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Coastal Zoning Process for Land Protection on Majuro Atoll

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Intergovernmental Panel on Climate Change (IPCC) opened the Fourth Assessment Report to public in May, 2007. In the report of the Working Group1, there is the indication of the following 2 points on the environment of coastal zone. 1) The mean sea-level will increase up to 18-59cm by the end of this century. 2) The strength of the tropical cyclone will be intensified. The report of the Working Group2 showed that coral bleaching will frequently occur because the sea surface temperature will rise up to 1-3 degrees. For example, in particular, atoll islands in the South Pacific, where the highest part is only several meters above the sea-level, will suffer from the risk of inundation due to the sea-level rise. In such islands, countermeasures against the sea-level rise would be quite important.

Our research group went to Tuvalu and Marshall islands in 2005, 2006, 2007,2008 and 2009, and did the field investigation for the measurement of the flow in the lagoon and the investigation of the land use these several years. In this investigation, a decrease in the coastal vegetation was remarkable, and it had been found that a lot of eroded area seen in the decrease region neighborhood. In this paper, it was proposed that the evaluating method for eroded and accumulated area by using geographic information.

Keywords: climate change, atoll, satellite image, landuse