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WATER AND ENVIRONMENTAL RESEARCH INSTITUTE
OF THE WESTERN PACIFIC
UNIVERSITY OF GUAM

FOR IMMEDIATE RELEASE

National Weather Service Forecast Office Guam and the University of Guam Water and Environmental Research Institute Revised Typhoon Soudelor Wind Assessment for Saipan



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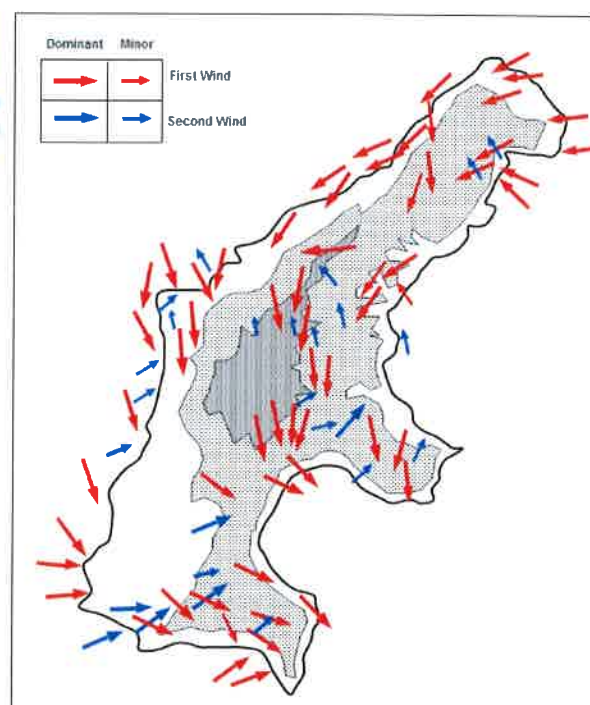
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National Weather Service Forecast Office Guam and the University of Guam Water and Environmental Research Institute Revised Typhoon Soudelor Wind Assessment for Saipan, Commonwealth of the Northern Mariana Islands

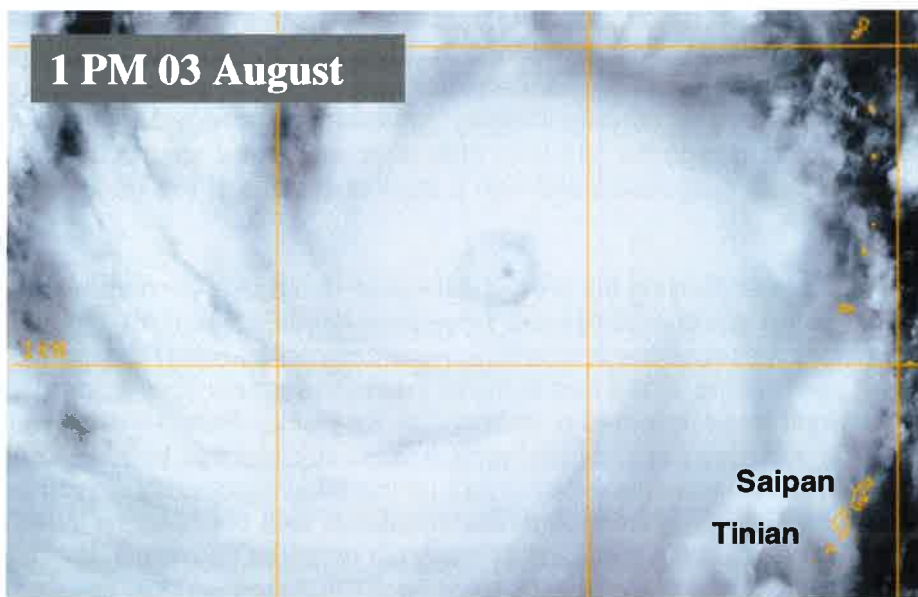
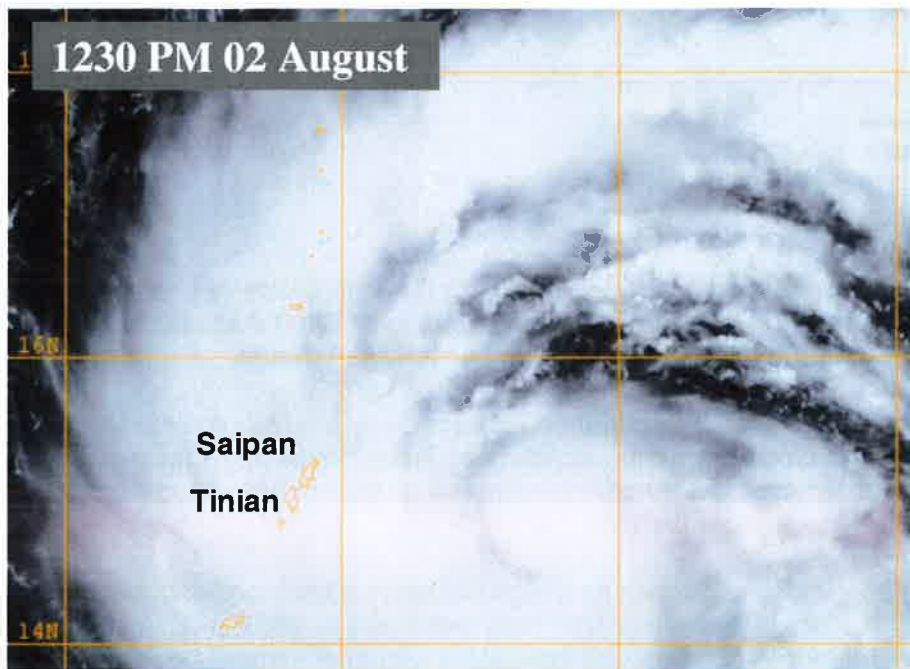
This is an update to the press release of 3 September 2015 made by the National Weather Service Forecast Office on Guam (WFO Guam) and the University of Guam Water and Environmental Research Institute (WERI) regarding the Typhoon Soudelor wind assessment conducted by Charles Guard (WFO Guam) and Dr. Mark Lander (WERI).

In the earlier assessment, Soudelor was ranked as a high Category 3 typhoon, with peak over-water wind speed of 110 knots with gusts to 130 knots (127 mph with gusts to 150 mph). As noted in the first press release, some of the damage on Saipan was consistent with even stronger gusts to at-or-above the Category 4 threshold of 115 knots with gusts to 140 knots (130 mph with gusts to 160 mph). After reanalyzing more than a hundred original damage pictures obtained on-site by the assessment team, assessing some new damage information from subsequent visits, and conducting a careful analysis of other factors relating to typhoon intensity, such as the measurements of the minimum central pressure and the characteristics of Soudelor's eye on satellite imagery, the team has now raised its estimate of Soudelor's equivalent over-water intensity to the 115-knot (130 mph) sustained wind threshold of a Category 4 typhoon. The typical peak gust associated with a tropical cyclone of this intensity is 140 knots (160 mph).

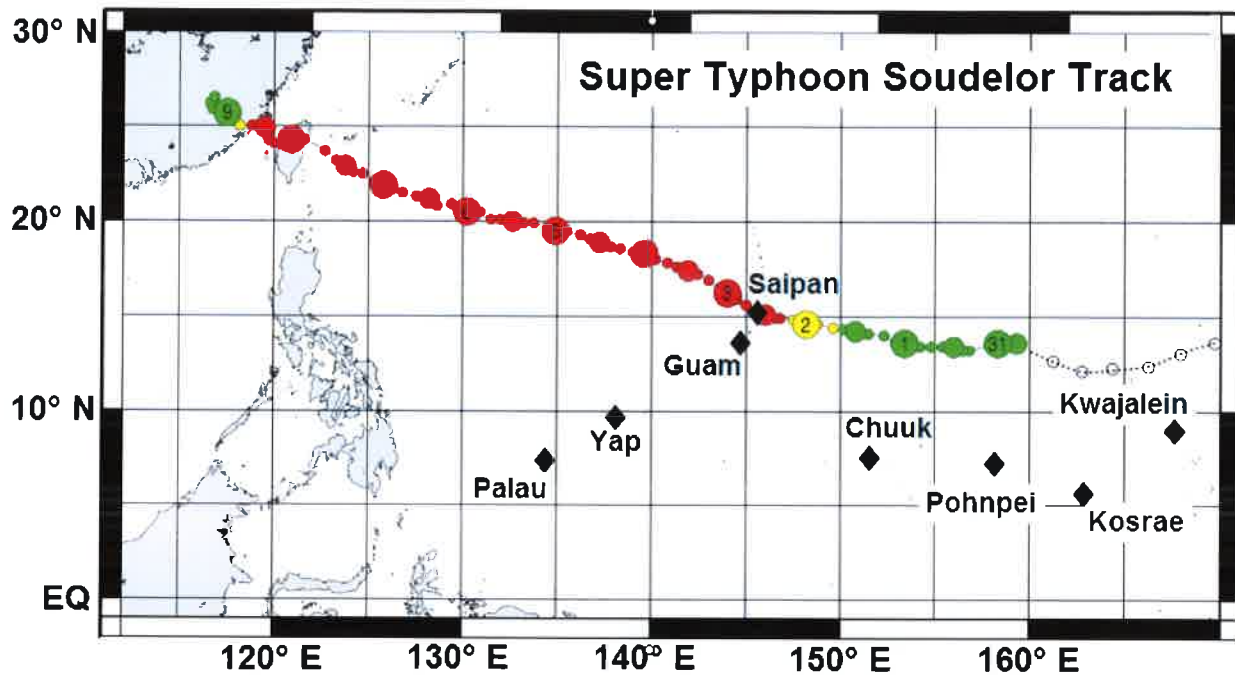
Gusts of this magnitude are capable of causing the type of extensive damage seen on portions of central Saipan. Not every part of the island experienced these peak winds. The north and south ends of the island were spared the worst because those locations were not located under the inner portion of the eyewall. The central west coast of the island had some of the most impressive wind damage, with numerous healthy mature ironwood trees uprooted or snapped at the trunk. Patches and swaths of heavier wind damage are readily explained by turbulent wind flow across complex terrain. The treefall pattern was surprisingly coherent, and nicely delimits the path of the small typhoon across the mid-section of the island. The "First Wind" was dominant at most locations, with the "Second Wind" having a lesser signal in most areas. This was likely the result of the great extent of treefalls in the "First Wind". The presence of some trees in close proximity felled in opposite directions was thought by some to be evidence of tornadoes, but most, if not all, of the treefall pattern is consistent with the large-scale swirling cyclonic flow of the typhoon itself.

The reason for this supplemental release is to refine the assessed intensity and to provide a single reference value. In the original press release, the typhoon over-water intensity was assessed a bit lower. Patches of damage that seemed to be outliers slightly in excess of the assigned typhoon wind speed range were attributed to gusts enhanced by terrain or perhaps even small-scale features within the typhoon eyewall itself. Particularly after carefully studying the treefall pattern and damages, the assessment team felt that the large-scale swirling wind of the typhoon with a sustained wind and peak gust of a single magnitude (e.g., 115 knots G 140 knots) would be an appropriate metric from which one could account for all the observed effects of the typhoon. The patches of heavier damage are now viewed as areas where, for reasons of complex terrain and exposure, the peak over water gust of 140 knots was experienced in full force and for an extended period.

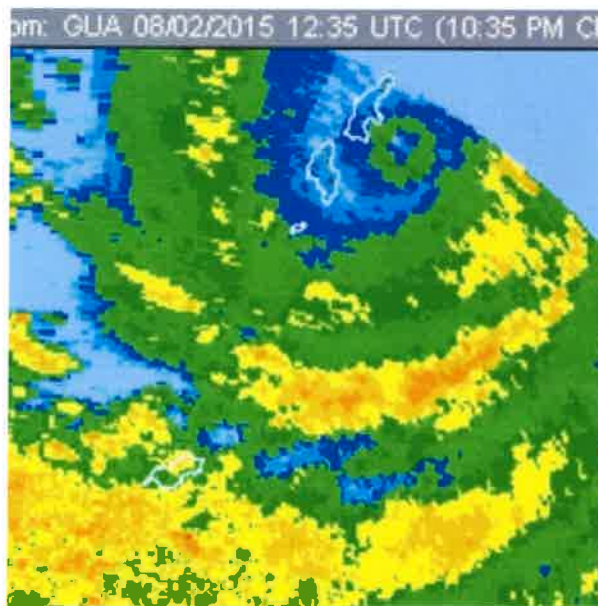
Some supporting images and charts are included on the following pages.



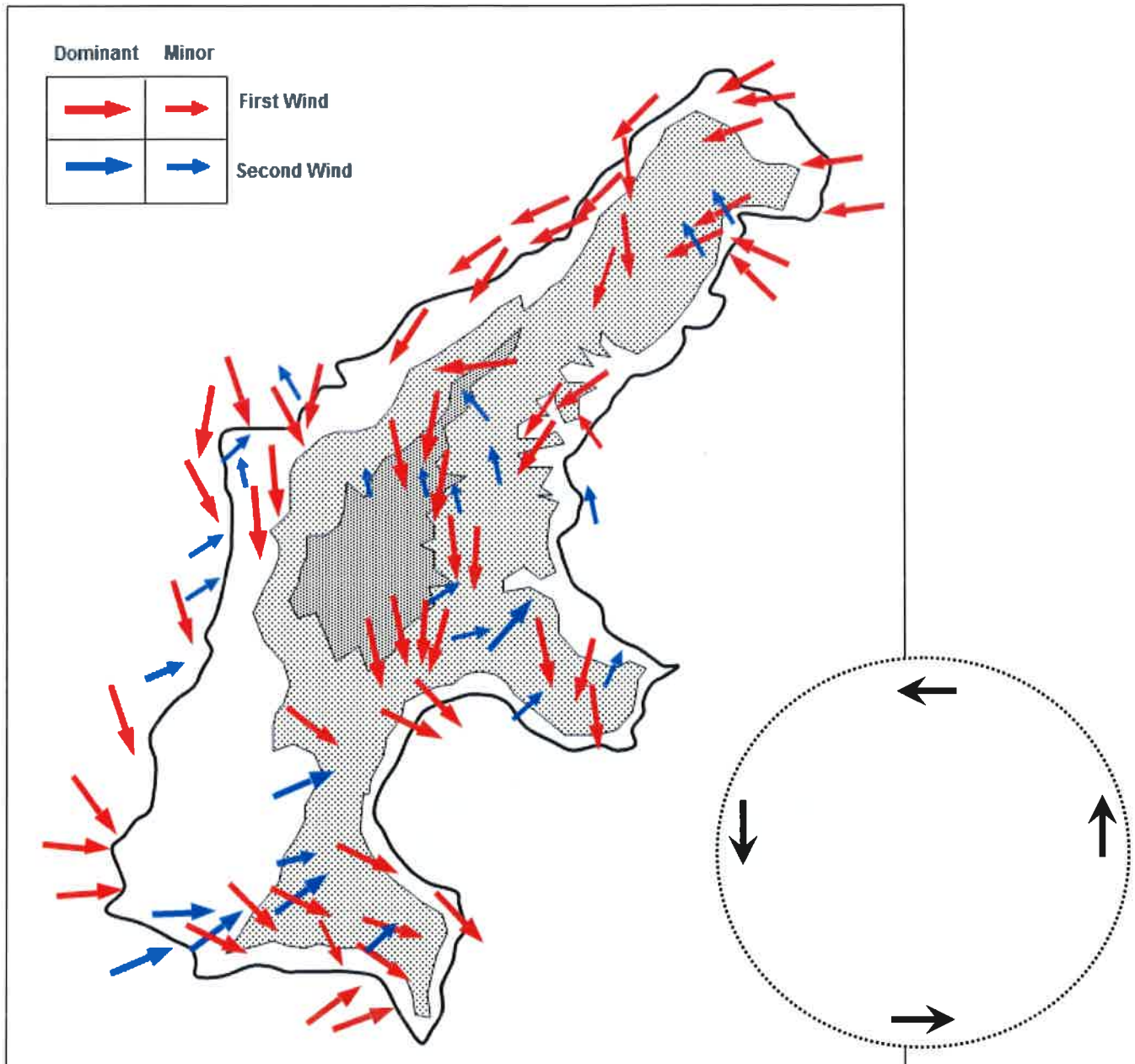
Visible satellite imagery captures the tiny “pinhole” eye of Typhoon Soudelor that formed prior to the typhoon’s passage over Saipan, and continued to be present as it tracked over and past the island.



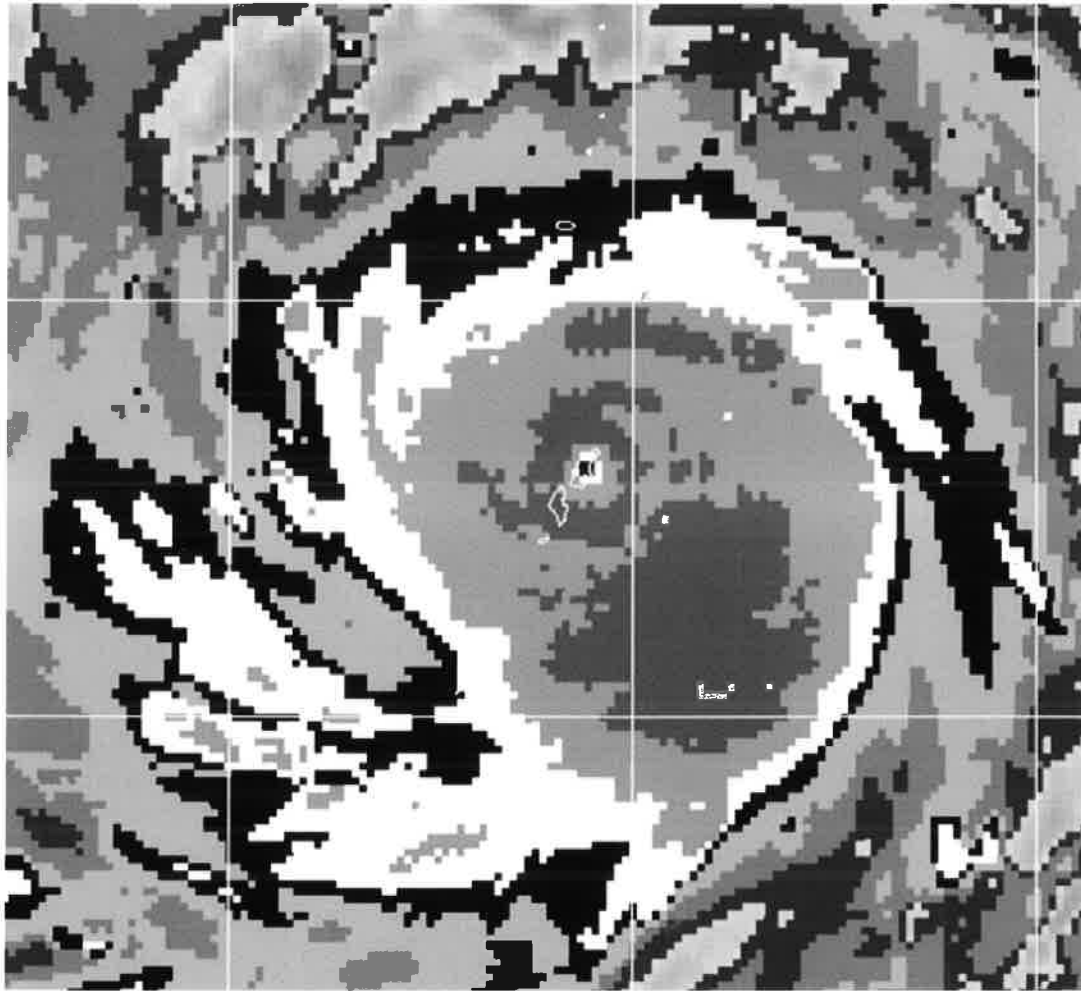
Typhoon Soudelor's track across the western North Pacific Ocean. Green indicates tropical storm intensity, yellow is Typhoon Category 1 and 2 intensity, and red is Typhoon Category 3, 4 and 5 intensity. The numbers are the days of the months.



Composite Reflectivity image from the Andersen Air Force Base Guam Doppler weather radar. The small green circle southeast of Saipan is tiny Typhoon Soudelor, which is embedded in a much larger monsoon flow.



A map of the treefall pattern on Saipan caused by Typhoon Soudelor. The typhoon spins counterclockwise (circular inset), so as the eye passes across the island, the winds are first from a northerly direction (red arrows), then after the eye passes, the winds switch direction and have a southerly component (blue arrows). Most of the observed treefall was from the "First Wind". There were fewer trees blown over by the "Second Wind", primarily because there were so many trees blown over by the "First Wind" (almost 100% in some places) that there was little left for the "Second Wind". Many eyewitnesses perceived that the First Wind was stronger than the "Second Wind". Stippled areas show high ground: outer stippled area > 50 meters (164 feet), inner stippled area > 200 meters (656 feet).



Enhanced IR (BD Curve)

1301 UTC 02 August 2015 (0101 AM 03 August Local)

Dvorak Analysis: Ring = CMG = T6.5

Eye Adjust B inside CMG = -0.5

Data T Number = **T 6.0**

Enhanced Infrared imagery of Typhoon Soudelor at the time that its eye was directly over Saipan. A sequence of false gray shades are applied to the infrared brightness temperatures to indicate the cloud-top temperature. From the temperature data, the intensity of the typhoon can be derived using Dvorak's technique for estimating typhoon intensity from its characteristics on satellite imagery. In this image, the intensity is derived to be **T 6.0**, which is equivalent to 115 knots (132 mph) one-minute sustained wind with peak gusts to 140 knots (161 mph).

