

Whirlpools at Naruto (Japan) on 17 October 2001 (CHANSON 2002, p. 28)

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A whirlpool is a vortex of vertical axis, with a downward velocity component near its centre. A good example is the bathtub vortex. In coastal zones, whirlpools are produced by the interaction of rising and falling tides. They are often observed at the edges of straits with large tidal currents. Notable oceanic whirlpools include those of the Maelstrøm located near the Lofoten Islands off the coast of Norway and those in the Naruto strait (Japan) between Awaji and Shikoku islands (Photo). At Naruto, the strait is 1.3 km wide. The differences in tidal levels across the strait may reach 1.5 m with current speeds exceeding 9 knots (4.6 m/s) on the Northern part of the Strait. Hubert CHANSON visited the Naruto whirlpools on Wednesday 17 October 2001 [1]. The meteorological conditions were poor because the centre of Typhoon No. 21 was located few hundreds kilometres South of Japan. Hubert CHANSON experienced the whirlpools, first from the Ohnaruto bridge walkway (uzu-no-michi) and later in a boat. From the bridge, the writer saw a freighter which became trapped in the whirlpools and vortices, and got stranded (grounded) beneath the bridge. The photograph shows a whirlpool formation in the foreground, while the grounded freighter (green hull), stranded next to the bridge pier, is visible in the background. The boat was still grounded 2 hours later, waiting for the next high tide. This photograph was published in CHANSON (2002, p. 28) [1]. It is also used to illustrate a website on whirlpools [3]. Another whirlpool photograph by Hubert CHANSON was shown in the new edition of "The Sea Around Us" [2].

References

- [1] CHANSON, H. (2002). "Whirlpools. Experiencing Naruto Whirlpools." *IAHR Newsletter*, Vol. 40, No. 2, pp. 17 & 28-29. {<http://www.uq.edu.au/~e2hchans/reprints/iahrnew2.pdf>}
- [2] "The Sea Around Us." by CARSON, R.L., SAFINA, C., BALLARD, R.D., and SKINNER, B.J. *Oxford University Press* (ISBN 0195147014). "Naruto whirlpool" (p. 196).
- [3] CHANSON, H. (2001). "Whirlpools. Experiencing Naruto whirlpools." *Internet resource*. (Internet address : <http://www.uq.edu.au/~e2hchans/whirlpl.html>)

