



Interactive  
Comment

## ***Interactive comment on “Updating knowledge of cyclonic wave hazard for Tahiti and Moorea Islands (French Polynesia) through a probabilistic approach” by S. Lecacheux et al.***

### **Anonymous Referee #1**

Received and published: 28 February 2014

Review Lecacheux et al.

The paper presents a re-evaluation of the cyclone-induced wave regime around Tahiti and Moorea Islands. The authors follow a modelling and probabilistic approach, by modelling waves generated along real and virtual cyclone. Virtual cyclones follow spatially shifted real tracks. The scope is to improve knowledge on cyclonic wave hazard around these two islands, since this was poorly known in French Polynesia in general. Besides planning for hazards, the findings are also of interest in sedimentology, hydrodynamics and coral reef ecology.

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I have minor comments on this paper that is well written. The hypotheses are clearly explained, and the computations are sound and relatively straightforward, without much novelty in terms of modelling tools (Wavewatch etc. . .). The amount of modelling (72 hurricanes + their shifted “clones”) is noteworthy

Title: could be more specific than “Updating knowledge of . . .”, more like “Cyclonic wave heights and periods at Tahiti and Moorea Islands coasts following a probabilistic modelling approach”. I use coast and not shoreline, as the wave heights are valid at the level of the forereef and coral reef crests, and not the coastline per se.

References are Ok, may be add Woodruff et al. 2013, Nature, 504:44-52, which is a nice review.

Because Moorea is a heavily studied site regarding the dynamics of its coral reefs (that has been shown to be related to cyclonic wave impacts), I suggest putting in a short appendix the main definitions so that reef ecologists can have a self-standing paper to use. I am sure this paper will be of immediate use to them. In particular, define what are 10 and 100 year wave characteristics.

Check some local names that are inaccurately reported (e.g., Faa, Papea, etc). . . instead of Faaa or Paea)

I would be curious to see the results of the interpolation of the SHOM data around the islands. May be an added figure? Was the set of multibeam data collected in the last 20 years around these islands used (e.g. Zepolyf campaigns)?

I hope a follow up paper on Tuamotu atolls and Austral Islands will be considered (despite a possibly even lower statistical representation due to even less real cyclones).

END OF REVIEW

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 725, 2014.

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