FIG. 1. Photograph of Naruto taken from a Yomiuri Shimbun helicopter during early March, 1996 by Masafumi Nanjo of the Daily Yomiuri, Tokyo, Japan.

NARUTO: PAST AND PRESENT*

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*This page summarizes the Naruto images collected by N. J. Zabusky during his visit to Japan in 1996. The photograph above was provided by Masafumi Nanjo of the Daily Yomiuri, Tokyo, Japan and is printed with his permission. The photograph was submitted as the poster, ''Naruto '96'' to the 1996 Gallery of Fluid Motion at the American Physical Society Division of Fluid Dynamics annual meeting in November, 1996. Another submission was the video # ''NARUTO: Past and Present,'' created by Norman J. Zabusky and Wesley Townsend. It was based on the 19th-century Ukiyo-e print by Ando Hiroshige and an NHK Tokushima video made during the bridges inauguration ceremony in March of 1985 and Nanjo's print. The video was provided by Professor K. Ishii of the Department of Applied Physics at Nagoya University. N. J. Zabusky acknowledges the gift of these images. Many of them can be seen on our URL home page, http://caip.rutgers.edu/vizlab.naruto.html

The Naruto strait contains a tidal current whose edges constitute a gigantic cascading ''maelstrom.'' It is not far from Kobe, Japan and lies between the city of Naruto on Shikoku Island and the island of Awaji (Hyogo Prefecture) and connects the higher Seto Inland Sea (Setonaikai) and the lower Osaka Bay.[8] The rushing tidal current is a sloping surface jet (exceeding 5 m/s) in-or-out between the two seas. The phenomenon is strongest during the first hour of every 6 h and 25 min period, particularly at full moons in the early spring, when Nanjo's photograph was taken (early March, 1996). A bridge now spans Naruto to Awaji and was finished in March of 1985.

In the photograph we see a near-vertical aerial view of a sight-seeing boat close to the southwestern (counterclockwise-vortex) edge of the cascade. Dominant vortex structures may be 30 m in diameter. We await the quantification of the stratified turbulence of this natural wave-vortex system.

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