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# MARINE WEATHER REVIEW – NORTH PACIFIC AREA

## January through April 2002

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### Introduction

The weather pattern began with low-pressure systems tracking east-northeast to the Gulf of Alaska or eastern Aleutians; but, as the season progressed, blocking high pressure became more frequent over Alaska and the eastern North Pacific, especially after mid-February. This caused low-pressure systems over the North Pacific to stall or move erratically, or move north into the Bering Sea. When using numbers of high seas warnings as a means of comparison, it would appear that the weather over the North Pacific was less active than in the Atlantic. MPC issued a January-February combined total of 22 warnings for hurricane-force winds over the North Pacific high seas area, much less than the 55 issued for the North Atlantic in January alone. Also, there were fewer high seas storm warnings issued for the North Pacific than for the North Atlantic in each of the four months.

### Tropical Activity

The January-to-April period is the least active (for tropical cyclones) of the four-month periods covered in this publication. Two tropical cyclones made brief appearances near the southwest corner of MPC's oceanic surface analysis chart prepared for HF radiofacsimile transmission. Neither

redeveloped into significant extratropical storms, as described below.

**Tropical Storm Mitag:** Formerly a typhoon well southwest of Japan, Mitag weakened to a tropical storm upon entering MPC's oceanic surface analysis area near 19N 137E at 0000 UTC March 8, with maximum sustained winds of 50 kt and gusts to 65 kt. Blocked by building high pressure to the north, Mitag became extratropical and drifted south of the area at 1200 UTC March 8.

**Tropical Depression 4W:** This system formed near 17N 160E at 1800 UTC April 6 with maximum sustained winds of 30 kt and gusts to 40 kt, but it merged with a nearby front and became extratropical six hours later.

### Other Significant Events

**Complex North Pacific Storm of 3-6 January:** A complex or multicentered area of low pressure moved off the coast of Japan on January 1. The storm center near 45N 162E became the primary center (Figure 1) and drifted east, while the old primary center near Sakhalin Island weakened. A secondary storm center emerged off the coast of Japan early on January 2 in the cold air behind the primary system and is depicted in Figure 1 as the 978-mb

center at 38N 156E. Passing south of the primary storm center over warm water, this secondary center developed hurricane-force winds, as indicated in the QuikScat imagery of Figure 2, which has a valid time only one and one-half hours later than that of the first surface analysis in Figure 1. There is a 70-kt wind barb near 36N 156E associated with the surge of cold air behind the secondary storm center. The southwest winds of up to 50 kt off to the east near 172E in Figure 2 are associated with the primary storm system to the east and northeast. Thirty-six hours later, the secondary center deepened to 952 mb and became the main center, while the old center lagged behind and weakened (second part of Figure 1). Twelve hours later, the storm system redeveloped to the east as a new center formed on the front and moved toward the Gulf of Alaska. It appears in the first part of Figure 3 as the 950-mb center at 48N 150W. This was the lowest central pressure reached by any of the centers in this complex system and the second lowest pressure in the North Pacific during the January-to-April period. By 5 January, the storm circulation covered much of the North Pacific. The system subsequently lifted slowly to the north and slowly weakened, and moved inland over south central Alaska on January 7. The **Stellar Image** (3FDO6), traveling eastbound

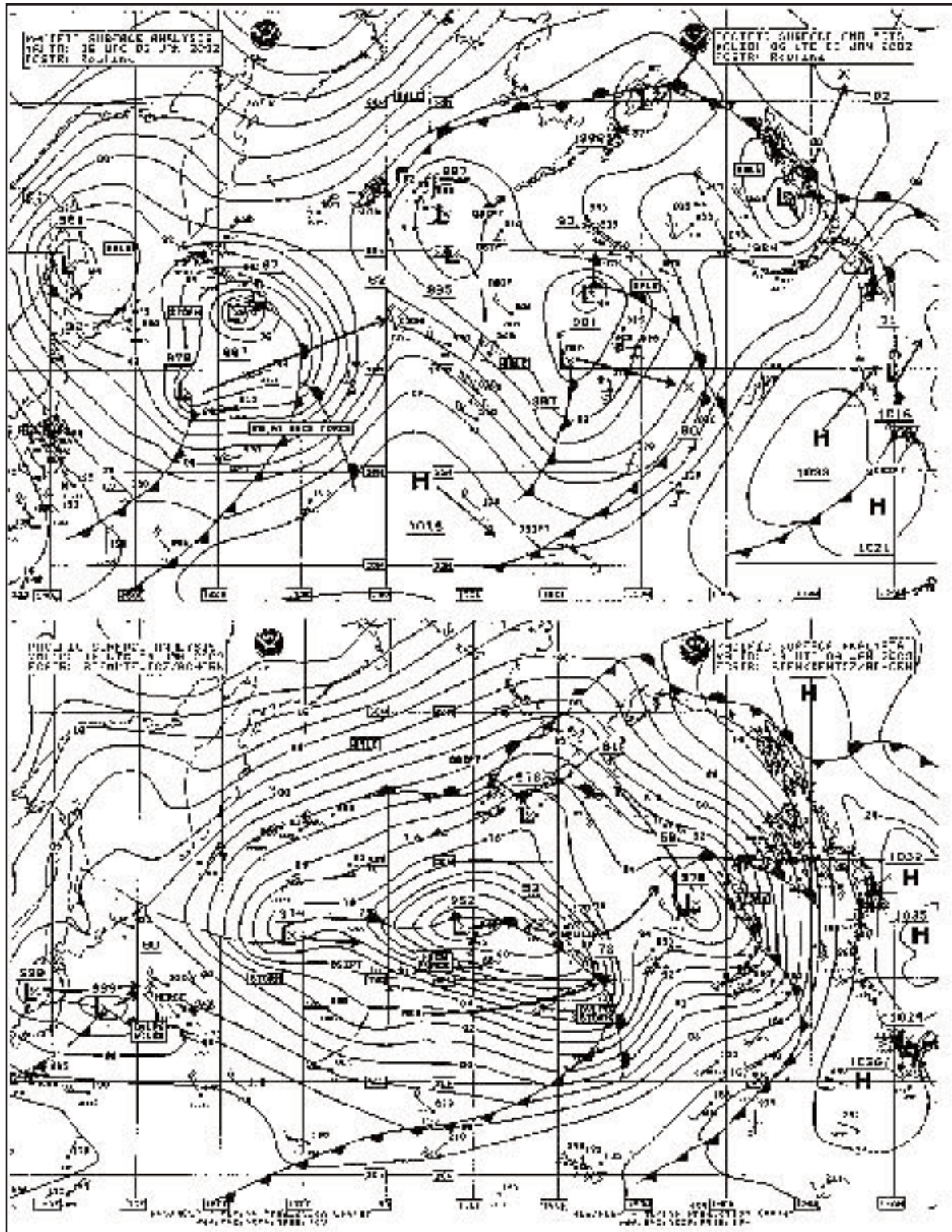


Figure 1. MPC North Pacific Surface Analysis charts valid 0600 UTC January 3 and 1800 UTC January 4, 2002.

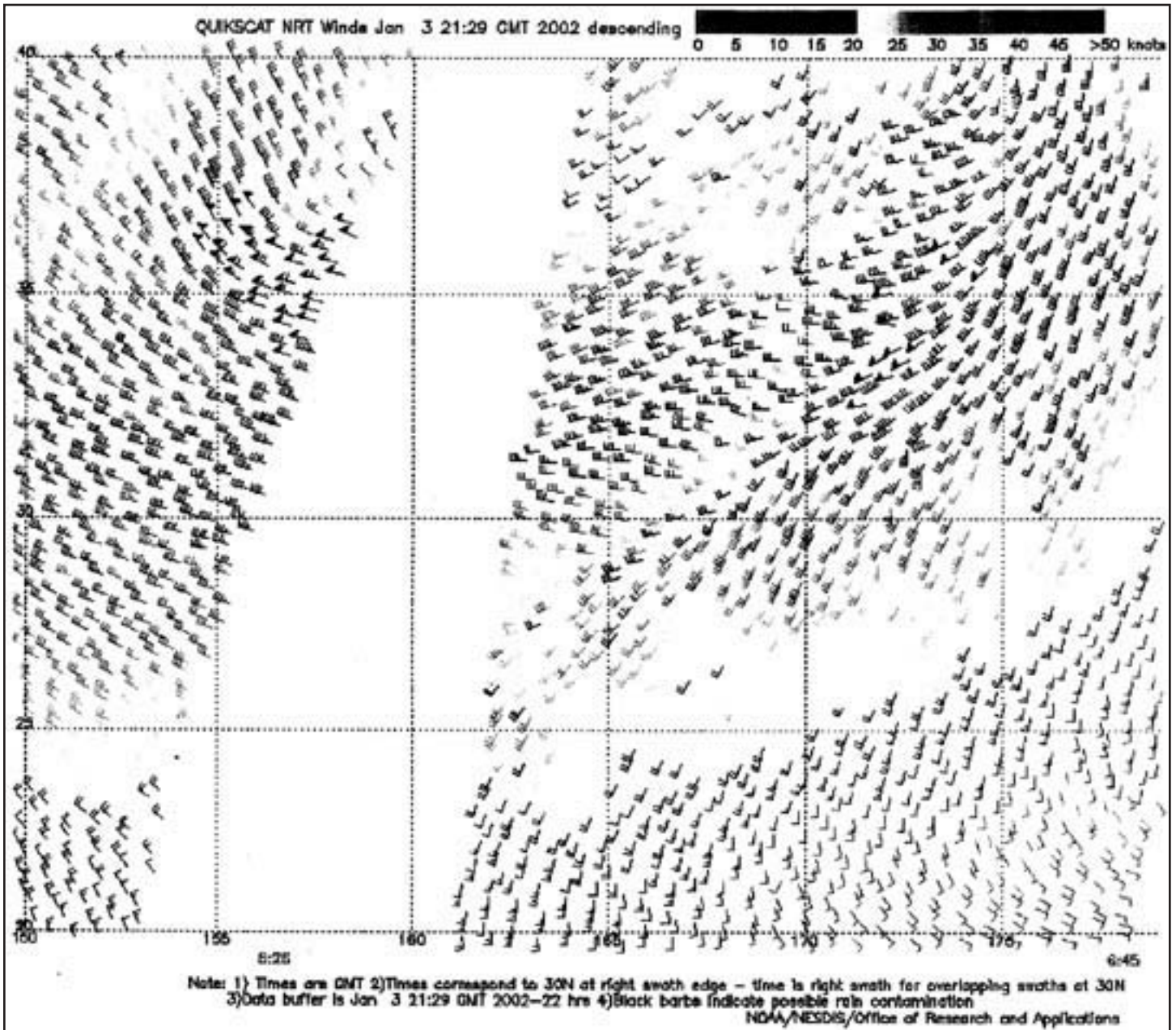


Figure 2. QuikScat scatterometer image of satellite-sensed winds around the south side of the complex storm system shown in Figure 1. The valid time is approximately 0730 UTC January 3, 2002.  
 (Image courtesy of NOAA/NESDIS/Office of Research and Application)

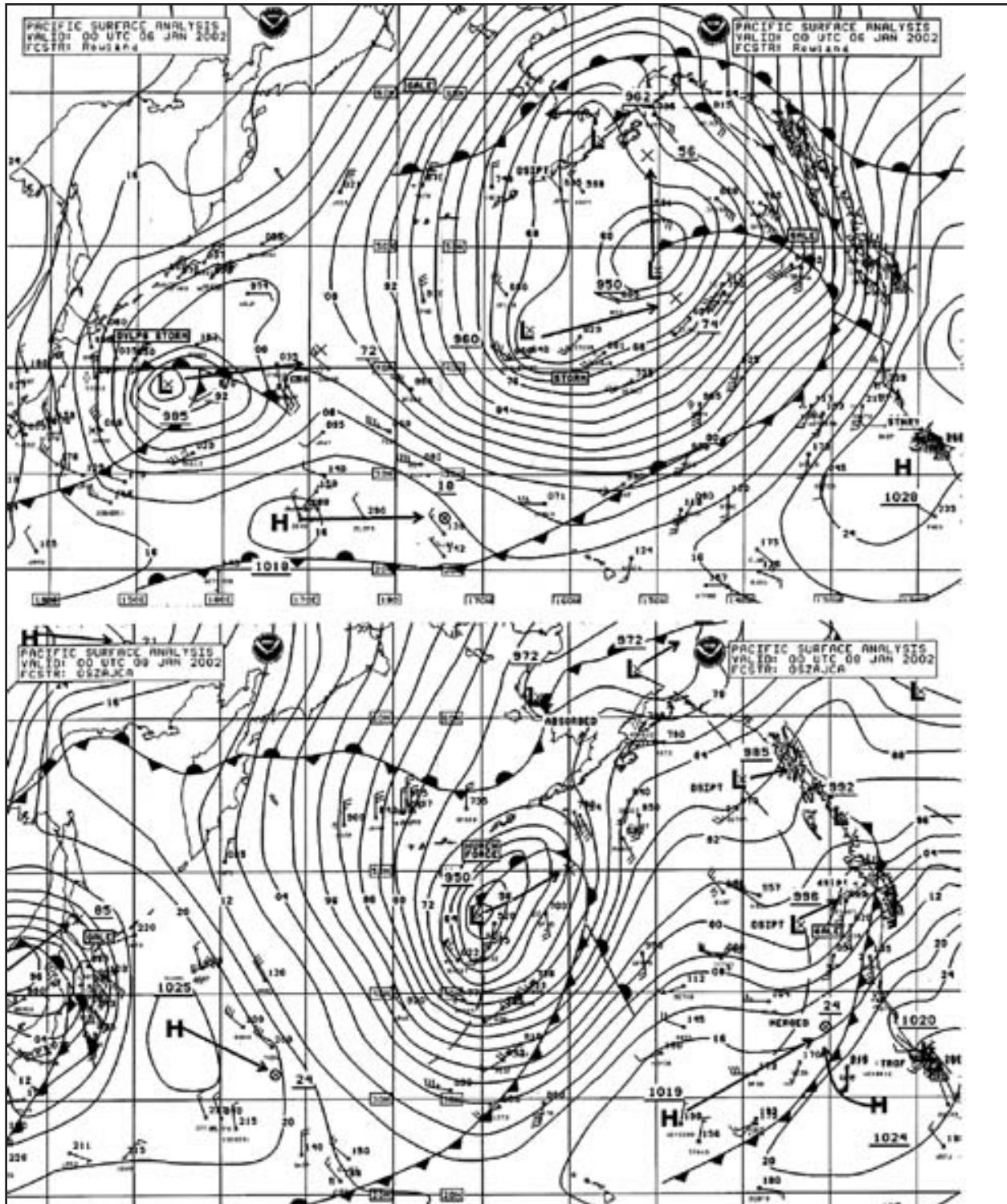


Figure 3. MPC North Pacific Surface Analysis charts valid 0000 UTC January 6 and 8, 2002.



while the storm system passed to the north, transmitted the following reports:

Location	Date/Time (UTC)	Wind (Direction, Speed in Kt)	Combined Seas (meters/feet)
37N 162E	03/0600	SW 45	11.9/39
37N 164E	03/1200	SW 50	10.4/34
37N 166E	03/1800	NW 50	13.7/45
37N 168E	04/0000	W 45	13.4/44
37N 171E	04/1200	W 35	10.7/35
38N 175E	05/0000	W 40	10.7/35
38N 176E	05/0600	W 50	11.6/38
38N 178E	05/1200	W 55	11.9/39
38N 178W	06/0000	NW 40	12.5/41

Among other reports, the **Manoa** (KDBG) encountered south winds of 60 kt near 41N 142W at 0600 UTC January 5, the highest wind reported by ships in this event. The **Rubin Stella** (3FAP5) near 40N 171W reported west winds of 55 kt and 12.8-meter seas (42 feet) at 0000 UTC January 5.

**North Pacific Storm of 5-9 January:** While the preceding storm system was nearing maximum strength, the next developing storm moved east of Japan at 0000 UTC January 5 and tracked east-northeast. Figure 3 shows the evolution of this system over a 48-hour period, with the second analysis depicting the storm at maximum intensity (950-mb central pressure) with hurricane-force winds. The central pressure fell 24 mb in the 24-hour period ending at 1200 UTC January 7, the most rapid rate of deepening during this event. This storm therefore could be considered a meteorological “bomb” during a portion of this period. The ship

**VRWE7** reported a west wind of 50 kt and 9.1-meter seas (30 feet) near 39N 173E at 0600 UTC January 7. Twelve hours later with the storm at maximum intensity, the vessel **MHCQ7** near 43N 173W reported a northwest wind of 65 kt (Figure 3), the highest wind reported by ship in this storm. At 0600 UTC January 8, the **Stellar Image** (3FDO6) encountered southwest winds of 55 kt and 13.1-meter seas (43 feet), the highest seas reported in this event. The system subsequently turned north toward western mainland Alaska and elongated, weakening to a gale by 0000 UTC January 10 and moving inland shortly thereafter.

**Western Pacific Storm of 26-31 January:** This system rapidly intensified to a storm while passing off the central coast of Japan late on

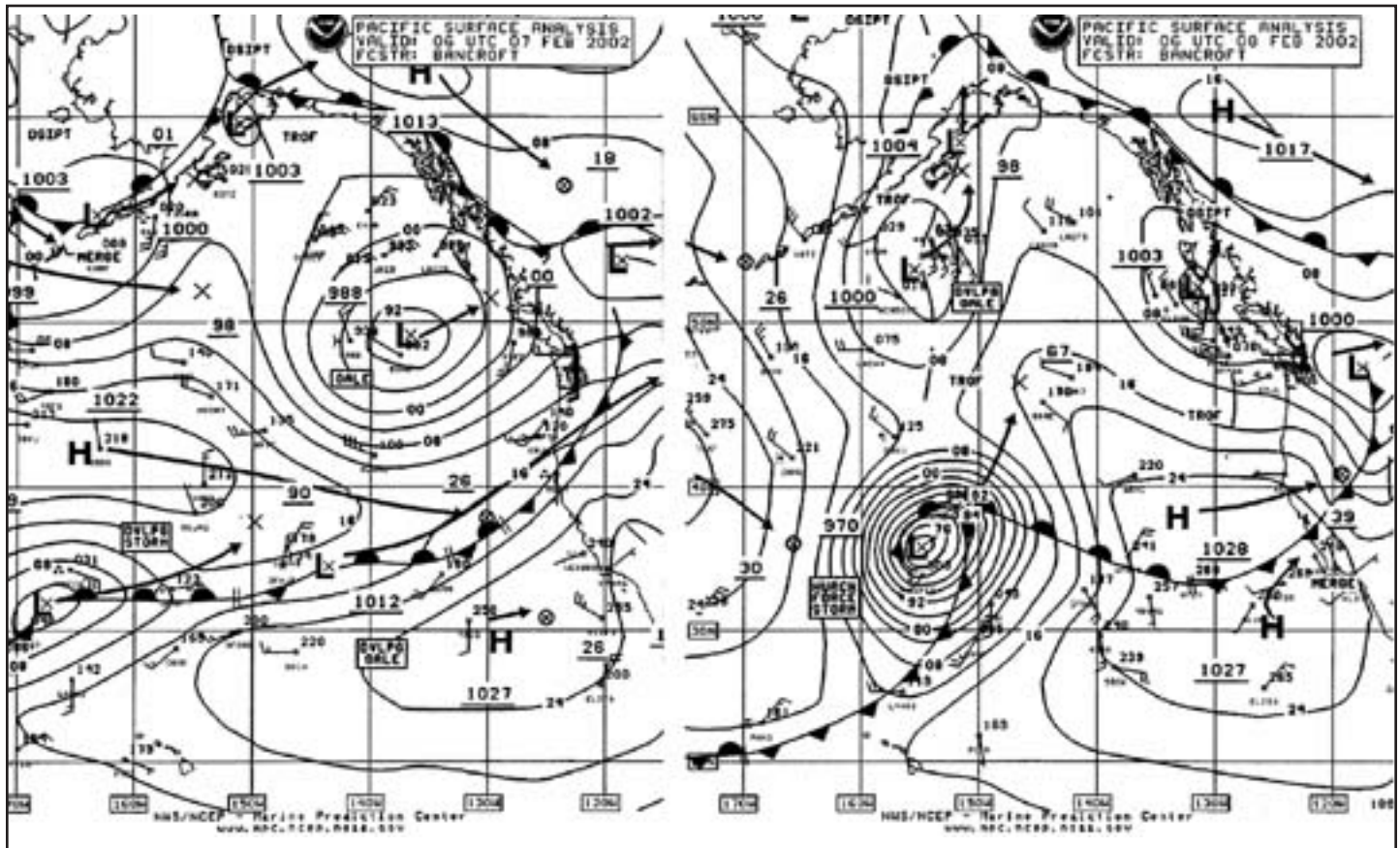


Figure 4. MPC North Pacific Surface Analysis charts (Part 1- east) valid 0600 UTC February 7 and 8, 2002.



January 26, developing a central pressure of 972 mb by 0000 UTC January 28 near 41N 148E. Although this system later was as deep as 964 mb as it moved into the Bering Sea by the 31st, the storm generated the highest winds and seas while over the North Pacific. At 0600 UTC January 27, the **President Grant** (WCY2098) reported a southeast wind of 60 kt near 37N 148E. Twelve hours later, the ship **ELXU2** encountered southwest winds of 60 kt near 34N 148E. These were the highest reported winds in this storm. At 1200 UTC January 29, the vessel **ELYD5**

encountered southwest winds of 50 kt and seas of 12.2 meters (42 feet) near 44N 161E, and six hours later the same winds and seas up to 15.2 meters (50 feet), the highest seas reported in this storm. The system later weakened to a gale and turned east after reaching the central Bering Sea late on the January 31.

**Eastern Pacific “Bomb,” 7-10 February:** Low pressure passed south of Japan early on February 3 and tracked about due east with little development until the center crossed 170W on the 7th. Rapid intensification occurred as the center

turned toward the northeast (Figure 4). The central pressure fell 32 mb in the 24-hour period ending at 0600 UTC February, with 22 mb of that fall occurring in a six hour period ending at 0000 UTC February 8. The 500-mb analysis of Figure 5 corresponds with this period of most rapid intensification. This development is associated with a short-wave trough in the southern branch of the jet stream at 500 mb. The weaker low in the western Gulf of Alaska is associated with its separate short wave and northern branch of the jet stream. Both systems are well defined in the

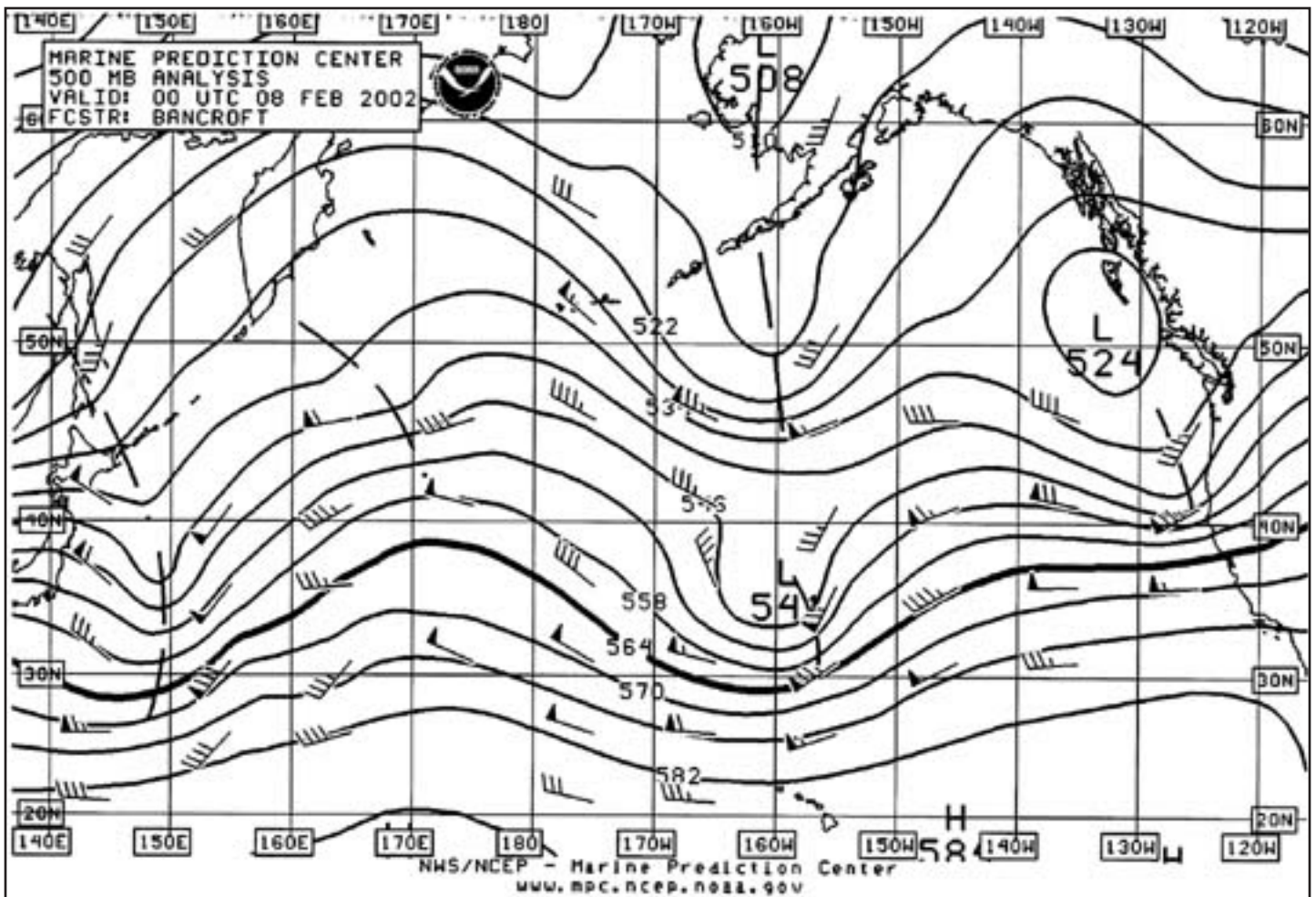


Figure 5. MPC 500-Mb Analysis of North Pacific valid at 0000 UTC February 8, 2002. The chart is computer-generated with short-wave troughs (dashed lines) added by the analyst.



infrared satellite image of Figure 7 and include an occluded southern storm, unusually intense for that latitude. The northern branch short-wave trough came into play later on, causing further intensification of the southern storm as it was pulled north

into the Gulf of Alaska on 9 February. The center developed a central pressure of 960 mb near 55N 143W at 0000 UTC February 10 before weakening and moving inland later on that day.

The storm developed hurricane-force

winds by 0600 UTC February 8 as revealed by the QuikScat winds shown in Figure 6. The **Manoa** (KDBG) reported a northeast wind of 65 kt and 17.1-meter seas (56 feet) near 39N 154W at 0300 UTC February 8, followed by a report of

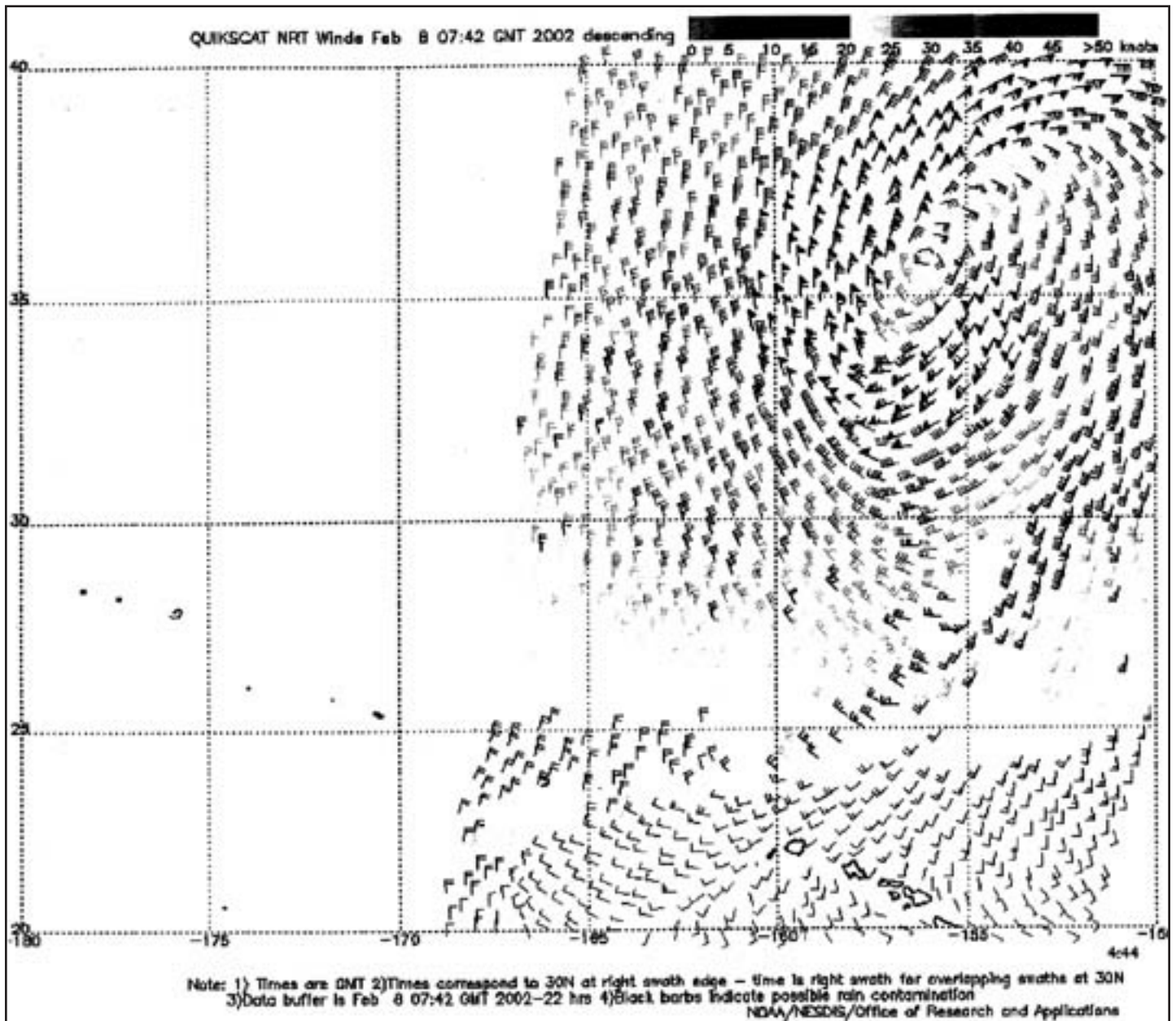
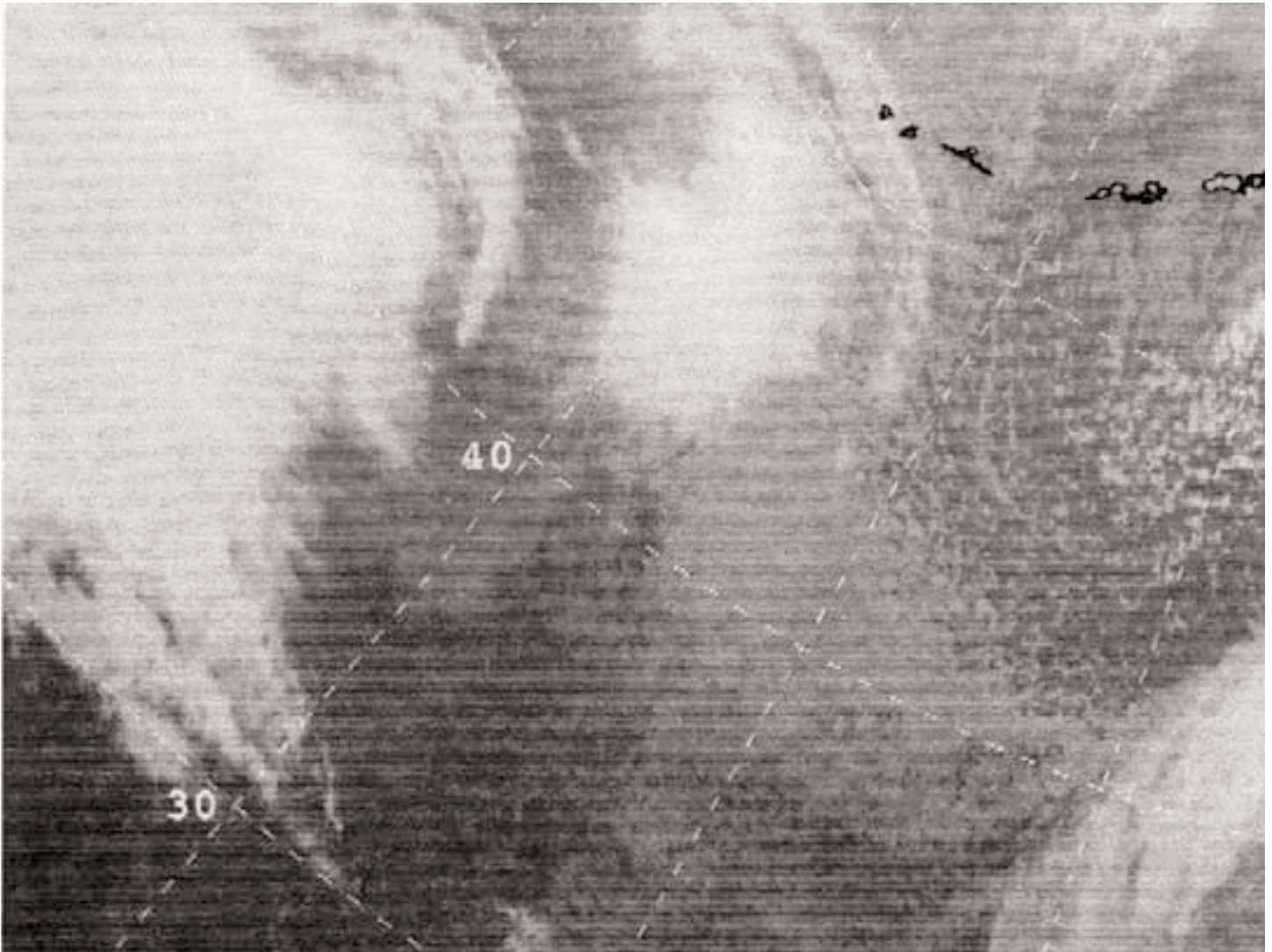
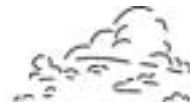


Figure 6. QuikScat scatterometer image of satellite-sensed winds around the storm shown in Figure 4. The valid time of the pass is approximately 0500 UTC February 8, 2002, or close to that of the second surface analysis in Figure 4.

(Image courtesy of NOAA/NESDIS/Office of Research and Applications)



**Figure 7. GOES-10 infrared satellite image valid at 0700 UTC February 8, 2002. Satellite senses temperature, which is displayed on a scale from warm (black) to cold (white) in this type of imagery.**

seas 18.9 meters (62 feet) three hours later. The same vessel then observed a south wind of 65 kt with 16.5-meter seas (54 feet) near 37N 149W at 1800 UTC February 8. At 1200 UTC February 9, the **John P. Tully** (CG2958) encountered southeast winds of 65 kt near 49N 135W, while the **Daishin Maru** (3FPS6) to the north near 51N 134W reported

southeast winds of 50 kt and 14.0-meter seas (46 feet). Later, at 0000 UTC February 10, the **Daishin Maru** experienced south winds of 50 kt and 15.8-meter seas (52 feet).

In summary, this was the most significant event in the North Pacific, featuring hurricane-force winds and the highest seas observed in the

January-to-April period.

#### **North Pacific Storm of 8-12 March:**

This system followed an east-northeast track across the Pacific, leaving the coast of northern Japan at 0000 UTC March 7 and later making final landfall as a weakening gale at 0600 UTC March 13. The first part of Figure 8 depicts this storm at





maximum intensity (962 mb) near 48N 156W at 1800 UTC March 10, and the second and third parts show this system weakening as it approaches the coast of British Columbia. The **Maersk Wind** (S6TY) reported a north wind of 65 kt twelve hours later near 53N 153W. At 0000 UTC March 12, the **Oriental Bay** (MKYJ8) experienced west winds of 50 kt and 15.5-meter seas (51 feet) near 44N 144W, the highest seas observed in this storm.

**Northwest Pacific and Bering Sea Storm of 11-13 March:** The second and third parts of Figure 8 show the rapid development of this system to maximum intensity over a 24-hour period, with the central pressure dropping 40 mb in this period. This was the most rapid pressure fall over a 24-hour period in the North Pacific in the four-month period. The central pressure of 948 mb reached at 1800 UTC March 12 was the lowest in the North Pacific during this four-month period. The intense center moved through an area of sparse ship reports. The strongest wind reported was from the **Maersk Wind** (S6TY), with a

south wind of 50 kt near 54N 176W at 0600 UTC March 13. The system was weakening rapidly and heading northwest at that time.

### **Western Pacific Storm of 4-6 April:**

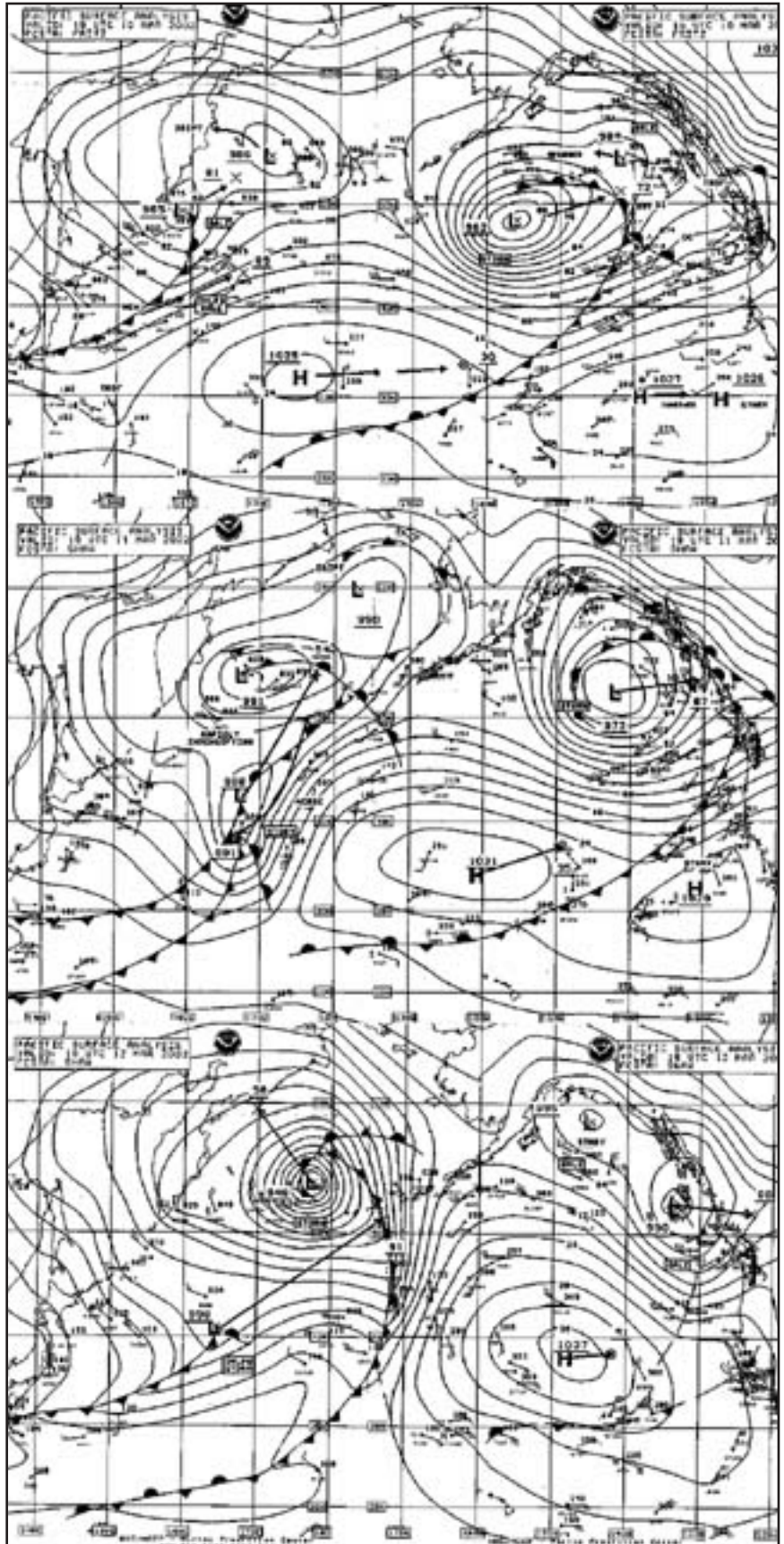
Figure 9 shows the development of this storm east of Japan over a 24-hour period to maximum intensity, 980 mb, at 0600 UTC April 5. Slow weakening followed as the center drifted east, blocked by the high-pressure ridge to the east and north. The **Toba** (LHOE3) near 36N 158E reported a southeast wind of 60 kt at 0600 UTC April 5, while the **CSX Reliance** (WFLH) near 33N 143E encountered north winds of 50 kt and 11.6-meter seas (38 feet), the highest seas observed in this storm. The **CSX Reliance** also reported a northwest wind of 60 kt and 9.8-meter seas (32 feet) near 33N 145E at 1200 UTC April 5. The QuikScat image of Figure 10 shows winds of 50 to 60 kt on the backside of the storm, similar to what ships were reporting. The system subsequently weakened to a gale as it reached 160E early on April 6. ↓

### **References**

- Sienkiewicz, J. and Chesneau, L., *Mariner's Guide to the 500-Mb Chart* (Mariners Weather Log, Winter 1995).
- Bancroft, G., *High Seas Text Bulletins Issued by MPC* (Mariners Weather Log, Vol. 40, No. 2, Summer 1996).
- Bancroft, G., *Marine Weather Review-North Atlantic Area, September through December 1999* (Mariners Weather Log, April 2000).



Figure 8. MPC North Pacific Surface analysis charts valid 1800 UTC March 10, 11, and 12, 2002.



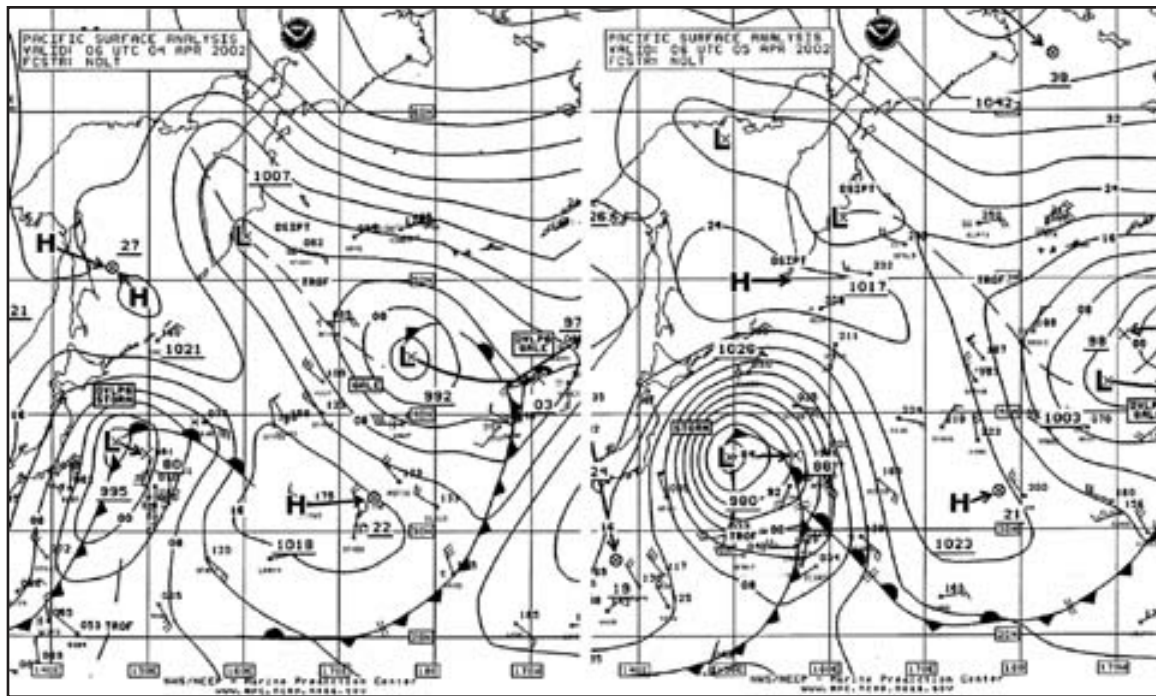


Figure 9. MPC North Pacific Surface Analysis charts (Part 2 - west) valid 0600 UTC April 4 and 5, 2002.

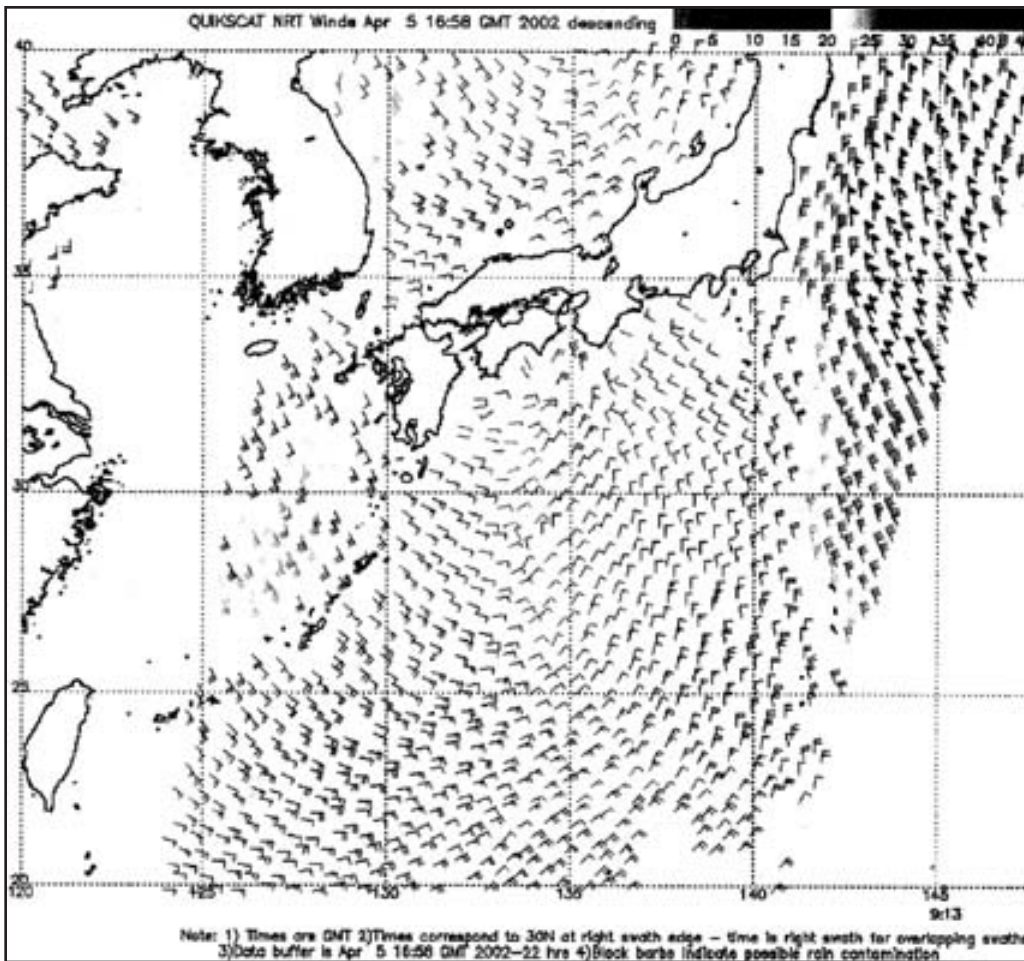


Figure 10. QuikScat scatterometer image of satellite-sensed winds around the back side of the storm shown in Figure 9. The valid time of the pass is approximately 0900 UTC April 5, 2002, or three hours later than the valid time of the second analysis in Figure 9.

*(Image courtesy of NOAA/NESDIS/Office of Research and Applications)*