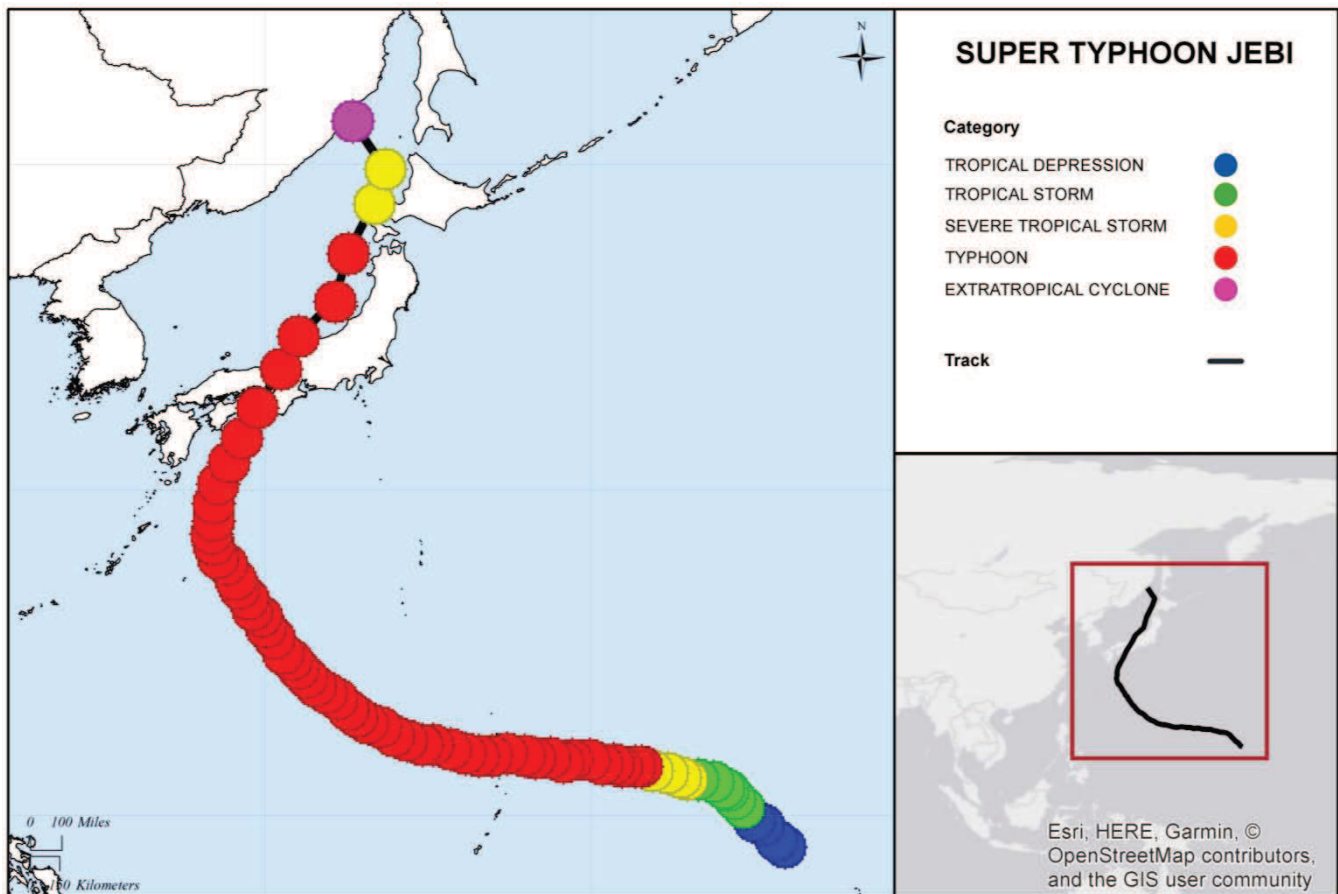


CAT-i Bulletin

Catastrophe Information

Report Date:
6 September, 2018

Super Typhoon Jebi



Jebi Track. SOURCE: JMA.

Summary

In the West Pacific Basin, Typhoon Jebi made first landfall on Shikoku (Tokushima Prefecture) at around 03 UTC on 4 September, and then second landfall near Kobe (Hyōgo Prefecture) at around 05 UTC on the same day. The storm brought reports of damaging wind gusts in excess of 160 km/hr (100 mph), flooding due to storm surge and heavy rainfall and mudslides. Widespread damage and power outages have been reported by media across southern Japan. Flood impacts have been especially severe in the Osaka Prefecture, where the Kansai International Airport was affected by storm surge, with disruption also to transportation links. Media reports indicate at least eleven fatalities and 400 injured. It will take time to fully assess the full scope and severity of this ongoing event, and our first thoughts and concerns are with those directly affected.

Meteorological Discussion

Super Typhoon Jebi initially developed from an area of low-pressure north of the Marshall Islands on 25 August, and within two days it was classified as a tropical depression by the Joint Typhoon Warning Center (JTWC). On 28 August at 00 UTC the JTWC reported 1-minute sustained winds of 64 km/h (40 mph) at which time the feature was classified as a tropical storm. Jebi was then classified as a typhoon by the JTWC on 29 August at 06 UTC when the storm gained 1-minute sustained winds of 120 km/hr (75 mph).

The system then followed a general westward motion and progressively increased in intensity due to warm sea-surface temperatures and reduced wind shear, including a period of rapid intensification. While passing north of Guam on 30 August at 18 UTC, Jebi was classified as a super typhoon with 1-minute sustained winds of 257 km/h (160 mph), a category five on the Saffir-Simpson Scale.

Over the next 48 hours Jebi tracked northwest and strengthened to its peak intensity, with 1-minute sustained winds of 282 km/h (175 mph) on 31 August at 06 UTC. This intensity makes Jebi the strongest tropical cyclone to date in 2018. Beginning on 1 September the typhoon began to slowly weaken while heading northwest towards Japan. By 3 September Jebi had weakened further and began an abrupt turn to the north towards southern Japan.

Jebi made its first landfall on Shikoku in the southern part of Tokushima Prefecture on 4 September at around 03 UTC. The Japan Meteorological Agency (JMA) reported 10-minute sustained winds of around 157 km/hr (98 mph) at this time, an equivalent category two or possibly category three on the Saffir-Simpson Scale. The JMA report was considerably more severe than the JTWC report of 1-minute sustained winds of around 135 km/hr (85 mph), a category one on the Saffir-Simpson Scale. After crossing the Osaka Bay, the typhoon made its second landfall in Kobe (Hyōgo Prefecture) at around 05 UTC. While crossing the Island at 06 UTC on 4 September, the JMA reported 10-minute sustained winds of around 139 km/hr (86 mph).

The storm produced strong, gusty winds over a widespread area, with wind gusts in excess of 160 km/hr (100 mph) unofficially reported for areas including Osaka (171 km/hr, 106 mph), Osaka Kansai International Airport (209 km/hr, 130 mph), Wakayama (206 km/hr, 128 mph) and Kumatori (185 km/hr, 115 mph). Heavy rainfall with flooding, flash-flooding and mudslides were also of concern; at least 250 mm (10 inches) of rainfall was unofficially reported for areas including the Kochi and Tokushima Prefectures. The typhoon also produced a storm surge with destructive waves, with a possible record storm surge in excess of three meters in Osaka Prefecture.

After crossing Honshu on a north-eastward track, Jebi headed into the Sea of Japan after 06 UTC while continuing to weaken. After turning to the north and flanking the Hokkaido Island, the system then transitioned to an extratropical cyclone before final landfall on the east coast of Russia on 5 September.

Impacts

Media reports indicate at least eleven fatalities and four hundred injuries as a result of the storm, and our thoughts and concerns are with those lost and directly affected by this event. Over one million have been affected by evacuation advisories.

The scope and severity of impacts are still coming into focus, however initial reports indicate variable property damage due to wind including considerable roof damage and some overturned structures. Considerable vehicle damage has also been reported including overturned tractor trailers and damage to large cranes.

Power outages have affected at least 1.7 million homes and business in Fukui, Shiga, Kyoto, Osaka, Hyogo, Nara and Wakayama Prefectures and in Shikoku Island, according to media reports. As of the morning of 6 September, 320,000 dwellings and stores in six prefectures including Osaka and Wakayama were still without power. One of the key areas affected is the Osaka Prefecture which is one of Japan's key areas for industry and tourism.

Near Kansai International Airport, a tanker was swept into the sole bridge connecting the Airport to the mainland. The airport itself was shut down due to extensive flooding resulting in over 700 flight cancellations and affecting around 57,000 passengers. About 3,000 were stranded at the airport as of 6 September. The airport is a key node for the Japan distribution network, and its closure may disrupt supply chains in the country. In 2017 USD 50 billion worth of goods were exported from the airport. Of these, USD 11 billion were electronic parts including semiconductors, accounting for approximately 20 percent of total exports from the country. As of 6 September, the semiconductor market leader Rohm plans to export from other airports. Meanwhile Renesas Electronics, Toshiba Memory, and Panasonic are also looking for alternative routes, while All Nippon Airways began handling cargo operations from the Narita and Haneda airports.

Railway services were also disrupted in western Japan. Tokaido bullet trains (198 lines) and Sanyo bullet trains (182 lines) were suspended, and several subway lines in Osaka were stopped.

The storm resulted in facility closures among some major manufacturers including Toyota Motor, Honda Motor, Panasonic, Murata Manufacturing and Daikin Industries, according to media reports. Meanwhile in Hyogo Prefecture, a fire at a coastal dealership resulted in loss of about 100 vehicles; officials believe the cause of the fire was a result of sea water inundating the vehicle electrical systems causing them to short.

Prior to reaching Japan, Jebi rendered considerable impacts to areas of the Northern Mariana Islands.

Industry Response

It is still early to determine the scope or magnitude of effects to the industry from this event, including loss estimates, with confidence. Additional uncertainty around business interruption and impacts to key infrastructure and transportation links will be important factors to consider. Catastrophe model vendors are assessing the physical scope and disposition of the event with respect to their models and should be releasing loss estimates over the coming days.

Sources: Japan Meteorological Agency, Joint Typhoon Warning Center, Hong Kong Observatory, Weather Underground, The Weather Company, Department of Earth, Ocean, and Atmospheric Science, Florida State University, Insurance Journal, Nikkei Asian Review, The Japan Times, Reuters.

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