



PACIFIC REGION TECHNICAL NOTES

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The FXCN4 CYVR Satellite Message

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BACKGROUND

On October 14 1978, The Pacific Weather Center implemented a trial program with the institution of an operational (dayshift only) satellite meteorologist. This is an attempt to achieve maximum possible utilization of one of the main analysis tools over the Pacific ocean, that is, satellite imagery and satellite derived data. At present, one of his primary duties is to study the satellite imagery received at PWC, develop all possible interpretation skills and give support to ^{the} forecast program at PWC, the Pacific region field offices, downstream weather centers and CMC. He will communicate his analysis daily by use of the FXCN4 satellite message.

Briefly, his morning routine is as follows. He will study in detail the satellite imagery received at PWC. Then he will evaluate the various model initial fields received at the center. At the same time, he will maintain a check on the accuracy of the computer prognoses valid at the latest picture time. Any significant changes in the observed cloud patterns and discrepancies with the computer prognosis will be communicated to the duty prognostician. His morning analysis program will end with the issue of the FXCN4 CYVR satellite message at 11:45 a.m. As well, a briefing to and resultant discussion with the other forecasters will take place at noon daily.

PURPOSE OF MESSAGE

- A. The satellite message is analagous to the TBXX KSFO message composed and sent out by the satellite interpretation office at San Francisco.
- B. It is intended to give all users a description of the relevant features with heavy emphasis on satellite imagery over the data sparse Pacific ocean.
- C. Comparisons will be made between the cloud characteristics and the computer analysés and prognoses available at PWC. Relevant comments will be made.

MESSAGE HEADING

The heading for the message will be as follows

FXCN4 CYVR 1900 (Summer) or FXCN4 CYVR 2000 (Winter)
Discussion of Weather Analysis over Pacific and Western Canada
based on Satellite Imagery.

MESSAGE CONTENT

A. Jet Stream at 12Z

1. The horizontal positioning of the jet streams relative to the earth's surface will be detailed.
2. A qualitative description of the intensity of the jets will be included. Mostly, the streams will be labelled as the weaker or the stronger. Branches of the same stream will be identified as the northern or the southern. It could also be identified as the weaker or the stronger.

B. Major Features at 12Z

1. The hemisphere will be loosely divided into separate areas for the purpose of discussion. These areas will encompass a major circulation feature.
2. The areas being discussed will generally move from east to west in the hemisphere. This is done so that the atmospheric features which are affecting BC at present will be discussed first. The further upstream a feature and hence the further removed it is from the BC area, the lower in the discussion it will fall.
2. In each of the above areas the following will be identified and/or discussed
 - a. Major circulation feature (upper troughs, ridges, lows, highs, etc) and estimated direction of motion and speed.
 - b. For any area of significant activity (upper troughs, lows, weak ridges, etc) the following could be discussed:
 - i. position of the cloud system and the anticipated vorticity pattern and thermal pattern (if possible), i.e.
 - position of the vorticity max with respect to the cloud rotation center
 - speed and motion of the vorticity maximum.
 - position of the vorticity lobe with respect to the comma cloud system
 - identification of areas of advection and channel jets.
 - probable areas of significant thermal advection (which can be inferred indirectly from cloud formations on the satellite pictures)
 - ii. any discrepancies between the results in (i) and the CMC (spectral) as well as the NWS (LFM) analysis, i.e.
 - the positioning of the vorticity max and min
 - intensity of the vorticity advection areas
 - shape of the vorticity pattern (vorticity lobes, advection jets, channel jets)
 - extent of the thermal advection areas.
 - iii. subjective assessment of the computer model outputs valid at 12Z
 - 12hr spectral model prognosis
 - 12hr LFM model prognosis
 - iv. the clouds in the cloud system and any areas of significant weather that becomes obvious from satellite imagery. could be discussed in a general manner.
 - v. any identifiable cyclogenesis.
 - vi. behaviour of fronts and frontal structure
 - vii. anything else of interest.
 - c. For any areas of little weather activity (high amplitude upper ridges, deep and sharp upper troughs), the following could be discussed
 - i. areas of significant low clouds or convective clouds in a general manner
 - ii. anything else of interest

C. BC and Vicinity

1. Under this section (if included), more specific emphasis will be given to cloud systems, cloud formations or any other significant meteorological activity that is evident on the satellite pictures and is currently or will affect the BC area in the very near term. The above could be of use as a nowcast or a very short range forecast.
2. This section will be included only if the duty satellite meteorologist feels the situation over BC and nearby warrants more specific emphasis.

D. Changes to xxxz

1. In this section, all important changes in the cloud patterns to xxxz (some later picture time) will be discussed.
2. The latest workable picture before issue of the message will be used.

EXAMPLE

An example of a FXCN4 CYVR Satellite message will be found on the next page. The message was issued on November 05, 1978.

ADDITIONAL COMMENTS

- A. As previously stated, this message is mostly a discussion of analysis, i.e. the existing situation, with heavy emphasis placed on the interpretation of satellite imagery.
- B. The content guidelines stated above are meant to ^{be} comprehensive. Only the most important items will be included on each daily message.
- C. Investigations have also been launched (by the ODIT section at PWC) into use of AIREPS and SIRS data as a supplement to verify or improve the 500 mb analysis over the Pacific.
- D. All comments and/or constructive criticism by the field offices about the format and/or contents of the satellite message will be welcomed.
- E. Informal inquiries directed to CMC indicate that the receipt of the FXCN4 satellite message is being well received there.
- F. This note was written while working with the ODIT section at PWC.

FXCN4 CYUR 052000

DISCUSSION OF WEATHER ANALYSIS OVER EASTERN PACIFIC
AND WESTERN CANADA BASED ON SATELLITE IMAGERY

JET STRM-12Z...NRN STRM FM 45N 180W NEWD THRU WND MAX UCNTY 55N
135W TO RDG LN 57N 135W THEN SEWD TO IDAHO/MONT AND EMD. HINT OF
NEW BRANCH BREAKING ACROSS DATELINE AT 50-55N. MKR STRM COMING NWD
ALG 138W ACROSS CALIF/UTAH AND NEWD OVR S DAK.

MAJOR FEATURES-12Z

MK VORT MAX MONT WITH LOBE SMD MOVG E AROUND 50 KTS.
SCND CNTR NR EDSON, ALTA WITH LOBE SMD MOVG SEWD 35-40 KTS.
SPECT AND LFN INIT ANAL BOTH RSNBL WITH MONT SYS. BOTH ANAL ARE SLOW
WITH VORT MAX OVR EDSON. BOTH 12 HR PROGS UT 5/12Z ONLY POOR WITH
THESE TWO SYS ALTHO LFN DID INDICATE MK SHRTWU OVR IDAHO.

RAIN CNTR NR 55N 148W WITH LOBE SMD MOVG EMD 40-45 KTS.
LFN AND SPECT INIT ANAL FAIR ALTHO VORT CNTR TOO FAR WEST. 12 HR
PROGS UT 5/12Z BOTH TOO WEAK WITH PVA.

RDG LN N-S UCNTY 136W MOVG EMD 40-45 KTS.

FARTHER WEST...TROF LN/ENHANCED INSTBLTY AREA SHOWING UCNTY 47-50N
170-177W AND MOVG SEWD NEAR 30 KTS. MRNG SPECT SHOWS MK SHRTWU WHILE
LFN SHOWS MUCH SHRPR SHRTWU WITH STG PVA UCNTY 165W. PRFR PATTERN
OF OLD SPECT 12HR PROG UT 5/12Z WHICH SHOWED NDT PVA.
THIS SYS BEARS WATCHING AS CNDTNS ARE FVRBL FOR DULPHNT IN THIS
AREA. A JET MAX OF 150+ IS NOW CROSSING THE DATELINE.

BC AND UCNTY...OPEN AREA OVR WRN STATES AND OFFSHR. JKN-OVC MID-HI
CLDS OVR SERN BC AND WRN WASH. OVC MIX OVR MOST OF BC FM APRCHG
SYS.

1745Z...

SURGE AREA WITH SYS IN ERN GULF HAS MOVD TO 56N 137W-NEAR 45 KTS.
PSBLY MK STBL WJ ALG FNT NR 50N 148W. PSBLY OF SCND WJ DULPG NR
45N 162W.

END