

5 April 2019

Comments on resubmission of 'Tidal variability in the Hong Kong region'  
by Devlin et al. (Ocean Science)

This paper is a resubmission of an earlier and longer paper submitted to OSD which discussed tidal changes in the Hong Kong region, and less convincingly, in the South China Sea. I am pleased that the authors considered my suggestion to shorten it and focus on Hong Kong.

I have read it again carefully and I have no doubt that the analysis has been done well at a technical level. However, my main concern is that the text does not read well at all. I have made some suggestions on rewording below.

The second concern, which I mentioned last time, is that the parameters used (TACs and delta-HATs) are simple ones but they are non-standard in tidal literature (unless you are familiar with Devlin's previous papers). They have to be explained therefore. But the paper assumes that the reader has read, or now wants to read, the previous papers. I insist that the paper have an Appendix wherein these two parameters are explained adequately.

As I mentioned last time, I don't have a problem with the TAC parameter. However, I really don't like the name 'approximate delta-HAT' which goes against all common use of the term 'HAT' in tidal literature. As I understand it, it reflects the maximum level that would be obtained in a year from a chosen set of time-dependent amplitudes and phases extracted by the admittance method. So please spell this out in the Appendix.

Detailed comments, many trivial to do with the text:

38 .. tidal variability in the 31-year period 1986-2016.

40/41 ... locations, time series of approximations of the parameter delta-HAT, computed from combinations of the major tidal constituents, are found to be highly sensitive ..

44 - individual tides --> individual tidal constituents

49 - as important --> important in combination with

I really don't think tidal changes will ever be as important as MSL rise but as you say the tidal changes will add to the problem

81 - additional shorter-term

82 - and would imply that flood risk

85 - considered as a substantial complement to

89 - critical interest if all such factors are undergoing change.

At this point you should refer to the Appendix.

95 - as a proxy for what can be described as changes ..

99 - was seen

mmm should be mm m

101 - ok so you have tidal changes and MSL in the extremes, what about non-tidal and non-MSL changes like storm surges?

106 - I have never seen the word metropolises used in English (although it is

correct I think). I would replace 'urban metropolises' with 'areas'

two extensives in this sentence

109 SCS --> South China Sea (SCS)

You define this acronym only at the moment in figure 2 caption

114-116 - this sentence needs rewording. It reads like you do something by doing the something.

122 - the longest record in Table 1 is 1954-2016 which is 63 and not 65 years

123 - you have not yet explained to the reader that station names are accompanied by station codes, so I would drop (QB) here and see below.

129 environment --> geographical setting

131 .. including station name and station code, latitude .... and the ranges of the data records used in this study.

Then add here:

For brevity, we often refer to stations below by their station codes rather than their full names e.g. QB for Quarry Bay.

You use station codes a lot in the text which seems unnecessary to me when it would be much clearer to the reader to use the place names. There is no space shortage here. So, if you were to remove them all and replace with the names then the above sentence would not be needed.

133-137 - I know what you mean here but this sentence is rather a mouthful. Can you split into two? Also the sentence at line 143 'The tidal potential' should come earlier.

142 - 'effects are eliminated'. Why? I don't understand this. They would be eliminated only in an analysis of 18.6 years and would well and truly still be present in a 1-year analysis.

142 - 'may not always hold true'. You could refer to Amin's papers.

144 start a new para at 'The result'

146 ... analysis window (e.g. at mid-year) ..

157 - more apparent in the data sets used here

159 - ... MSL variability (Appendix 1). With the use of the TACs we determine ...

164 .. (delta-HAT) (see Appendix 1).

Start a new para.

167 - mmm should be mm m

174 - The use of a window of a year in a harmonic analysis

181-183 This sentence could come earlier where you mention the Appendix

183 start new para at 'For the'

Here you start using codes in the text. I have no idea what TPK means and I can't be bothered referring all the time to Figure 1

30 years should be 31 (1986-2016)

.. determinations (Table 1).

136 .. in the TAC values over time .. [although I am not sure I understand this. I would reword this and simply say that as the TAC could change over time you have adopted a common epoch for the work]

188 twiddle 12-30 --> 12-31 (Table 1).

199 - I was not provided with the supplement

203 - I believe Victoria Harbour is usually spelt with a 'u'. It would be good to show it on Figure 1.

.. all other gauges except .. moderately negative ...

216 - you add the acronyms in the header at line 200 so do the same in the header here

218 discrete --> particular

drop 'In Hong Kong' Five stations ...

229 - HK --> Hong Kong.

233 - drop 'and we report ..'. Irrelevant.

234 - OT --> overtides (OT)

238 drop 'an additional'

241-242 reword: .. Therefore, all MSL values reported here are given relative to the HKPD for the epoch 1965-1985.

246 drop 'drastically'

249 correlated to --> correlated with

254 though --> although

263 - I don't understand the sentence 'The TACs'. What does it mean that they are present? You mean they are large or what? And you don't actually show delta-HATs but you do show the TACs of the approximate delta-HATs. This all needs rewording.

270 The spatial similarity in the ..

284 - with processes at other frequencies, such as at

292 varies with

293 with the spring-neap

294 drop 'away'

307 forcing of the tides

315 - some records are of shorter length and/or have many gaps, making ..

320 as was

328 perform --> employ

three-dimensional numerical ocean models to simulate the changing impacts on  
330 comma before 'to better'

As I mentioned last time, one limitation of this study is the possibility of instrumental changes in the tide gauges. You don't even mention what sort of gauges they are or what changes there might have been.

351 drop hyphen in sea level. There should be a hyphen only when used as an adjective e.g. sea-level rise.

353 can be positively reinforced by what? by MSL changes?

354 agitate --> aggravate

360-364 these web addresses should have http or https

368 interest --> interests

383/422 - you could just call it SCS if has been defined in the text

figure 1/2 - add extra names as mentioned above

figure 2 - red on dark blue is not good. I would add China.

Taiwan Strait and Luzon are very small and unreadable when printed in A4

Figure 3 etc. - mention again that red/blue is +/-.

Black marks indicate TACs which are not significantly different from zero.

figure 7 - as I understand it this is not delta-HAT but the TAC computed from the approximate delta-HAT time series made from 4 constituents. Right? Please reword the caption to make that clear and not read as jargon. Also you have not defined what delta-HAT4 means in the text.

455 sea-level --> sea level

649 giving the station names and station codes, ... year of the available records, as well as the range of data analysed ..

652 - and 01 over the period 1986-2016.

656 - TACs over the period 1986-2016.

337 TAC --> TACs