



MARINE WEATHER REVIEW – NORTH PACIFIC AREA

May to August 2002

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Introduction

Low-pressure systems often tracked from southwest to northeast during the period, while high pressure prevailed off the west coast of the U.S. Occasionally the high pressure extended into the Bering Sea and Gulf of Alaska, forcing cyclonic systems coming off Japan or eastern Russia to turn more north or northwest or even stall. Several non-tropical lows developed storm-force winds, mainly in May and June. Later in the summer, with weaker cyclonic activity in the mid-latitudes, the tropics became more active. Most of the significant weather events during July and August were associated with tropical cyclones, or extratropical cyclones with tropical origin. Several of the tropical cyclones recurved northeast and became extratropical upon entering the mid-latitude westerlies near the latitude of Japan. Tropical cyclones were also present in the eastern Pacific, but these are covered by the Tropical Prediction Center in Miami.

Tropical Activity

Super Typhoon Hagibis: Hagibis appeared on the southern edge of MPC's oceanic Mercator surface-analysis area as a minimal typhoon at 0000 UTC May 18 near 16N 140E and moved north, with a gradual turn toward the northeast. The **Mokihana** (WNRD) reported a northeast wind of 35 kt and 8-meter seas (27 feet)

near 18N 139E at 1200 UTC May 18. Maximum sustained winds increased from 65 kt to 120 kt in the 24-hour period ending at 0000 UTC May 19, when the center reached 17.7N 140.5E. The system was briefly a super-typhoon (maximum sustained winds of 130 kt or higher) from 0600 to 1800 UTC May 19. At 1800 UTC May 19 Hagibis attained a maximum strength of 140-kt (sustained winds), with gusts to 170 kt near 20.7N 143.2E before beginning to weaken. Figure 1 shows Hagibis as a strong tropical storm crossing 160E into MPC's high seas area, the only tropical cyclone to do so during the May-August period, and then merging with the extratropical low (993 mb) at 40N 154E. In the second part of Figure 1, at 0600 UTC May 22, Hagibis has become extratropical and appears as the gale-force low (995 mb) at 41N 179E. At 0000 UTC May 22, the ship 3FQO4 (37N 175E) reported southwest winds of 40 kt and 6.5-meter seas (21 feet). Twelve hours later, the vessel 4XFQ encountered southwest winds of 45 kt near 37N 174W. At 0000 UTC May 24, the **Leo Forest** (3FPH8) encountered southeast winds of 35 kt and 8-meter seas (27 feet) near 51N 158W. Also at that time, the **Arctic Sun** (ELQB8) near the eastern Aleutians (54N 162W) reported east winds of 45 kt. The remnants of Hagibis became a gale-force 985-mb low in the central Aleutians by that time, before drifting northwest and weakening over the Bering Sea by May 26.

Typhoon Chataan: Chataan appeared on MPC's oceanic chart area just south of Japan at 0600 UTC July 10 with maximum sustained winds of 65 kt with gusts to 80 kt. Six hours later, the **Tenaga Dua** (9MSM) near 34N 140E reported south winds of 65 kt. By 1800 UTC July 10, Chataan weakened to a tropical storm near 35.7N 140.9E. The **CSX Defender** (KGJB) at that time encountered southwest winds of 55 kt and 17-meter seas (56 feet). The system became an extratropical gale-force low with central pressure 984 mb near 41N 144E at 0600 UTC and then continued to move north and weaken.

Typhoon Halong: Halong passed across the southwest corner of MPC's oceanic analysis area as a typhoon at 1200 UTC July 12, near 16N 136E, with maximum sustained winds of 110 kt with gusts to 135 kt. After becoming a super typhoon west of the area twelve hours later, Halong recurved toward the northeast and weakened. Halong then followed Chataan on a similar track, re-entering the waters south of Japan at 1800 UTC July 15 as a tropical storm undergoing extratropical transformation (Figure 2). Unlike Chataan, Halong re-intensified into a potent extratropical storm soon after transformation, appearing as the 976-mb storm in the second part of Figure 2, just 12 hours later. At that time, the **Polar Eagle** (ELPT3) reported south winds of 75 kt near 36N 143E. A QuikScat pass valid about three hours

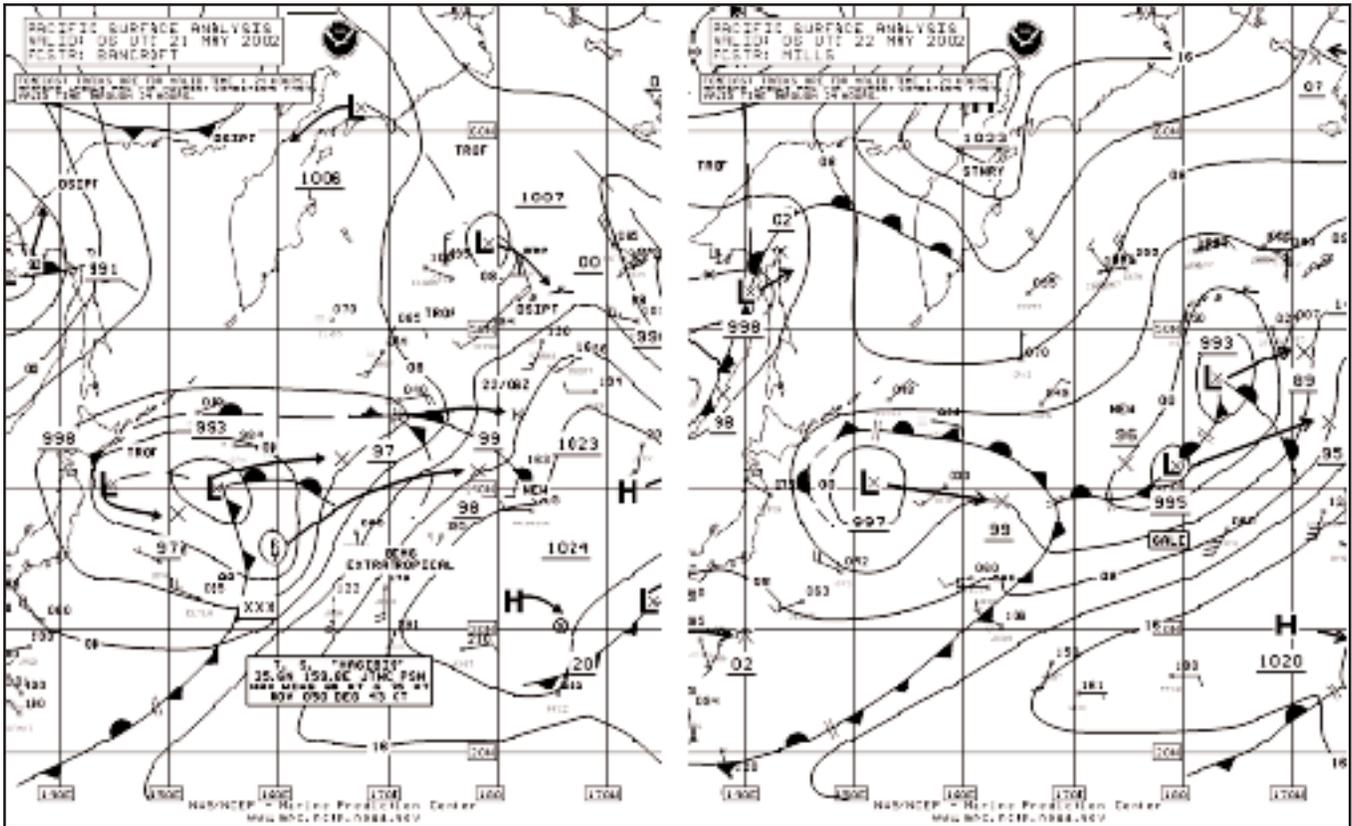


Figure 1. MPC North Pacific Surface Analysis charts (Part 2 - west) valid 0600 UTC May 21 and 22, 2002.

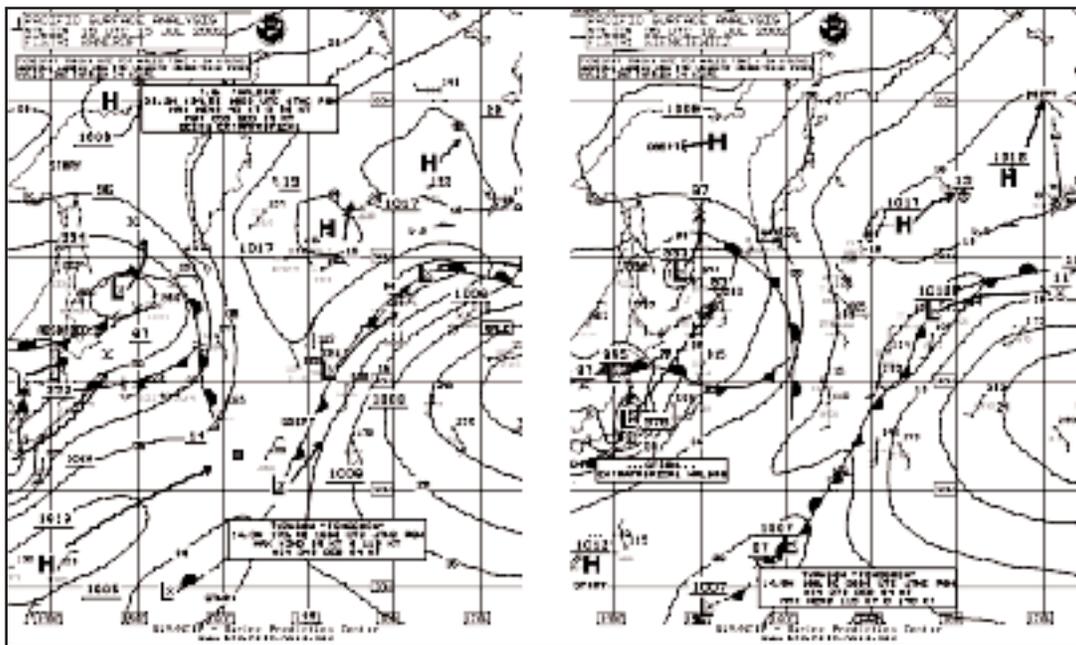


Figure 2. MPC North Pacific Surface Analysis charts (Part 2) valid 1800 UTC July 15 and 0600 UTC July 16, 2002.

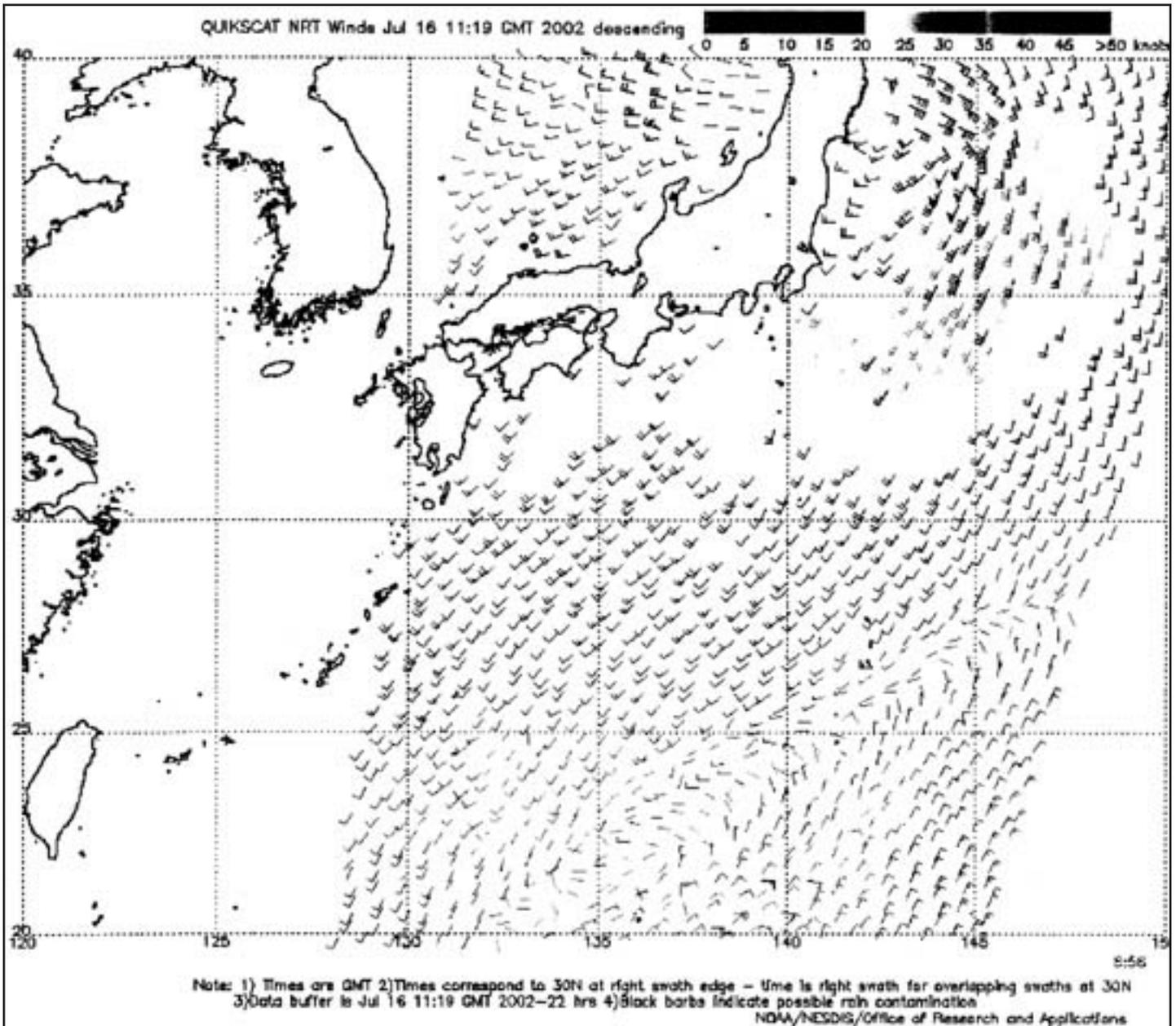


Figure 3. QuikScat scatterometer image of satellite-sensed winds valid approximately 0900 UTC July 16, 2002. The valid time is only three hours later than that of the second part of Figure 2.
 (Image courtesy of NOAA/NESDIS/Office of Research and Applications)

later (Figure 3), reveals a compact system with a small area of 50 to 60 kt winds just southeast of the center. An infrared satellite image of the storm (Figure 4) taken near the time of the second analysis in Figure 2 is suggestive of a hybrid system with some characteristics of a tropical

cyclone (central dense cloudcover and compactness) and of an extratropical low (such as becoming associated with a frontal cloud band over eastern Japan). The highest reported seas with this system after passing east of 135W was 12 meters (40 feet) from the **Green Cove** (WCZ9380) near

34N 140E at 0600 UTC July 16. This ship also reported southwest winds of 45 kt at that time. Extratropical “Hagibis” subsequently weakened to a gale-force low near the Kurile islands eighteen hours later before moving into the western Bering Sea on the July 18. After looping to the

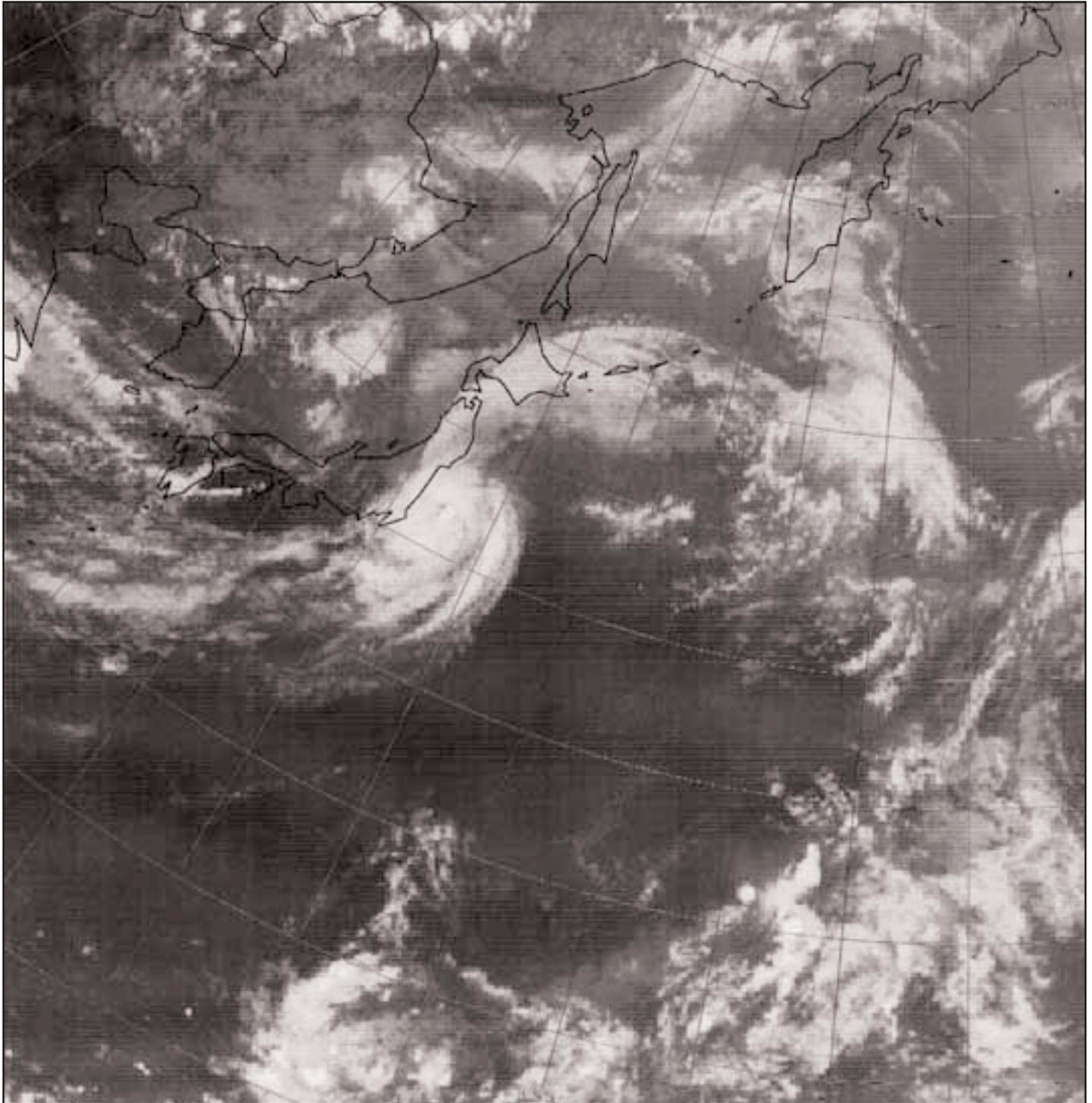


Figure 4. GMS infrared satellite image of extratropical storm “Halong” valid at 0532 UTC July 16, 2002. Satellite senses temperature, which is displayed on a scale from warm (black) to cold (white) in this type of imagery. The valid time is approximately the same as in the second part of Figure 2.



south of the central Aleutians on 20 July, the remnants of Halong became a large gale in the southern Bering Sea on the 22nd before looping to the southeast and then northeast and finally moving inland over mainland Alaska late on July 26.

Super Typhoon Fengshen: Figure 2 shows Typhoon Fengshen which was centered just south of MPC's oceanic chart area and tracking west at the time. At 0000 UTC July 20 Fengshen appeared on the southern edge of the chart area near 16.0N 158.5E as a super-typhoon drifting west-northwest at 6 kt. The intensity peaked at 1200 UTC July 21 near 20.5N 154.3E with maximum sustained winds of 145 kt and gusts to 175 kt. Fengshen subsequently weakened to a minimal typhoon while passing south of Japan and west of MPC's surface-chart area by 0000 UTC July 25.

Tropical Storm Fung-Wong: This system formed as a minimal tropical storm near 24N 140E at 1800 UTC July 20 with maximum sustained winds of 35 kt and gusts to 45 kt and drifted west, passing west of MPC's oceanic analysis area at 0000 UTC July 22.

Tropical Depression 15W (Kalmaegi): This tropical cyclone formed from a tropical

disturbance that was near 18N 180 at 1200 UTC July 20, becoming Tropical Depression 15W (Kalmaegi) near 17.2N 178.1E, six hours later with maximum sustained winds of 30 kt with gusts to 40 kt. This system was short-lived, drifting northwest and dissipating at 1800 UTC July 21.

Tropical Depression 17W: This weak western Pacific tropical cyclone formed east of Japan near 34.2N 150.6E at 0600 UTC August 5 and moved east 10 kt but dissipated as a remnant low 34N 152E twelve hours later. The maximum sustained winds were 25 kt with gusts to 35 kt.

Super Typhoon Phanfone: Phanfone entered the far southern waters in MPC's oceanic analysis area near 16.8N 154.8E at 1200 UTC August 13 with maximum sustained winds of 70 kt with gusts to 85 kt. The system tracked northwest and intensified into a super typhoon at 1800 UTC August 15 near 23.9N 143.3E with maximum

sustained winds of 135 kt with gusts to 165 kt. Phanfone remained a super typhoon through 1800 UTC August 16 before turning more north and slowly weakening. At 0000 UTC August 18, the **Mirai** (JNSR) encountered north winds of 50 kt and 8-meter seas (26 feet) near 31N 134E. Figure 5 shows Phanfone down to minimal-typhoon strength near the coast of Japan at 1200 UTC August 19, recurving northeast and becoming an extratropical storm within twenty-four hours with developing fronts. The **CSX Defender** (KGJB), appearing north of the storm center near 43N 149E in the second part of Figure 5, reported northeast winds at 40 kt. Extratropical "Phanfone" underwent rapid intensification in the following twelve hours, with the central pressure bottoming out at 972 mb near 44N 152E at 0000 UTC on August 21. This made it the second deepest non-tropical low in the North Pacific during the May-August

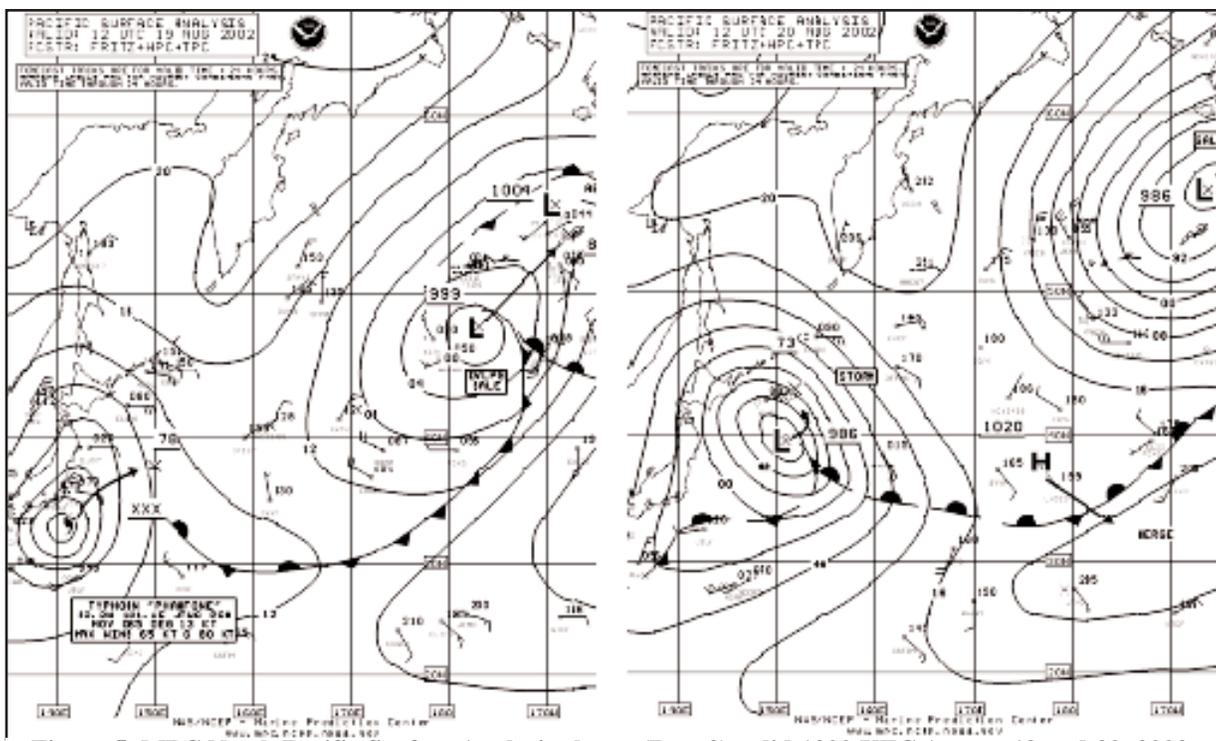


Figure 5. MPC North Pacific Surface Analysis charts (Part 2) valid 1200 UTC August 19 and 20, 2002.



period. The **Nyk Starlight** (3FUX6) reported a southwest wind of 45 kt near 42N 156E six hours later. The system then weakened to a gale at 0000 UTC August 22, then passed south of the Aleutians before becoming absorbed by a gale-force low in the southwest Gulf of Alaska late on August 25.

Typhoon Rusa: Rusa followed a track west-northwest across the waters south and southeast of Japan, entering MPC's chart area at 0000 UTC August 23 near 16N 161E as a tropical storm with maximum sustained winds of 40 kt with gusts to 50 kt. Rusa intensified into a minimal typhoon near 19N 157E twenty-four hours later. The maximum intensity was 115 kt for sustained winds, with gusts to 140 kt, at 0600 UTC August 26 when the center was at 22.5N

145.6E. The **Chubu Maru** (3FBJ7) at that time reported from 22N 142E with a north wind of 35 kt and 5-meter seas (16 feet). Rusa then began a slow weakening trend, but remained a typhoon when passing west of 135W and south of Japan at 0600 UTC August 28.

Tropical Depression Alike: This weak central Pacific tropical cyclone entered MPC's oceanic analysis area near 16N 168W at 0300 UTC August 28 and drifted northwest, dissipating at 1200 UTC that same day. The maximum sustained winds were 25 kt, with gusts to 35 kt.

Typhoon Sinlaku: Tropical Depression 22W formed at 16.7N 154.3E at 1800 UTC August 28 and became Tropical Storm Sinlaku near 20.5N 153.2E twelve hours later, with

maximum sustained winds of 35 kt with gusts to 45 kt. Sinlaku became a typhoon near 22.5N 152.6E at 1200 UTC August 30 and developed maximum sustained winds of 110 kt with gusts to 135 kt at 0600 UTC August 31 near 23.7N 149.7E. The system turned more west by the end of the month, passing west of 135W near 25N early on September 3.

Typhoon Ele: Ele was formerly a central-Pacific hurricane which crossed 180W, becoming Typhoon Ele as such cyclones are called in the western North Pacific, on August 31. Further information on this system will be covered in the next issue of Mariners Weather Log.

Other Significant Events

North Pacific Storm of 25-27 May: Figure 6 depicts this storm forming

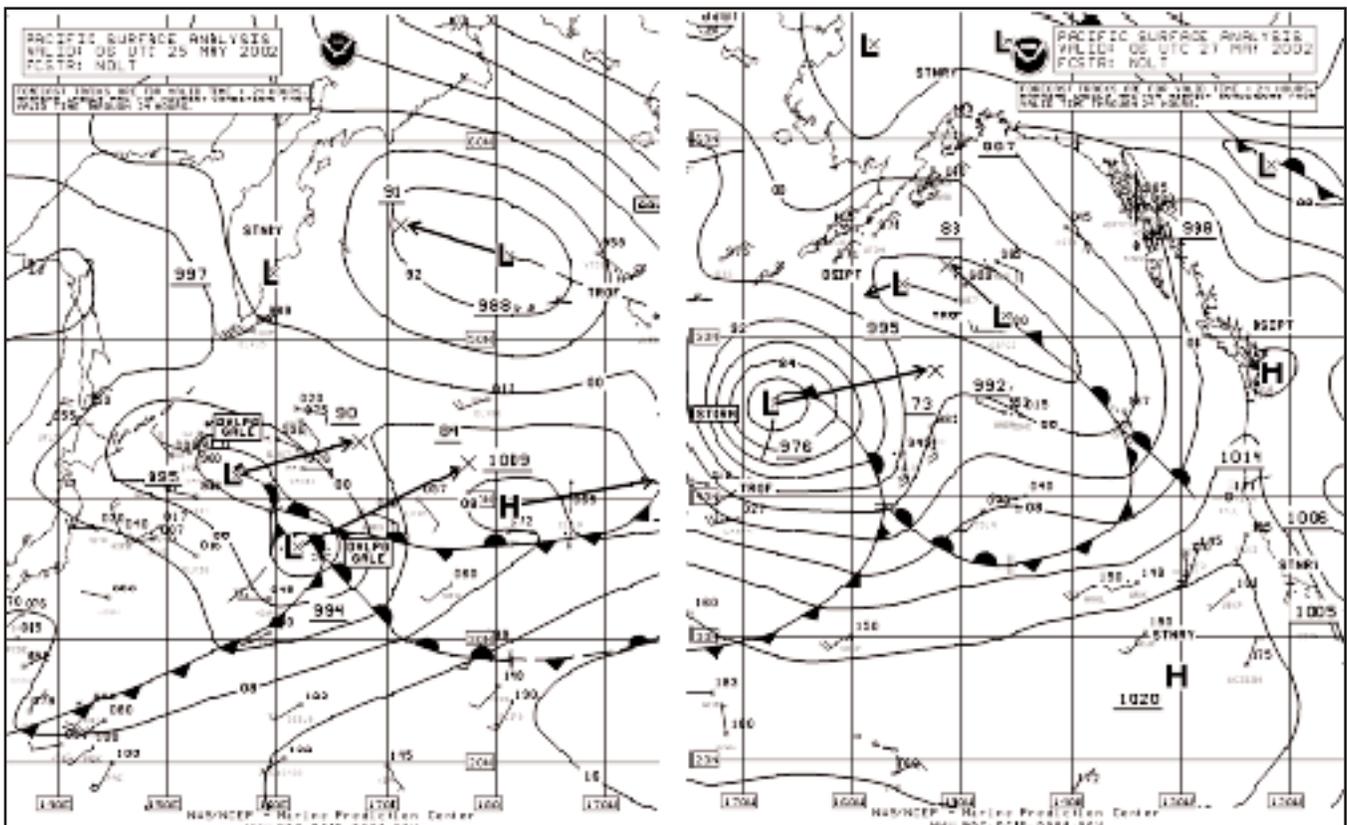


Figure 6. MPC North Pacific Surface Analysis charts: Part 2 (west) valid 0600 UTC May 25 and Part 1 (east) valid 0600 UTC May 27, 2002.



from the consolidation of two western North Pacific lows over a 48-hour period ending at 0600 UTC May 27. In terms of wind and sea conditions, the system was near maximum strength at 0600 UTC May 27 (second part of Figure 6). The central pressure actually dropped to as low as 970 mb at 1200 UTC May 28 when the center

was at 49N 149W, but the circulation of this system expanded in area with an associated decrease in winds to gale force. This central pressure was the lowest in the North Pacific during the four-month period among non-tropical lows. The ship **V7CX** reported a southwest wind of 45 kt and 7.5-meter seas (25 feet) near 40N

178W at 1200 UTC May 26. The QuikScat data in Figure 7 reveal a well-defined circulation and storm-force winds of 50 kt south of the center. Later, at 0000 UTC May 28, the vessel **V7DL4** experienced west winds of 35 kt and 8-meter seas (26 feet), the highest seas reported in this event.

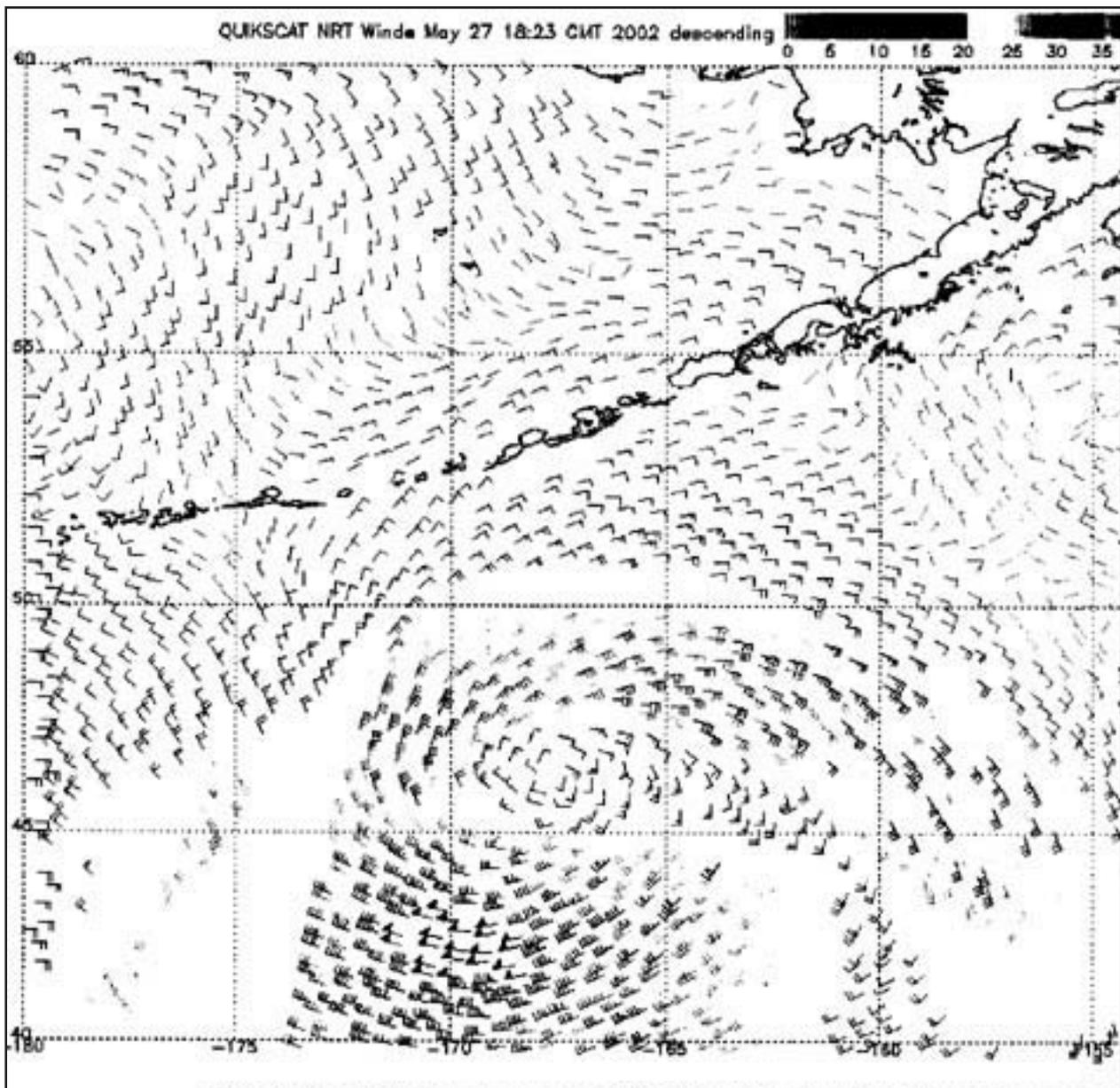


Figure 7. QuikScat scatterometer image of satellite-sensed winds valid about 0600 UTC May 27, 2002, or the same valid time as in the second part of Figure 6.

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



North Pacific Storm of 7-8 June:

This system originated near the Kurile Islands early on June 3 and drifted east, with a new center forming to the east. Figure 8 shows the new center near 45N 169W (995 mb) in the first panel, which curved toward the north and developed a lowest central pressure of 978 mb near the eastern Aleutians twenty-four hours later. The highest winds and seas with this system occurred near the eastern Aleutians early on June 8.

The NOAA ship **Miller Freeman** (WTFM) encountered northeast winds of 52 kt near 55N 160W at 0300 UTC June 8. The same ship reported from 55N 161W three hours later with an east wind of 30 kt and 9-meter seas (30 feet), the highest seas observed in this storm. At that time another NOAA ship, the **Rainier** (WTEF), reported east winds of 45 kt at 56N 158W. The system then began a weakening trend while turning more

west into the Bering Sea.

Western Pacific Storm of 9-10 June:

The rapid development of this storm is shown in Figure 9, with the 1000 mb low down near 30N 143E at 1800 UTC June 8 absorbing another low to the north (994-mb center just north of Japan) twenty-four hours later. The **United Spirit** (ELYB2) near 42N 157E reported southeast winds of 45 kt and 4.5-meter seas (14 feet) at 1800 UTC June 9, while the ship **H3EP** encountered west winds of 45 kt at 39N 146E. The **CSX Patriot** (KHRF) experienced a southwest wind of 40 kt and 6-meter seas (20 feet) near 43N 155E at 0000 UTC June 11. The system slowed after 1800 UTC June 9 and looped northwest then southeast during the next twenty-four hours before heading northeast and weakening near the western Aleutians on the June 14.

Western Pacific Storm of 18-19 June:

Much of the development of this compact system occurred over a

twenty-four hour period and was unusually far south for the time of year. A low-pressure center (1000 mb) moved northeast off the southern coast of Japan after 0000 UTC June 18 and developed a 988-mb central pressure at 0000 UTC June 19 near 40N 147E. The strongest winds were reported at this time, with the **Mirai** (JNSR) reporting a northwest wind of 55 kt on the backside of the system near 39N 145E, along with 9.5-meter seas (31 feet). These impressive numbers, if reliable, are likely due to enhancement by the warm Kuroshio Current. The storm center continued a northeastward motion and began to weaken after developing a central pressure of 986 mb at 0600 UTC June 19. The system reached the central Aleutians as a gale-force low on the 22nd, followed by some redevelopment in the Gulf of Alaska on the 25th before weakening near the Alaskan coast on June 26.

Eastern North Pacific Storm of 7-8 July:

This storm, while not among the most intense of the period in terms of central pressure, was accompanied by the highest reported winds among non-tropical systems. Figure 10 displays the period of most rapid development of this slow-moving system over the twenty-four hour period ending at 1800 UTC July 7, when the central pressure bottomed out at 992 mb. At 1200 UTC July 7, the **Maersk Sea** (S6CW) reported a southeast wind of 40 kt and 6-meter seas (20 feet) near 43N 147W. At 0000 UTC July 8, or six hours later than the time of the second part of Figure 10, the **Hanjin Amsterdam** (DHDH) encountered a

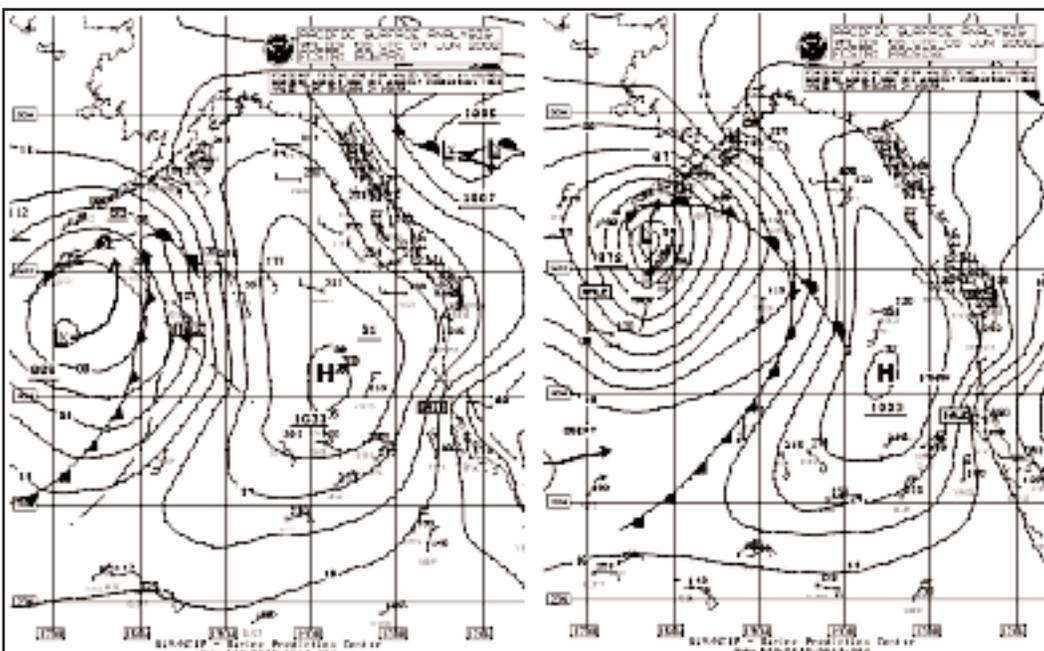


Figure 8. MPC North Pacific Surface Analysis charts (Part 1 - east) valid 0600 UTC June 7 and 8, 2002.

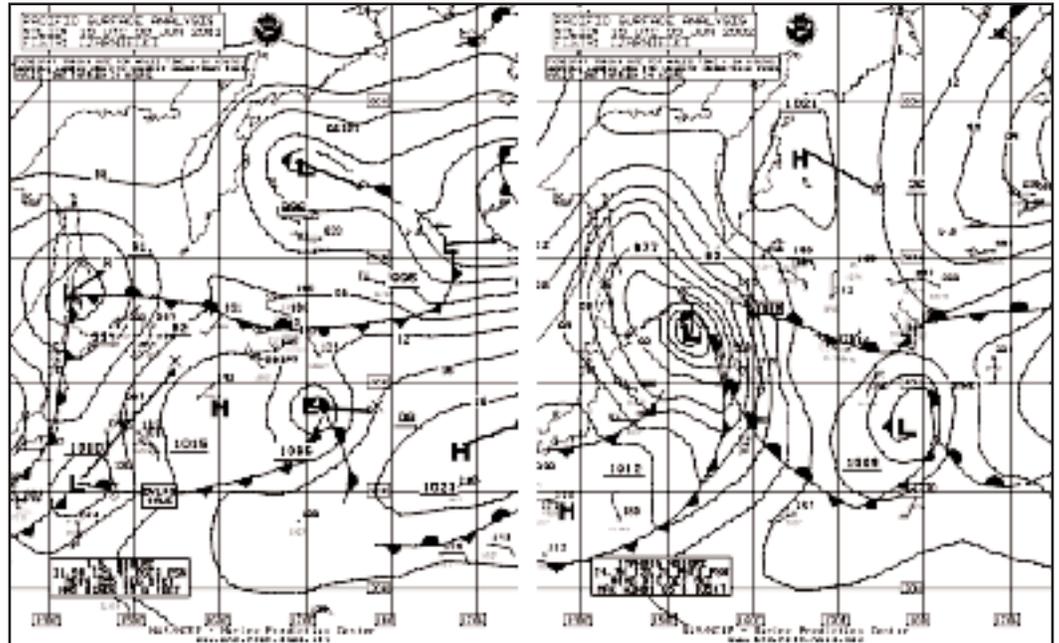


Figure 9. MPC North Pacific Surface Analysis charts (Part 2) valid 1800 UTC June 8 and 9, 2002.

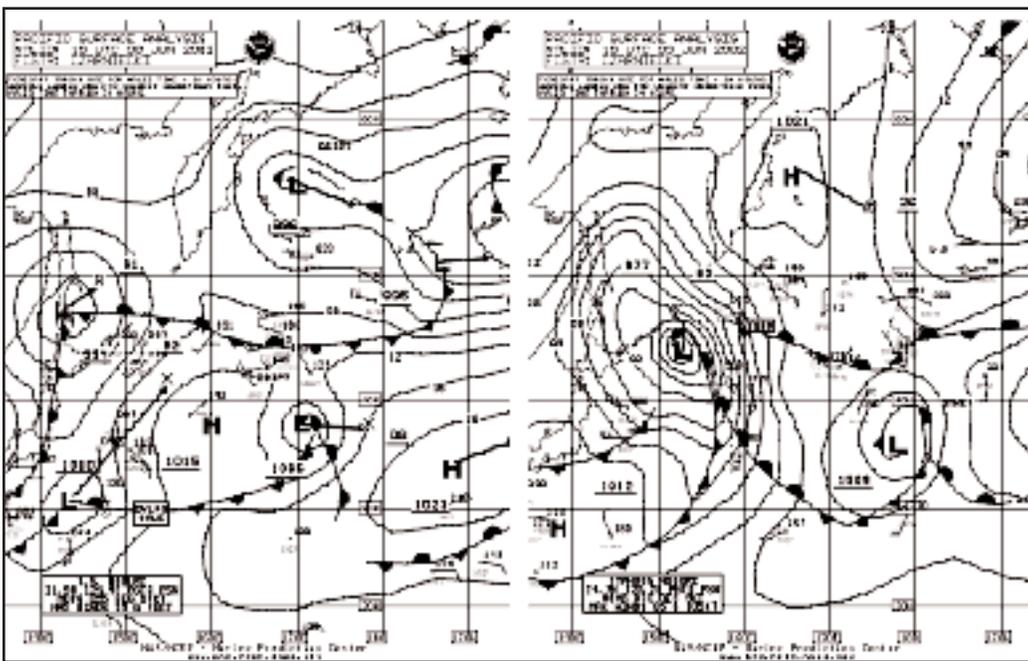


Figure 10. MPC North Pacific Surface Analysis charts (Part 1) valid 1800 UTC July 6 and 7, 2002.



northwest wind of 58 kt and 6.5-meter seas (21 feet). These reported winds appear to be reliable and are supported by QuikScat data (not shown). A satellite image of the storm near maximum intensity is shown in Figure 11 and reveals a well-defined and mature cloud pattern and circulation center. The system subsequently continued an eastward drift and weakened. ⚓

Reference

Sienkiewicz, J. and Chesneau, L., *Mariner's Guide to the 500-Mb Chart* (Mariners Weather Log, Winter 1995).

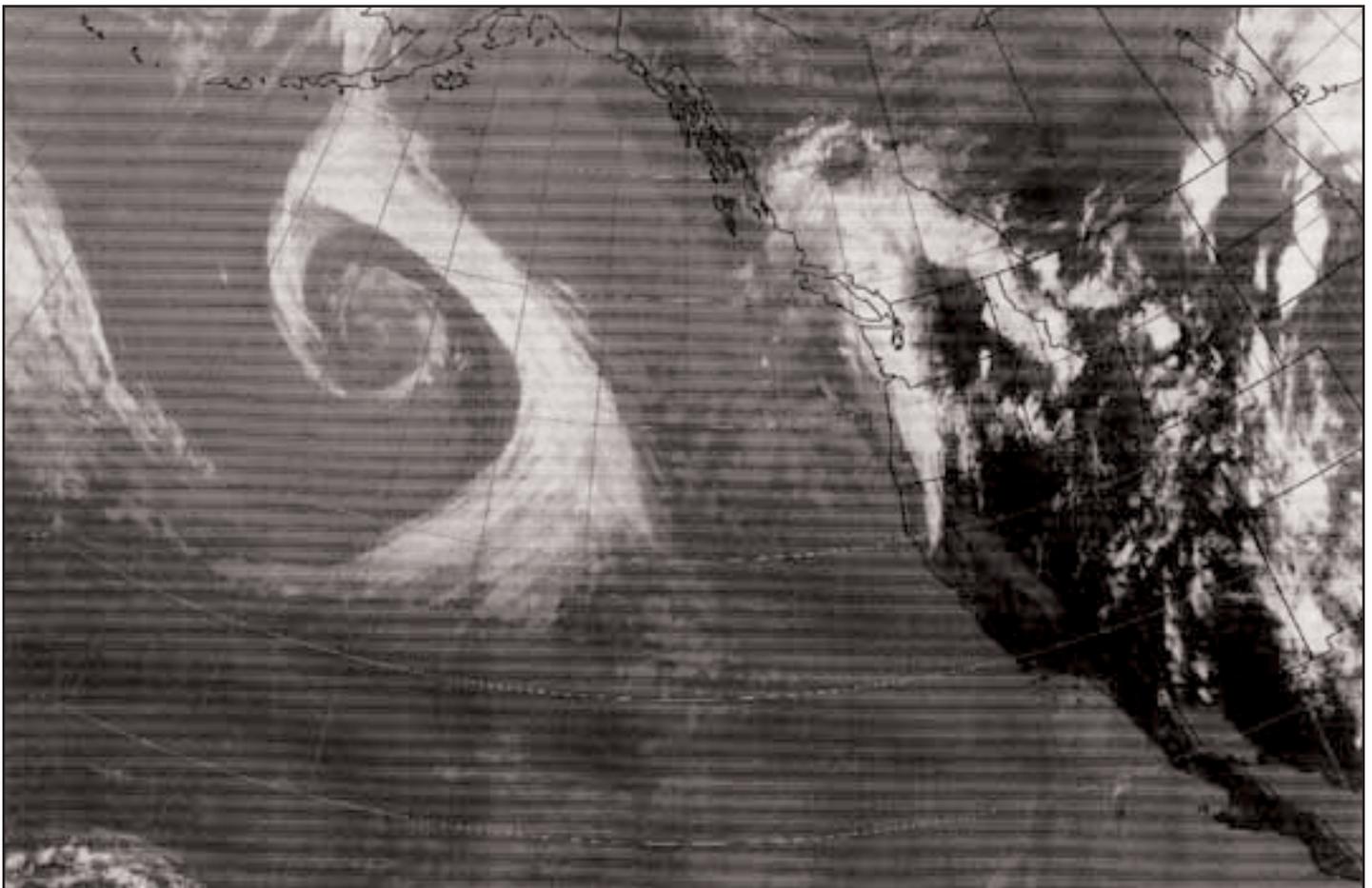


Figure 11. GOES-10 infrared satellite image of the storm in Figure 10, valid 2200 UTC July 7, 2002. The valid time is four hours later than that of the second part of Figure 10.