Boise and Snake River Plain wind event of 8/30/99

During the late afternoon and early evening of August 30th 1999, a powerful cold front swept across the valley. The front and its associated strong winds had a major impact on utilities in the area. There were numerous power outages from downed power lines and trees and even some fire starts from toppled power lines on tinder dry fuels. Although the event did not initially meet the criteria for a high wind warning, it did later as it crossed eastward into the magic valley where some wind reports came in as high as 50-70 mph. Nowcasts were issued for the Treasure Valley and later wind advisories and high wind warnings were issued.

The following sets of charts illustrate the synoptic setting at the height of the strongest winds (00z on the 31st).

Chart #1 shows the eta lifted index and MSL pressure. Notice the tight pressure gradient between Boise and Burns (8 millibars). West of the front we are now into a field of more stable air (+6 isopleth in our region)

Chart #2 shows the eta surface temperature fields in degrees c. Notice the very strong gradient of temperature from Boise to Burns. (22c to 10c in 150 miles) a strong cold advection signature.

Chart #3 shows the eta MSL pressure in millibars (2mb interval). Again, the strongest gradient is from Boise to Burns with tightest from Burns to the Idaho state line.

Chart #4 shows the eta 85h winds and heights. Notice the core field of 30-35kts over Southeast Oregon and Southwest Idaho. By this time frame, the surface and 85h cold front had advanced to the western Magic Valley.

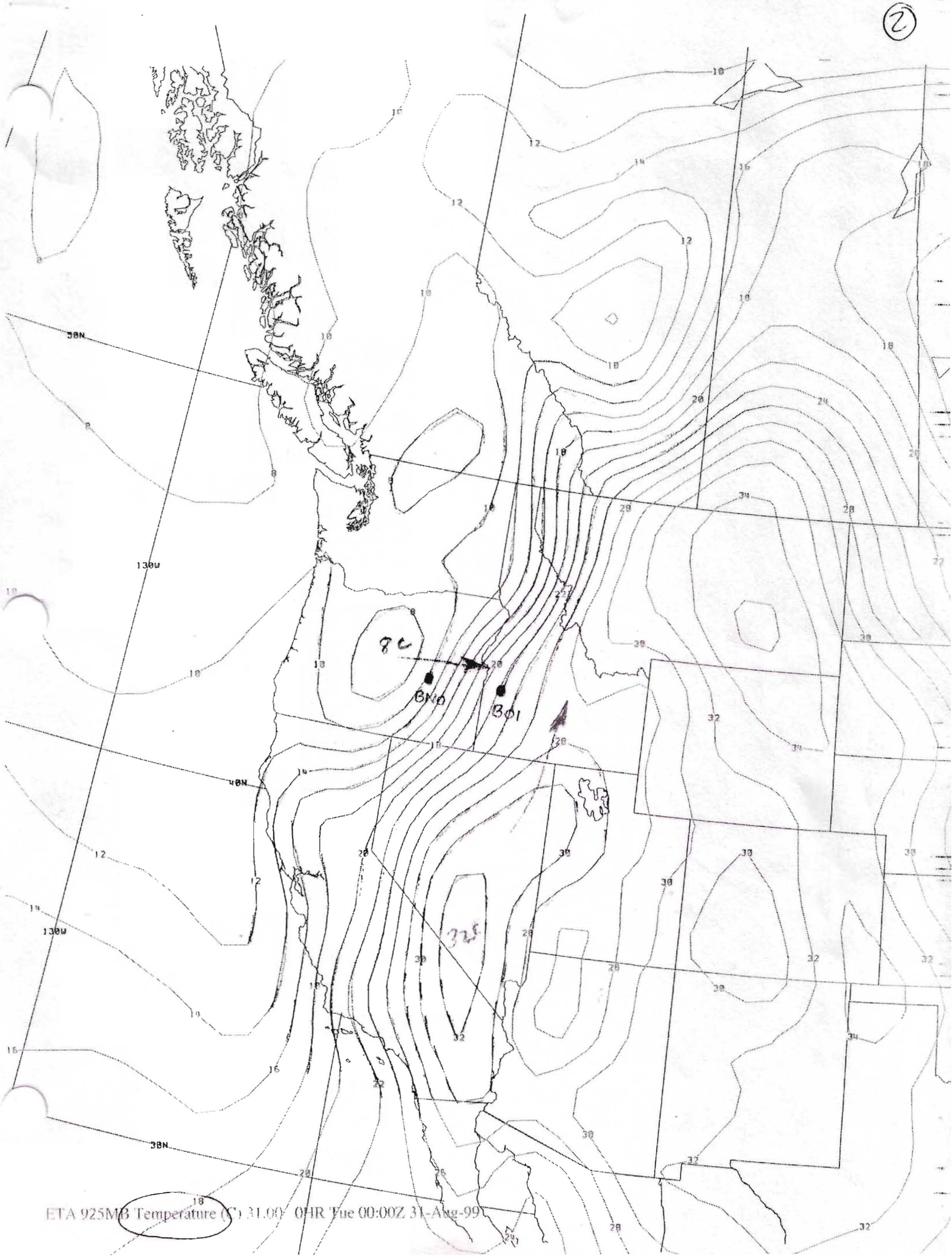
Chart #5 just depicts the 85h winds in a streamline fashion. Again the strongest winds arriving in the Boise CWFA with anticyclonic curvature over Oregon and cyclonic curvature from Boise to PIH.

Chart #6 is the eta 7h heights and winds. A minor wave was aligned close to the frontal position while the long wave corresponded closely to the back edge of the strongest wind fields near the surface. Also note how the 85h and 7h winds were well aligned with each other. Very little directional shear through this layer.

Chart #7 is interesting because it shows the stronger subsidence field over Southwest Idaho where the strong winds were occurring while Eastern Idaho was in upward motion with no strong winds there yet.

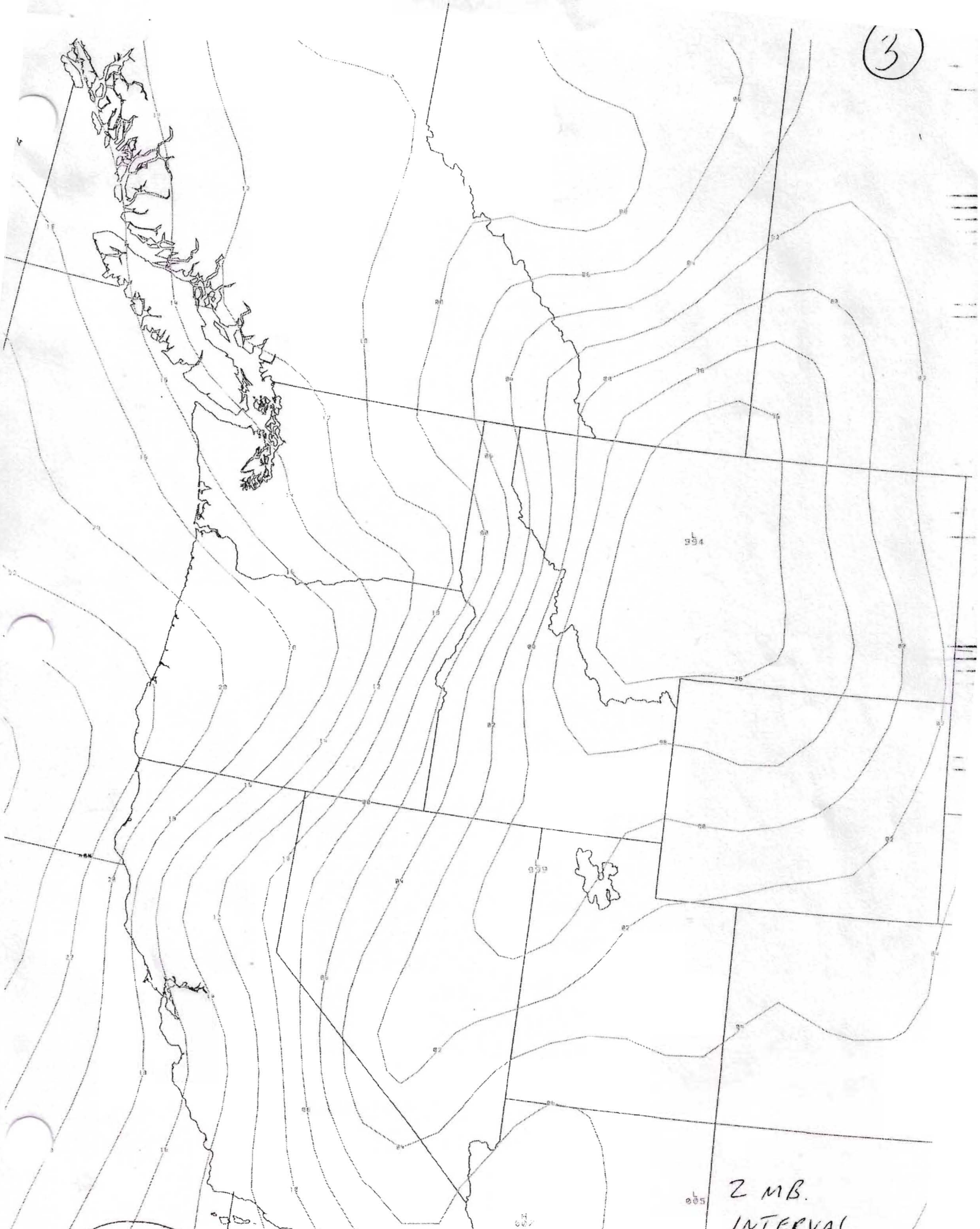
Chart #8 is the 3h winds and heights off the eta. This one is very interesting too because is depicts the jet axis at almost a 90 degree cross component to the lower level winds. Notice that the core of the speed max appears to lie directly over the area in question.
The actual upper air plots are also included with a hand analysis.
gjs


1
8 MB.
BNO
BOI
ETA Lifted Index (C) 31.00 0HR Tue 00:00Z 31-Aug-99
ETA MSL Pressure (mb) 31.00 0HR Tue 00:00Z 31-Aug-99
4 MB. INTERVAL

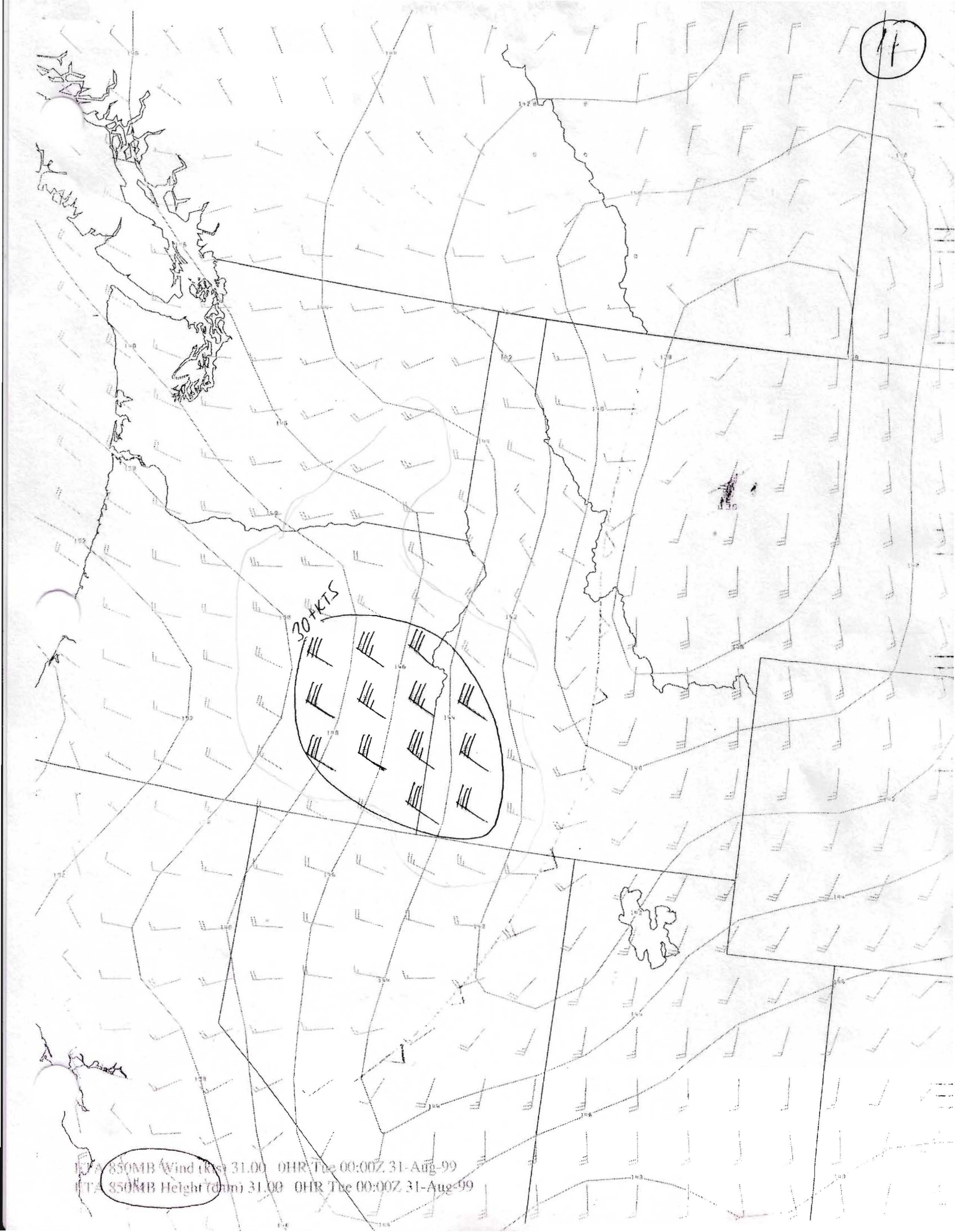


ETA 925MB Temperature (C) 31.00) 0HR Tue 00:00Z 31-Aug-99

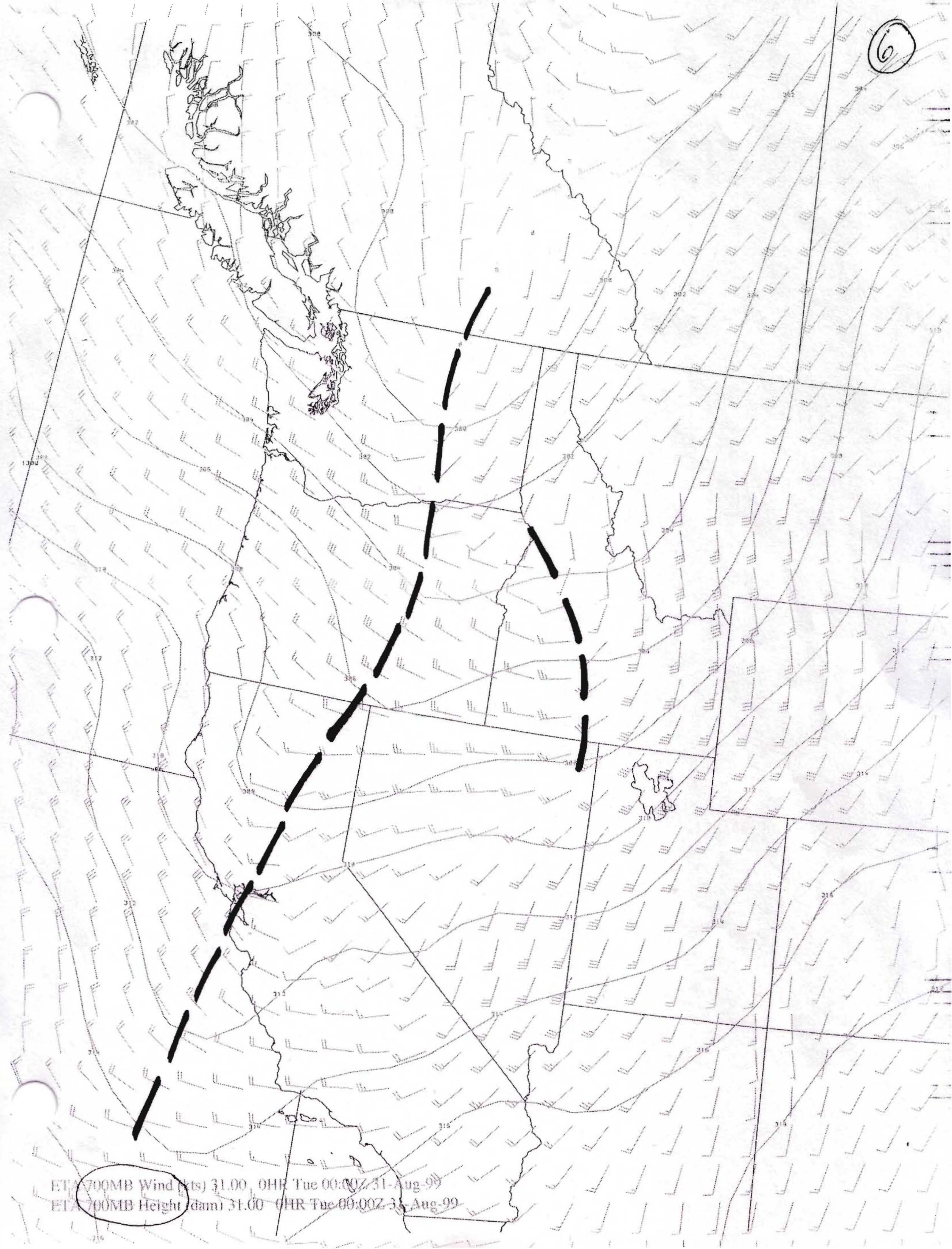
(3)



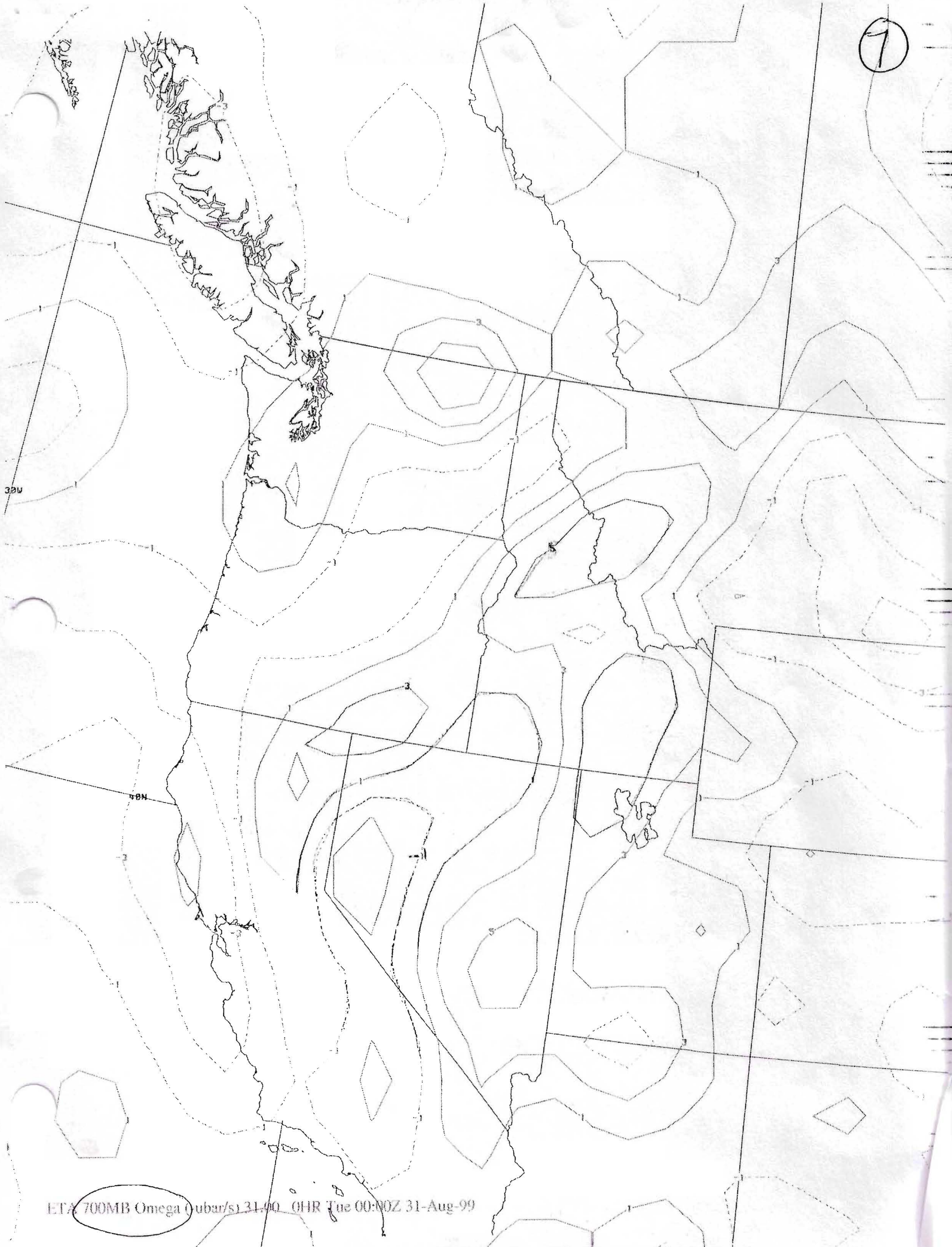
ETA MSL Pressure (mb) 31.00 0HR Tue 00:00Z 31-Aug-99


17
30+KTS
ETA 850MB Wind (kts) 31.00 0HR Tue 00:00Z 31-Aug-99
ETA 850MB Height (dam) 31.00 0HR Tue 00:00Z 31-Aug-99

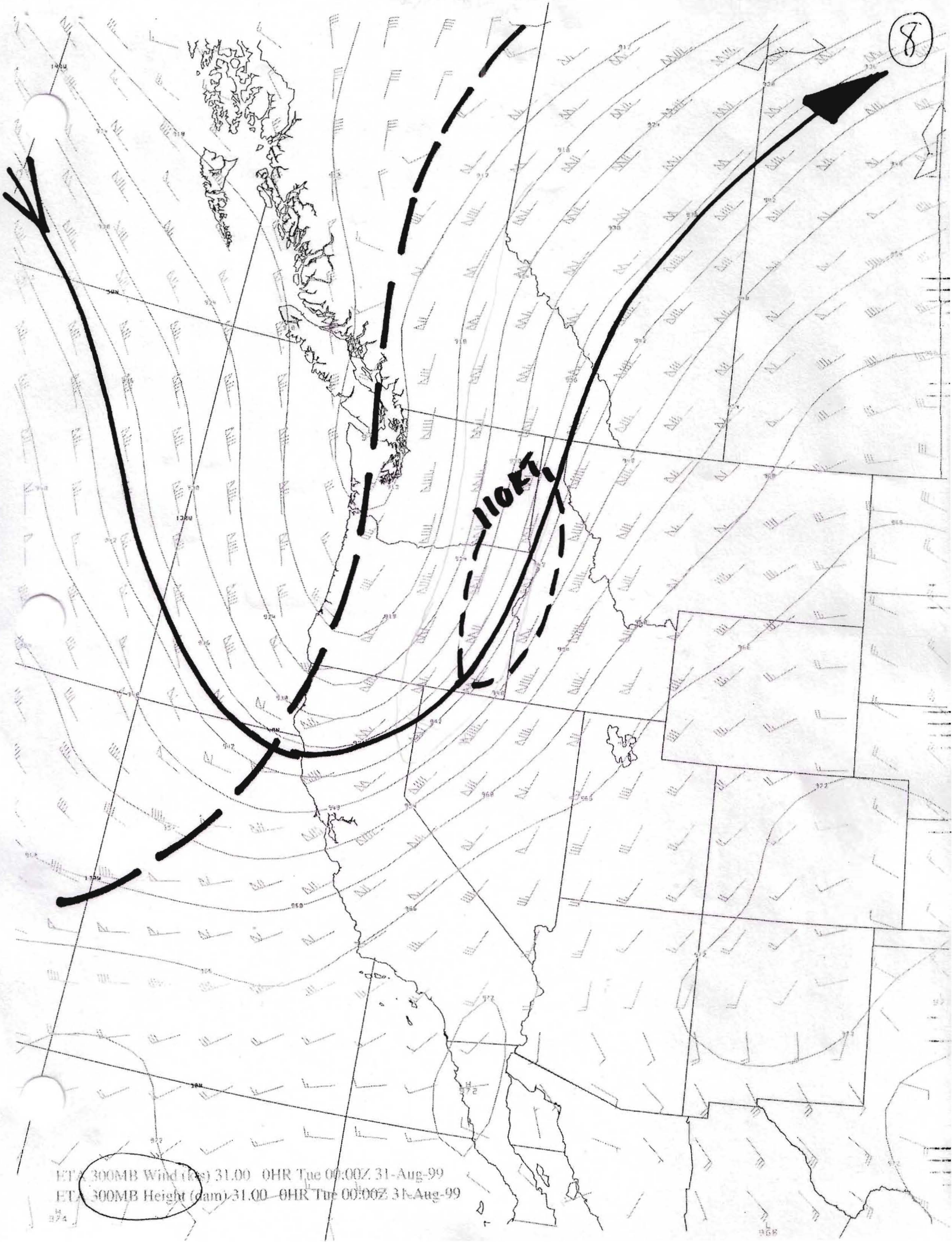

5
48N
ETA 850MB Wind (kts) 31.00 0HR Tue 00Z 31-Aug-99

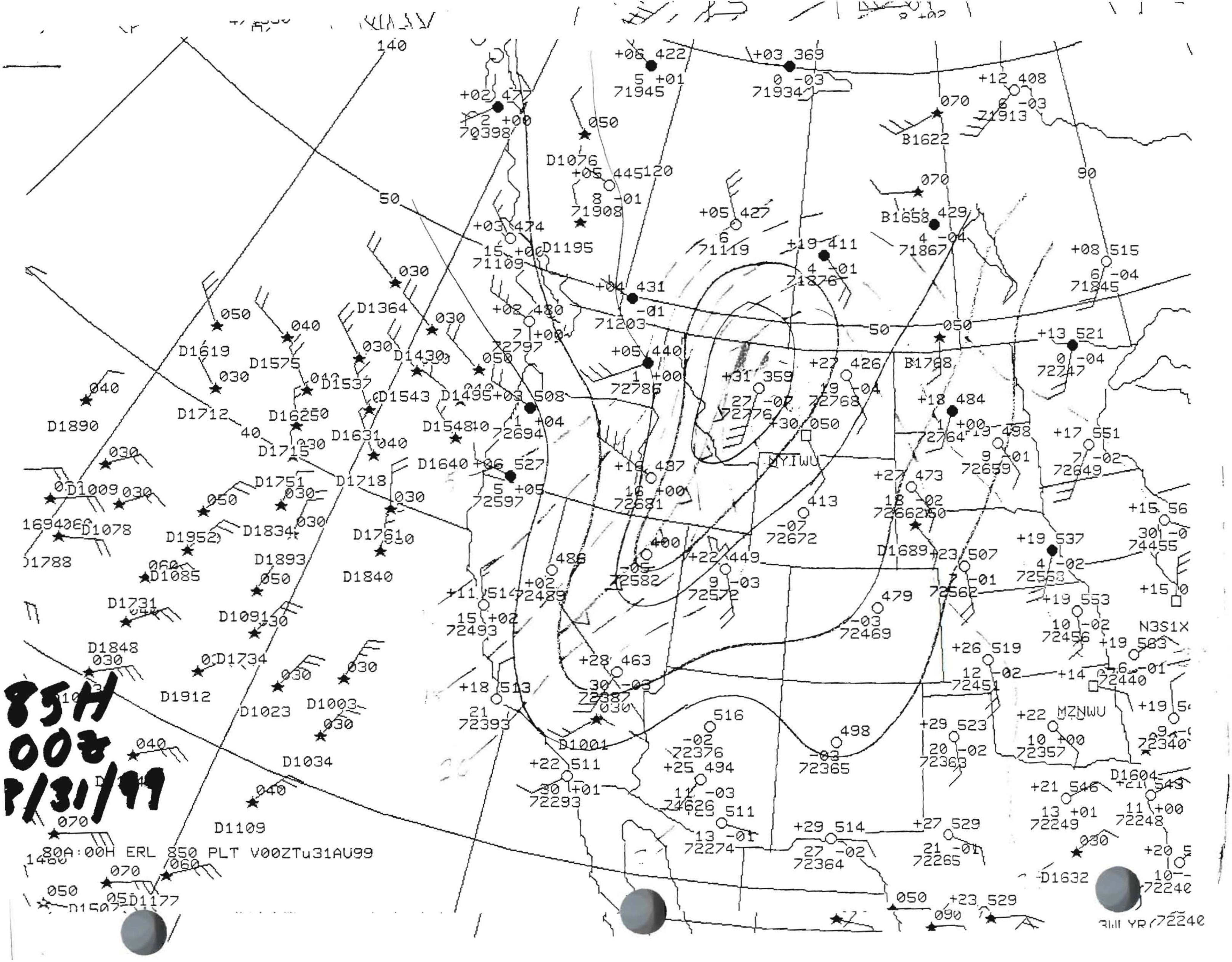

ETA 700MB Wind (kts) 31.00 0HR Tue 00:00Z 31-Aug-99
ETA 700MB Height (dam) 31.00 0HR Tue 00:00Z 31-Aug-99

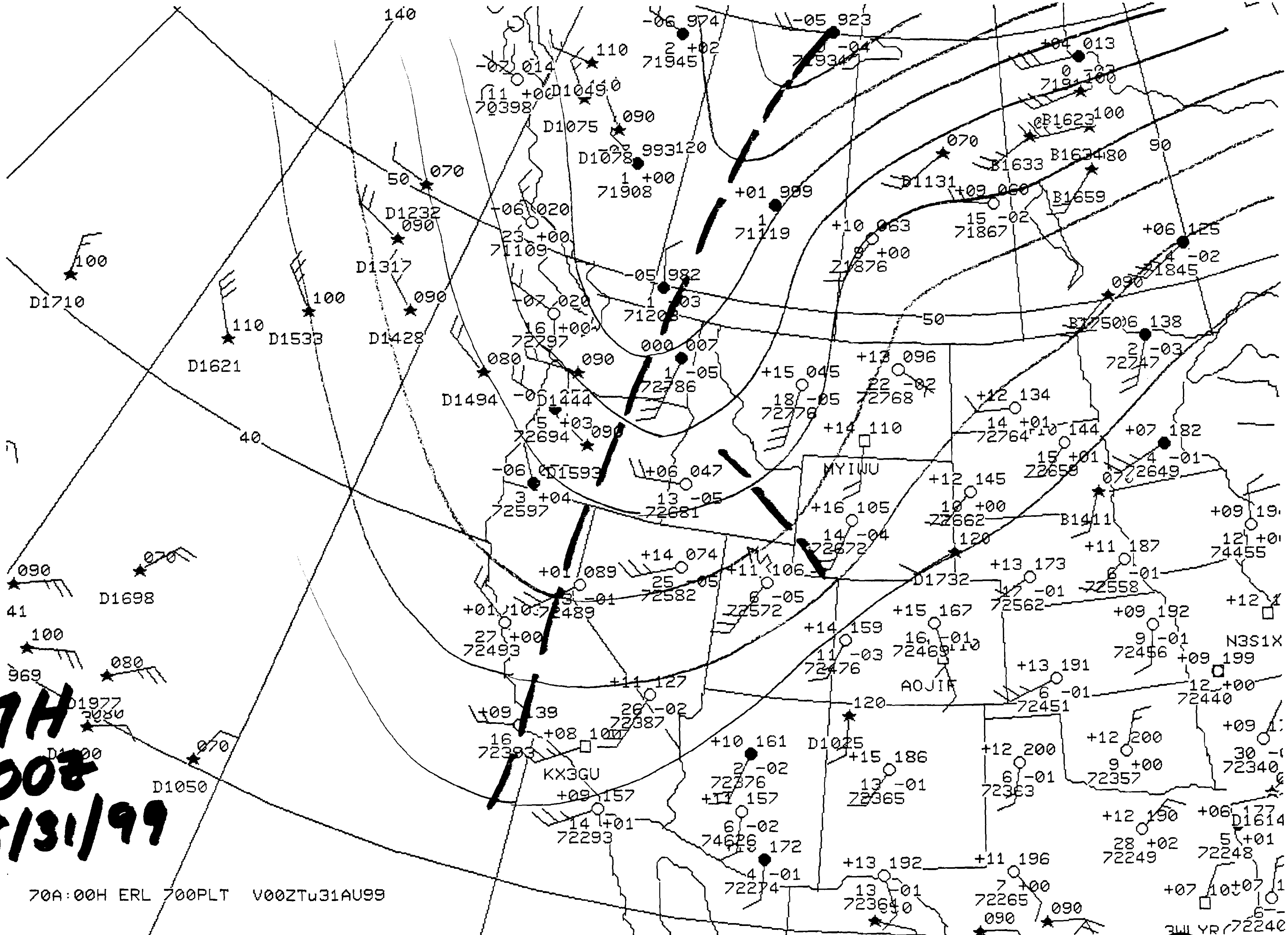
7



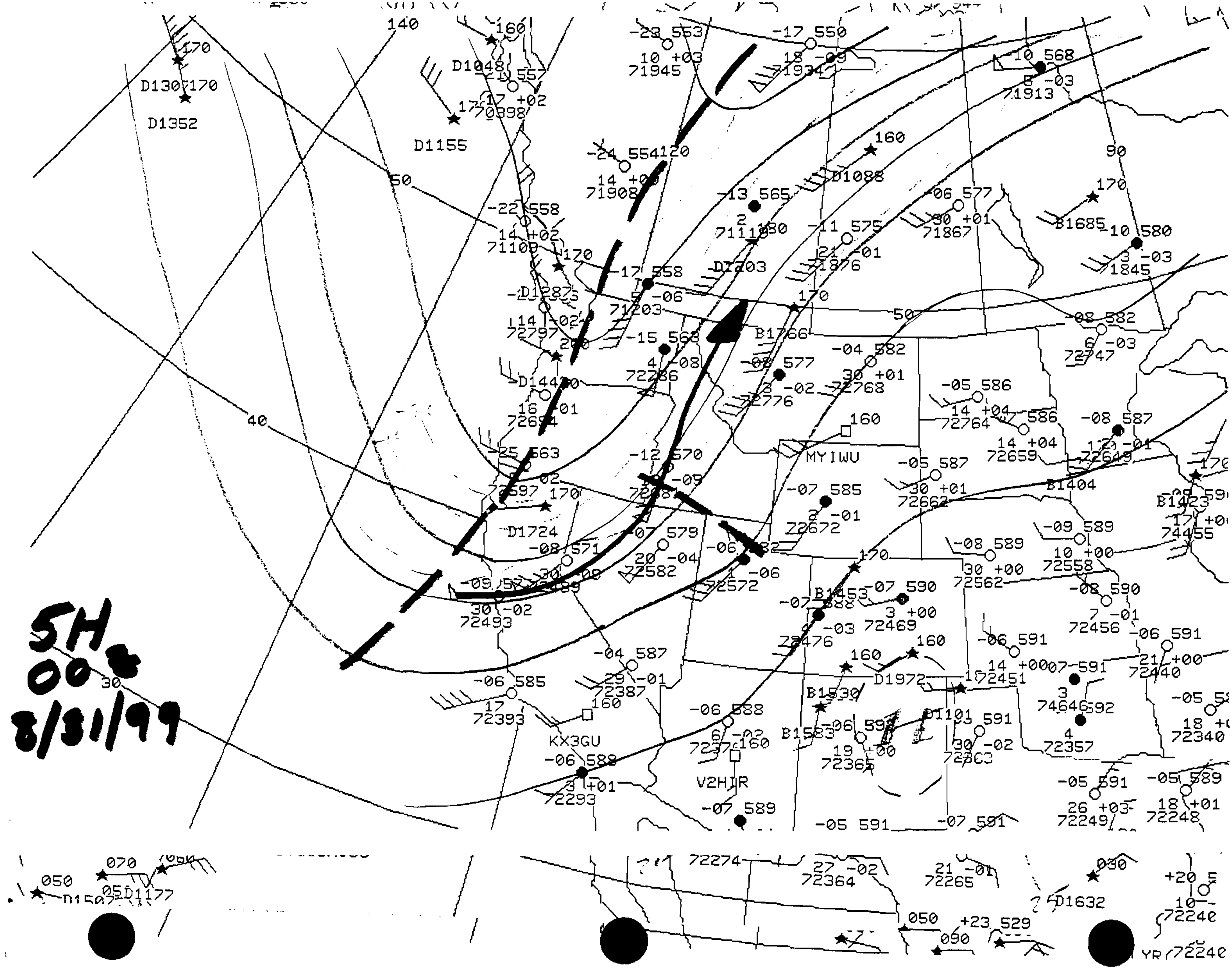
ETA 700MB Omega (ubar/s) 31.00 0HR Tue 00:00Z 31-Aug-99

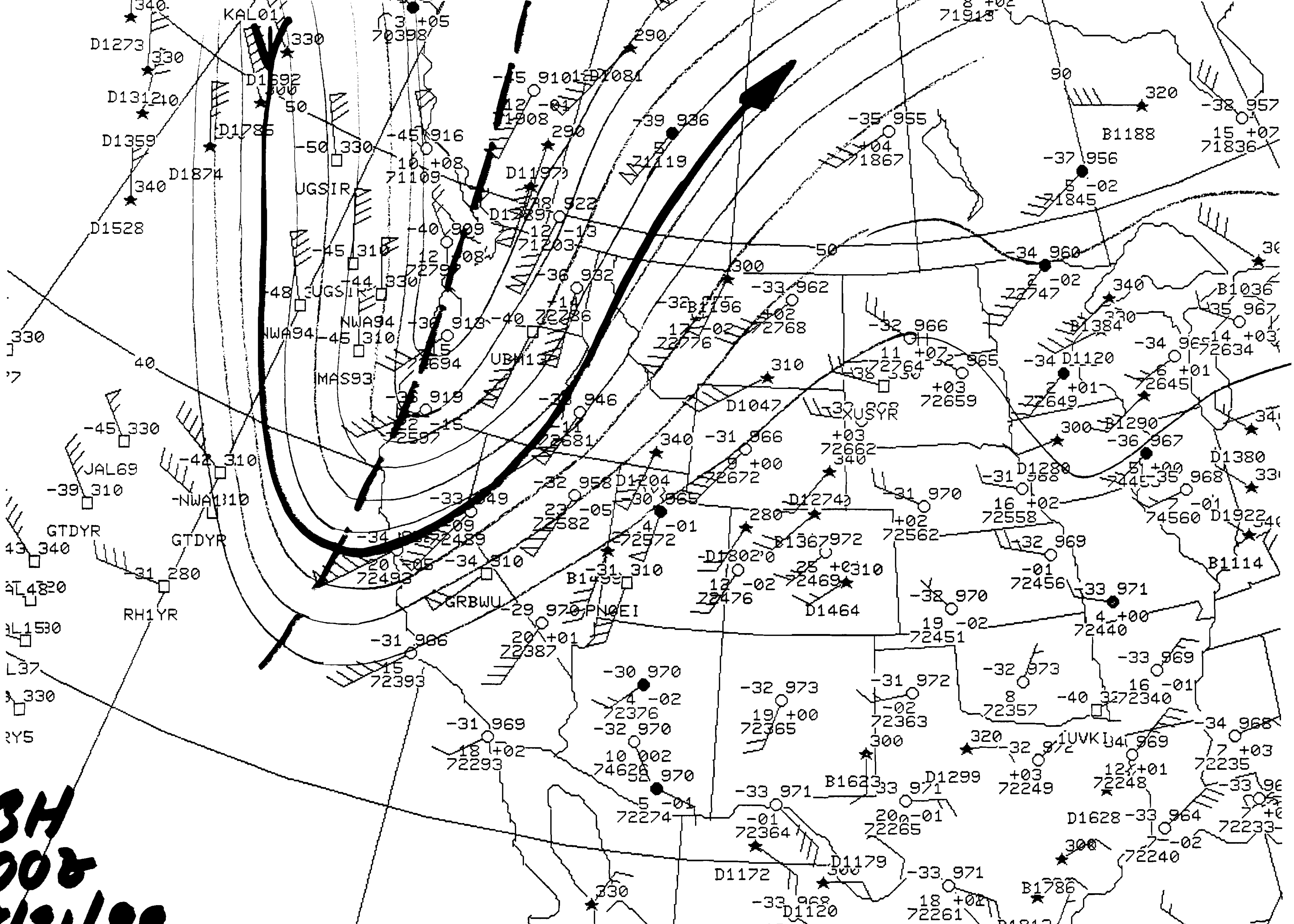

110KT
ETA 300MB Wind (kts) 31.00 0HR Tue 00:00Z 31-Aug-99
ETA 300MB Height (dam) 31.00 0HR Tue 00:00Z 31-Aug-99


85H
00Z
8/31/99
80A:00H ERL 850 PLT V00ZTu31AU99



70A:00H ERL 700PLT V00ZTu31AU99


5H
00Z
8/31/99



3H
00Z
8/31/99