



Interactive  
Comment

## ***Interactive comment on “Sea extreme events during the last millennium in north-east of Morocco” by O. Raji et al.***

**O. Raji et al.**

otmaneraji@gmail.com

Received and published: 23 June 2014

The authors would like to thank you for the valuable comments and suggestions, which will undoubtedly improve our submitted manuscript. All the comments are considered seriously and corresponding corrections will be made in the new version of the manuscript. In the following parts you can find our reply to your comments:

**Abstract** Please mention the number of events identified by this method.

**Re:** Thank you very much for your advice, we have added it.

**Introduction** The introduction part needs to be more elaborated with the general background on similar work. Authors should discuss some relevant previous studies fo-

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



cused on paleostorm reconstruction using sedimentological and geochemical proxies (e.g. Liu et al., 2003, Das et al., 2013).

Re: thanks a lot for your advice, we will check this section carefully and we will improve it taking into account the reviewer's comments.

Study area Is the core collected from the center of the lagoon? If possible, provide the latitude/longitude of the coring site?

Re: this comment was applied.

Result and discussion Sediment source: Author tried to match the elemental composition of the barrier beach sediment with some previous studies, but didn't cite any references. Please add pertinent references.

Re: We have included the explanation in the caption.

Although authors have used a number of geological proxies to identify storm events, but analysis of only one sediment core could underestimate the number of events, occurred in the past 500-600 years. It is always recommended to analyze more than one sediment core to establish the hypothesis. It helps to identify the maximum number of events occurred in the past and to minimize the analytical error.

Re: We agree with the authors that the single core is not sufficient for these types of studies, however we consider that with proxy used we can confidently assume the conclusions in study area. On the other hand, more studies are underway on the area using others cores, the results will be published in future works.

Calculate the recurrence interval or frequency of storm events (Time duration/ numbers of events).

Re: We consider that our preliminary results do not allow us to provide exactly the frequency of storm events to scale of Nador area.

Identification of paleoevents Include the figure number (fig.8).

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



Re: Thank you very much for your advice, we have checked and revised it.

Storm or tsunami events About the use of geochemical signatures to distinguish between tsunami and storm deposits, no study was found.

This line below is suggested to add after the above sentence.

“But it can be suggested that proxy records based on both overwash deposits and geochemical signatures is more sensitive indicator in identifying storm events than overwash deposit alone as it likely record any severe storms that were large enough to cause seawater flooding of the coastal lagoons (Das et al., 2013).”

Re: Thank you for this reference.

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 2079, 2014.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper