Field measurement of hydrodynamic characteristics in coral reef
at Yoshiwara Coast, Ishigakijima, Okinawa, Japan

By

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Background information

Addressing the environmental and economic impacts of coastal environment particularly on coastal erosion and safe beach utilization led the researchers to conduct field studies on hydrodynamics in coral reefs in tropical and subtropical regions. The study area is located in the subtropical region of Japan specifically the Yoshiwara coast in Ishigakijima, Okinawa (Map 1, Photo 1). Wave Hunter, ADCP, water level gauges were installed in the reef lagoon, on the reef flat, edge and gap (Figure 1) to measure wave, current and tide characteristics respectively. Wind speed and direction were also measured with the aid of an anemometer set up on the beach (Photo 2). Because of seasonal variation, hydrodynamic parameters may vary. Thus, measurement is currently done during winter season from November 2007 to January 2008 in order to establish a comparative study with the data generated during summer season from June to July 2006.
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(a) Map of Japan and location of Ishigakijima, Okinawa, Japan

(b) Zoom in of Ishigakijima and Yoshiwara coast

Map 1. Location of Ishigakijima, Okinawa, Japan
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Photo 1. Aerial view of the coral reef and carbonate beach in Yoshiwara coast

Photo 2. Installation set-up of anemometer
Figure 1. Location of equipment installed in the coral reef lagoon, reef flat, reef gap, reef edge and on the beach.
Sample record of real time measurement of hydrodynamic parameters

Note: The English description for the Japanese characters is provided for your reference.