

## ***Interactive comment on “Current temporal asymmetry and the role of tides: Nan-Wan Bay vs. the Gulf of Elat” by Yosef Ashkenazy et al.***

### **Anonymous Referee #1**

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### **General comments**

The authors present an observational study into the statistical current properties of two profoundly different bays around the world. In brief, they find similarity in the ranges of spatial and seasonal variability, but large differences in the temporal asymmetries. In my opinion, the paper is in principle clearly written, regarding methods and results. However, to truly appreciate the added value of this study, I think the motivation of the study should be better articulated (including the choice of bays) as well as the wider implications and overall significance of the results.

C1

### **Specific comments**

- **§1, first goal.** The first goal, stated on line 17 of page 2, only seems meaningful because of the outcome. I mean: what if you would have found the opposite results, i.e. different statistics? In my opinion, you could not conclude anything about uniqueness because of the profound differences between the two bays. Please comment on this.
- **§1, choice of bays.** These differences between the two bays appear to be so profound that it is hard to really learn from the results. To avoid the impression of a somewhat artificial choice, I invite the authors to better motivate their choice to compare these two bays.
- **§3.4, asymmetry.** The notation of  $\tau$  seems incorrect. According to Eq.(2), it is a number of time steps, i.e. an integer number. Yet, according to the text it is a time interval, measured in days. What is missing is the conversion by the time step  $\Delta t$  of the time series. Correct would be: time interval  $\tau = N_\tau \Delta t$  with  $N_\tau$  the number of time steps to be used in the summation in Eq.(2). Please correct/clarify.
- **§4, standard deviation.** I think the last statement on p.6 (line 33) is only correct if, in the calculation of the standard deviations per season, the annual mean is used (rather than the mean of that particular season). For example: it is theoretically possible to have zero standard deviations per season (constant values within season, but differing from one season to another), in combination with a nonzero overall (annual) standard deviation. Can you comment on this?
- **§4, summary.** I miss some elaboration on the wider implications of these results. This makes it hard for me to assess the overall significance of the results. Please expand.

C2

### Technical corrections

- Throughout manuscript: please be consistent with 'fall' vs 'autumn'.
- §2.1-2, study regions. Perhaps consider mentioning the form factor  $F$  to quantify the relative importance of diurnal and semidiurnal tides for both basins?
- Page 5, below Eq.(1). Please state that  $x$  represents the random variable (symbol not explained).
- Page 5, line 15. It is not clear that these are three alternatives: I guess *either* (i), (ii) *or* (iii) is used. Further to this, I presume that 'different moments' refers to statistical moments, and I think that 'hazard function' may not be clear to some readers.
- Page 5, line 32: "The asymmetry measure of the current speed. . ." change into "The asymmetry measure  $A$  of the current speed. . ."
- Figures 3, 4, 5, and 7: please include in the caption that these plots are about Nan Wan Bay.
- Figure 5: it is not clear from the figure and caption that the quantity  $A$  is plotted here. Please add.

Anonymous, 6 April 2016

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