Disaster Mitigation Functions of Coral Reef around an Island

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Severe beach erosion in Japan

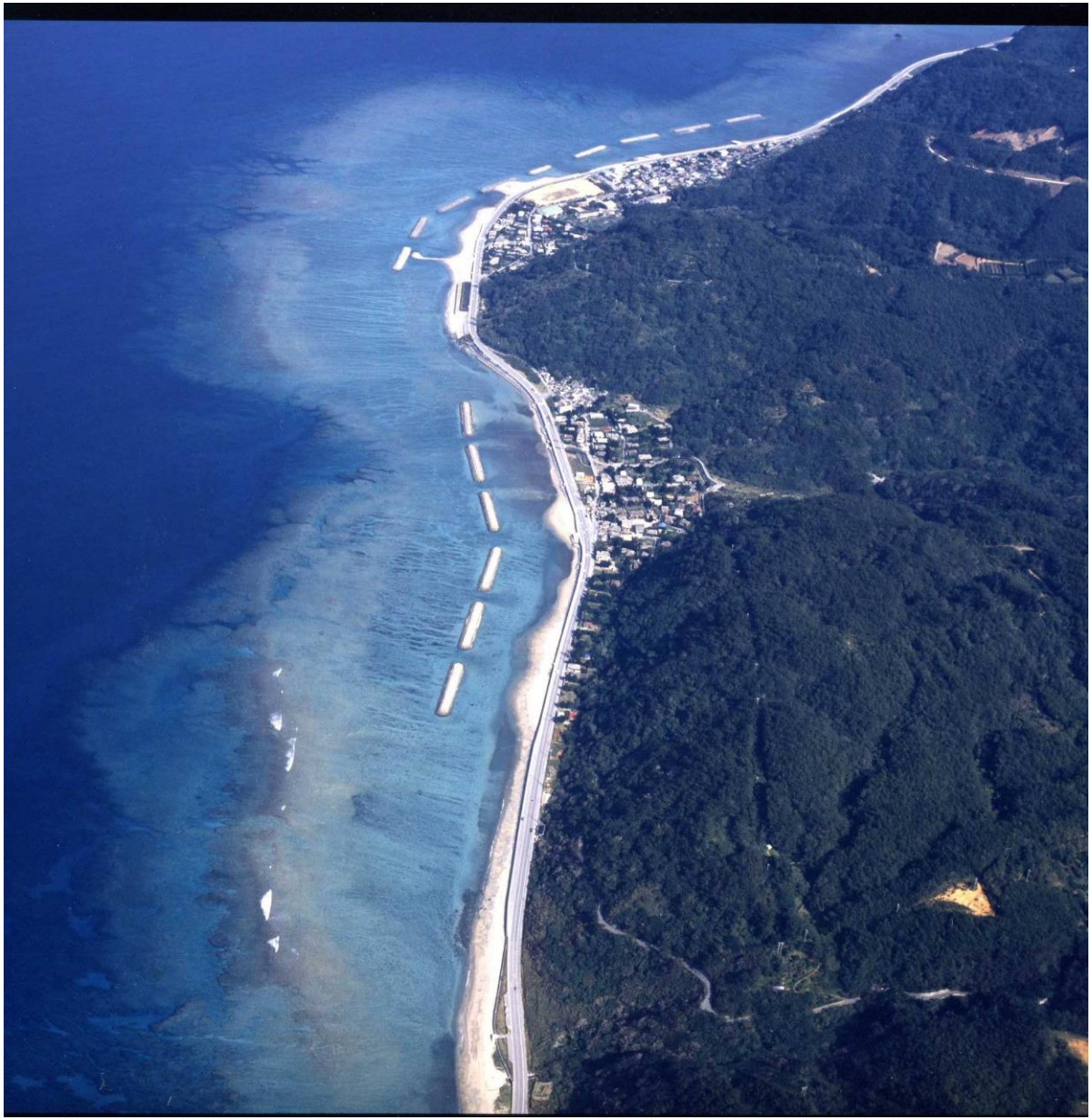
日本における海岸浸食

離岸堤1号の建設（皆生海岸）

We think this is an example of the successes of coastal protection work in Japan

りがんてい
離岸堤による侵食対策
（トンボロの形成，皆生海岸）

Okinawa also learned from the work, however, a beach has never been established.



トンボロの形成を願ったが？（国頭村）

“Bore-like” Surf Beat on Reefs

Proc. 22nd Int. Conf. Coastal Eng., ASCE, Reston, Va., 743-756

Damage caused by typhoon waves on a typical coral reef coast.

16:58:00

16:58:13

16:58:24

Tsunami-like Surf Beat Wave Caused by Typhoon No.24,

Minatogawa Coast, 1988

Characteristic wave phenomena, surf beat waves were discovered by E. Nakaza in 1986.

"Bore-like" Surf Beat on Reefs

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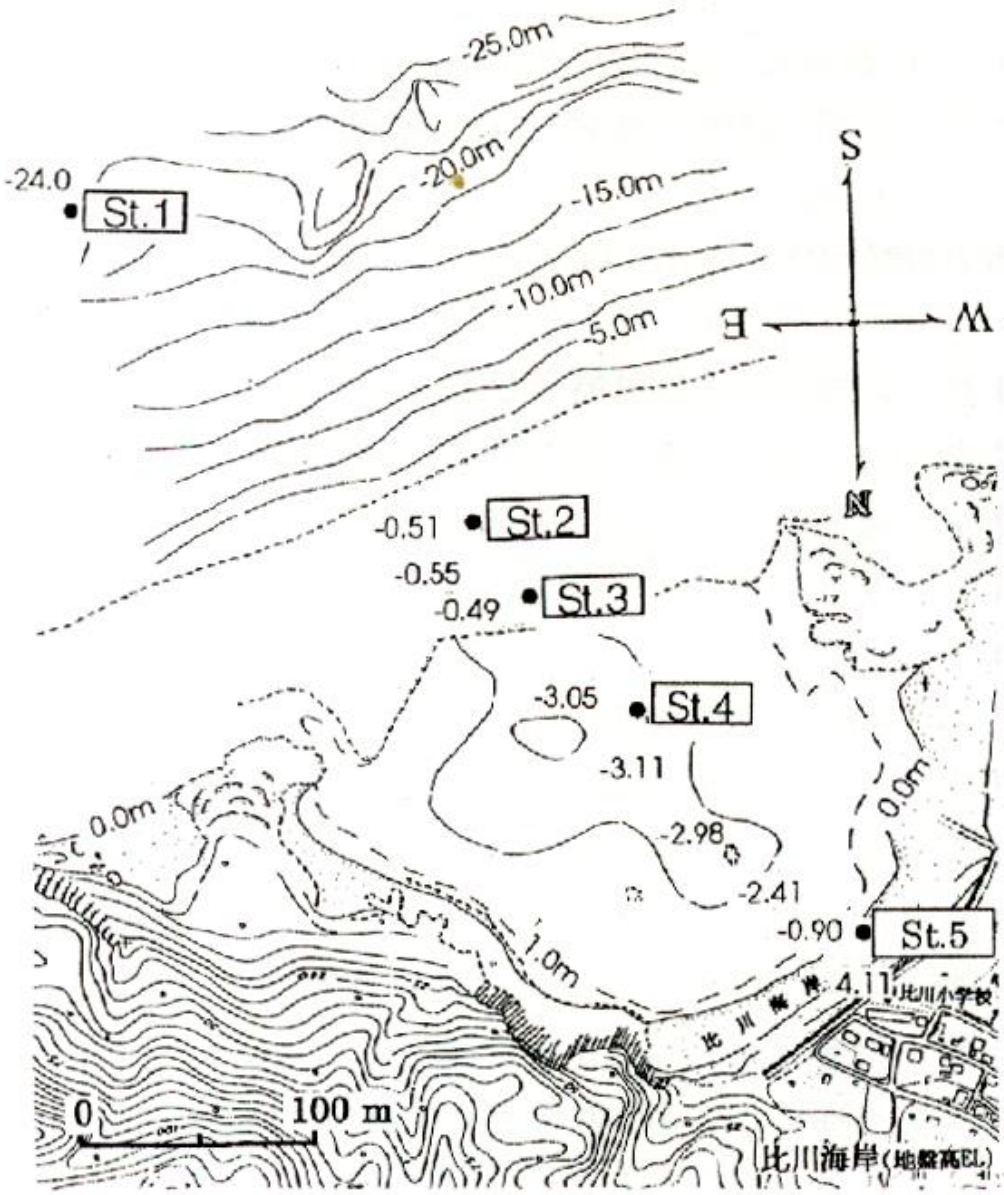
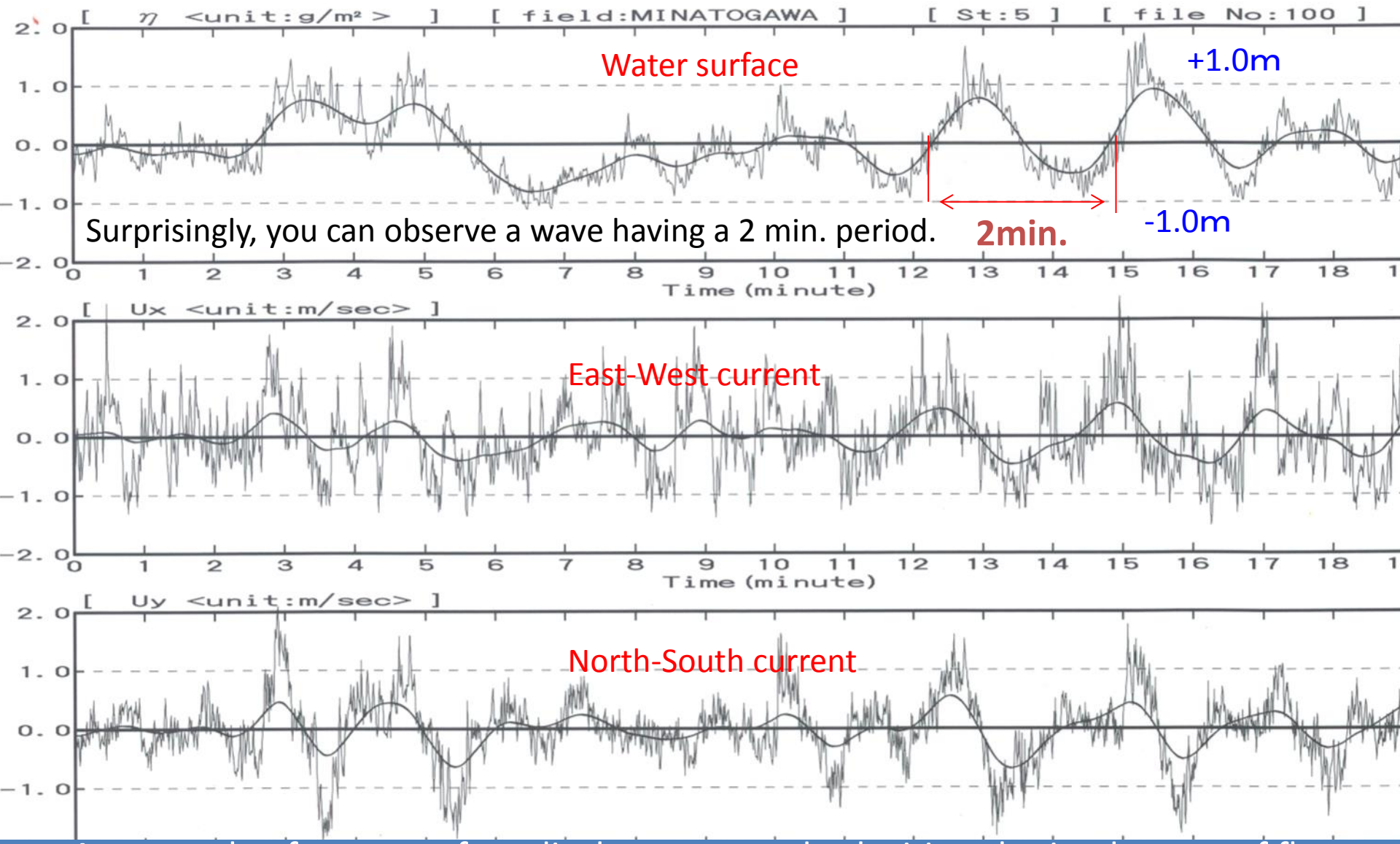


Hikawa Coast at Yonaguni Island of Okinawa, Japan

Locations of the wave detection sensors, St.1-5.

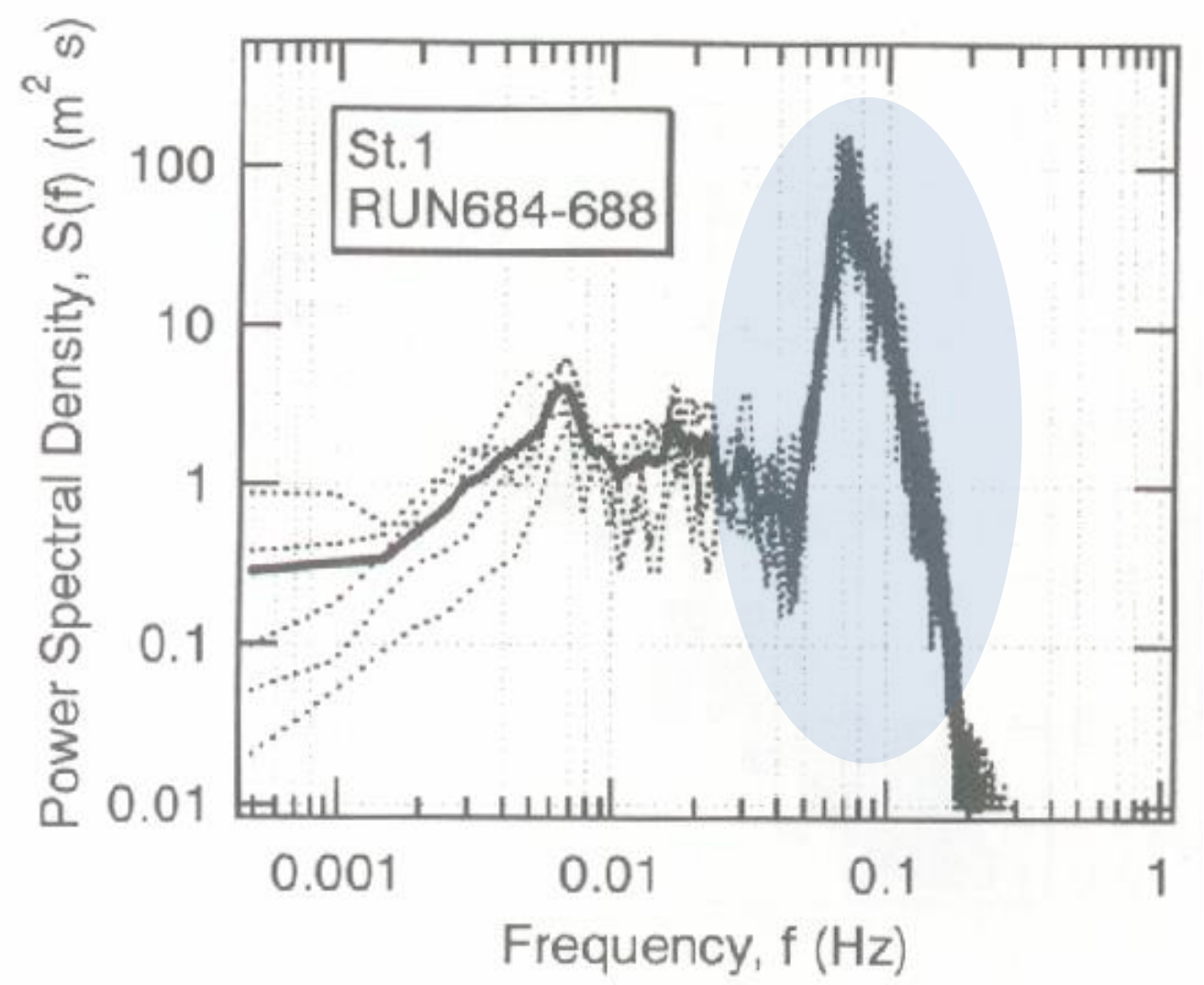
Abnormal High Tides Induced by Surf-Beats, ASCE, 27th ICCE, Australia, 2000



An example of water surface displacement and velocities obtained on a reef flat

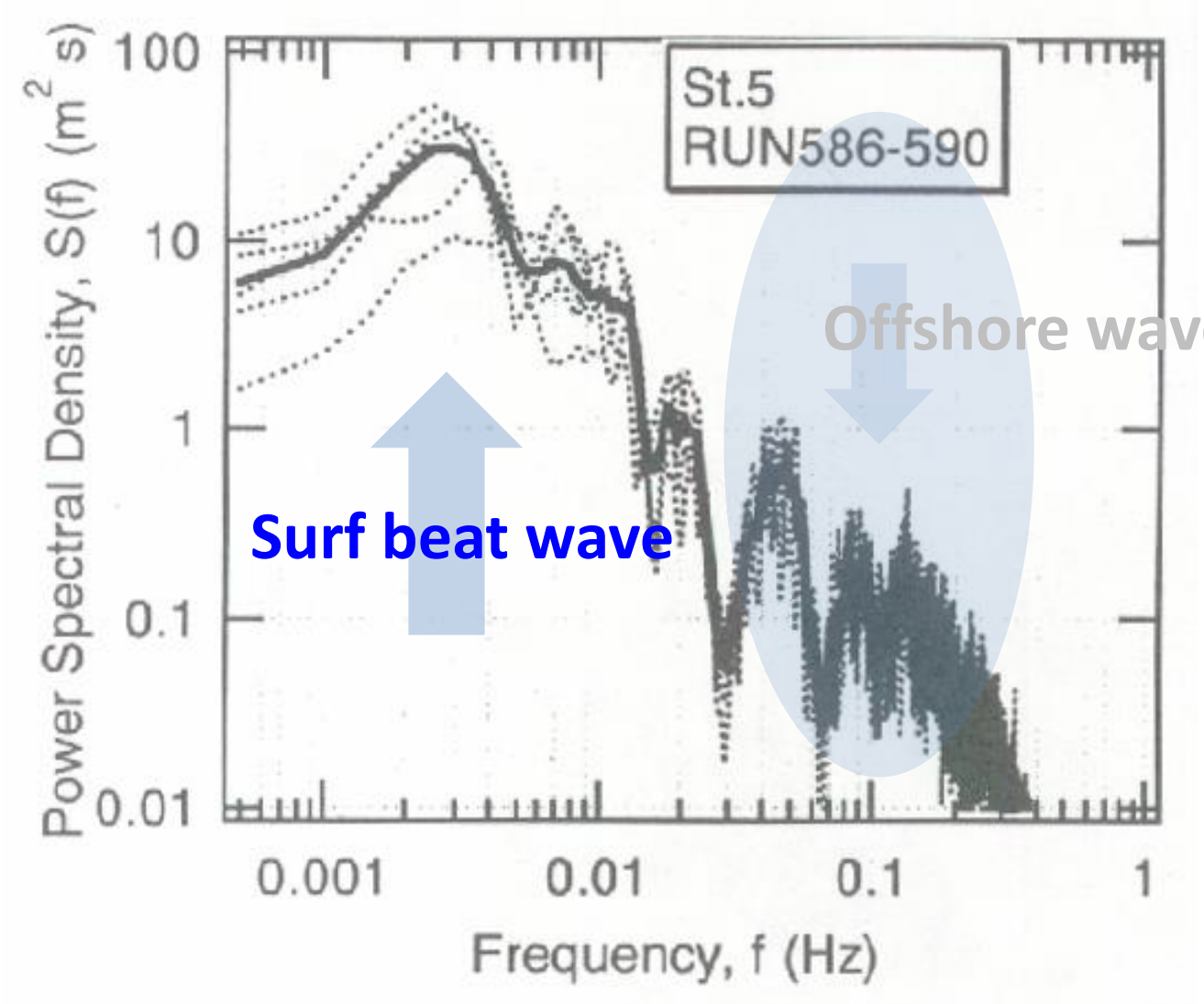
Surf-beat waves were observed by E. NAKAZA, 1986.

Energy strength of offshore waves



Abnormal High Tides Induced by Surf-Beats, ASCE, 27th ICCE, Australia, 2000

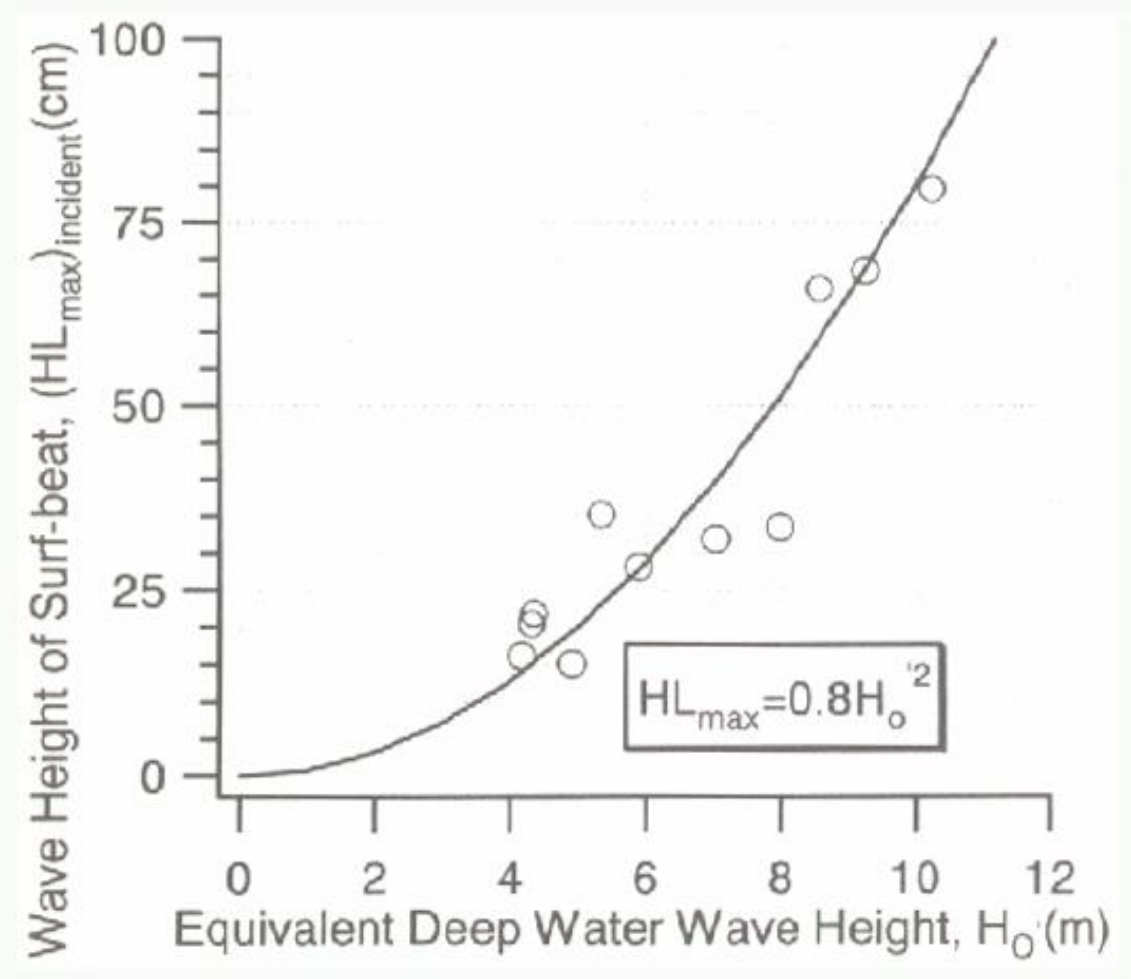
Energy strength of waves on reef flat



Abnormal High Tides Induced by Surf-Beats, ASCE, 27th ICCE, Australia, 2000

Relationship between Surf Beat

wave height and incident wave height



Abnormal High Tides Induced by Surf-Beats, ASCE, 27th ICCE, Australia, 2000

History of shore protection work and the actions of getting back to a natural coast

1960’s

1970-80’s

recently

1980’s

Huge tsunami boulders, Higashi-Henna Cape, Miyako-Jima City, Okinawa, Japan

The coral surrounding the Islands have been acting as a natural breakwater against tsunami.

島は
サンゴ礁によって
守られた？

Special thanks for the coral sea nature around us