Nat. Hazards Earth Syst. Sci. Discuss., 2, C3008–C3010, 2015
www.nat-hazards-earth-syst-sci-discuss.net/2/C3008/2015/

Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "How historical information can improve extreme coastal water levels probability prediction: application to the Xynthia event at La Rochelle (France)" *by* T. Bulteau et al.

E. Bradshaw (Referee)

elizb@bodc.ac.uk

Received and published: 12 January 2015

As mentioned in an email to the editorial team there are several sections of the paper that are outside my area of expertise and I would be uncomfortable reviewing and commenting on. I have however provided some general comments and also more specific comments on the sections where I feel I can comment.

This paper discusses a new method for incorporating historical reports of ex-

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

treme sea level events into standard estimations of extreme water level events from modern observational data and by doing so could have predicted the correct order of magnitude extreme event as the Xynthia event at La Rochelle, France in 2010. The ability to incorporate the historical information as values above a certain level (and not actual recorded levels) increases the span of the dataset available and can prevent recorded extreme events from being classed as outliers. This paper is important as most modern tide gauges only have records of 50 years in length and there are no tide gauge records longer than 100 years in the Arctic, Africa, South America or Antarctica so the ability to incorporate anecdotal evidence would improve extreme sea level prediction in these regions.

1. P7071 L9 states that “The high-est recorded sea-level at high water is 8.01 m Z. H“ but is this the actual highest recorded water level (which may have occurred before or after high water) or the highest recorded water level at the time of high water?

2. P7072 L27 “we can assume that the relative sea-level rise in the La Rochelle area is equal to the absolute global sea-level rise” – this may be valid in this location, but I think it would be advisable to say something about using regional estimations of sea level rise in other locations.

Technical corrections:

1. P7062 L24 “are required for dimensioning coastal defences or within flooding hazard estimations” – It is unclear what is meant by “within flooding hazard estimations”. Is it that the knowledge of extreme WL is required within flooding hazard estimations?

2. P7063 L27 “the hourly WL” to “the maximum hourly WL”

3. P7072 L20 “old harbour dock is identified” to “old harbour dock are identified”

NHESSD

2, C3008–C3010, 2015

4. P7072 L28 “valid on the long range” to “valid over the long term”
5. P7075 L17 “Thus, end of 2009” to “Thus, at the end of 2009”
6. P7077 L10 “Kolmogorov–Smirnov” – unsure as to what this refers. There is no reference.
7. P7078 L9 “before the systematic gaug-ing area” possibly “before the systematic gauging began in the area”
8. P7078 L19 “for raising awareness of decision makers” to “for raising awareness among decision makers”
9. P7081 L13. The reference states the year of publication is 2012 but in the main text it is referred to as Church and White, 2011.
10. P7086 Figure 1. Perhaps the image could be labelled to indicate which site is La Pallice harbour.
11. P7087 Figure 2. The blue extreme event in 2010 is quite faint on the figure. Perhaps some notation on the figure could indicate that this is the Xynthia event?

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 7061, 2014.