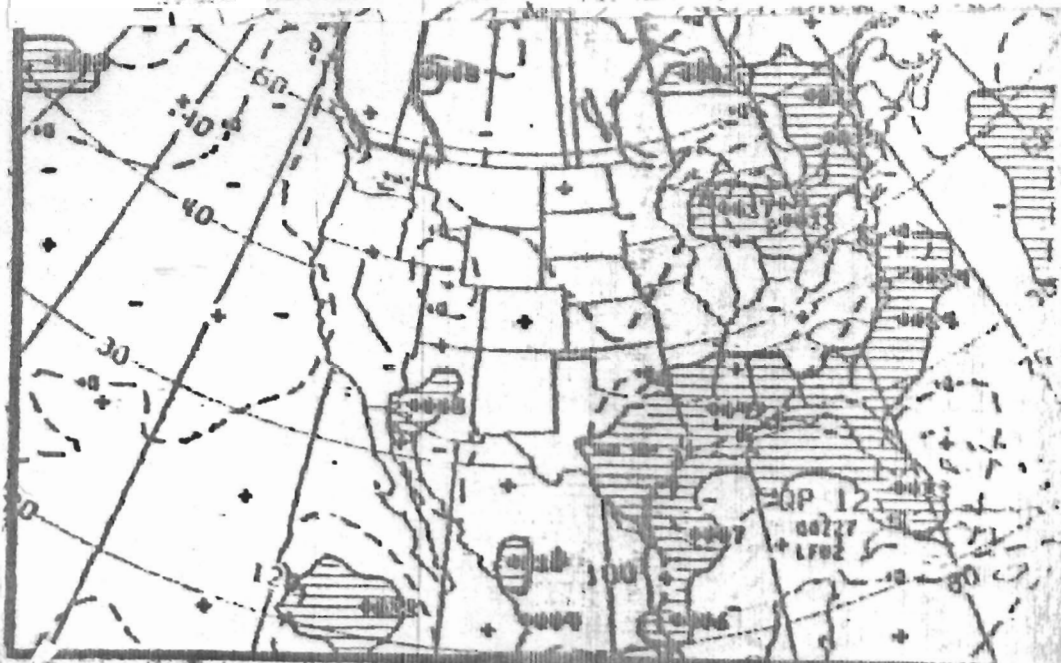
2315 26JL78 35A-H 01171 23501 SA2





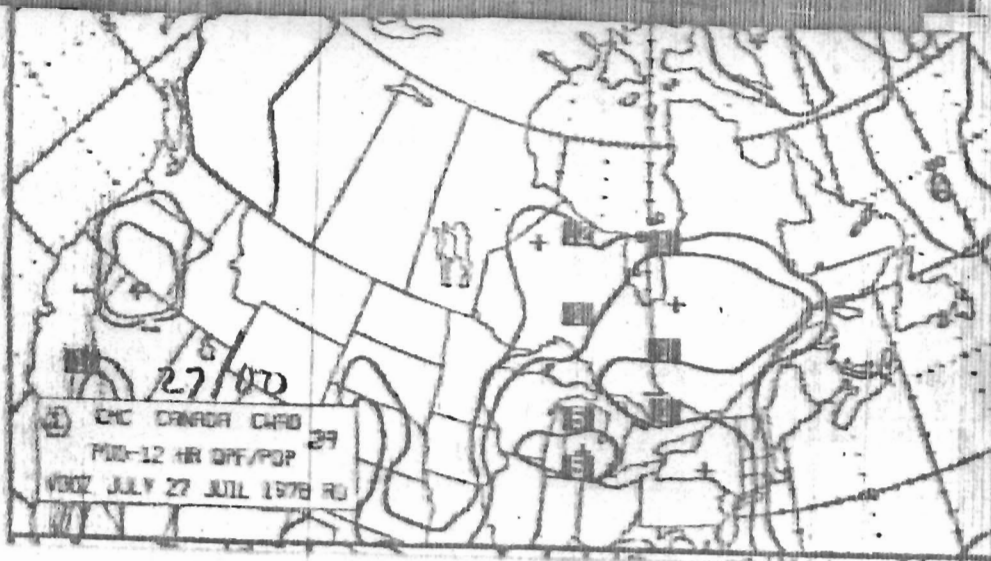
F108C. 12HR FCST

REL HUMIDITY/VERT VEL VALID 00Z THU 27 JUL 1978



PRECIP. 12HR FCST

PRECIP. 12HR FCST VALID 00Z THU 27 JUL 1978



27/00
CIC CANADA CFB
P10-12 HR CFC/POP
V00Z JULY 27 JUL 1978 RD