

***Interactive comment on “Autonomous seawater  
pCO<sub>2</sub> and pH time series from 40 surface buoys  
and the emergence of anthropogenic trends” by  
Adrienne J. Sutton et al.***

**Anonymous Referee #2**

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Major comment Dr. Sutton and colleagues presented a readily accessible data product of autonomous pCO<sub>2</sub> and pH time series from 40 surface buoys from 2004 in open ocean, coastal and coral reef sites, that exhibit extensive daily and interannual variability. Using a time of trend emergence methodology, they estimated the length of time for an anthropogenic trends in oceanic pCO<sub>2</sub> and pH to emerge from natural variability in the 40 time series. Only at two time series datasets (WHOTS and Stratus), surface oceanic pCO<sub>2</sub> significantly increased. However, pH time series data are too short to estimate long-term anthropogenic trends. In addition, description of pH sensor isn't detailed, compared from pCO<sub>2</sub> sensor [Sutton et al., 2014b]. I cannot confirm post-calibrated and quality-controlled pH data (at NCEI data archive) through comparison

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with in-situ calibration, discrete samples and so on, because pH sensor performance was often limited by biofouling [Bresnahan Jr et al., 2014]. After revising the manuscript to address this comment and the specific comments below, I would support publication of the author's submission.

Minor comments Figure 1 I think that only locations and names of 40 fixed moored time series station map is convenient for readers.

Line 22, Page 7 How long is it necessary for pH time series to determine a robust estimate of IAV?

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