

Interactive comment on “Acoustic Doppler Current Profiler observations in the southern Caspian Sea: shelf currents and flow field off Freidoonkenar Bay, Iran” by P. Ghaffari and V. Chegini

P. Ghaffari and V. Chegini

ghaffari@inco.ac.ir

Received and published: 8 March 2010

We really thank to Referee #2, for his valuable and improving comments on our manuscript, especially regarding his/her Specific Comments. - Concerning the main objective of the study, we tried to sum it up in the last paragraph of the page 3021 and first paragraph of the page 3022. However to achieve a more explicit express we borrow some from referee comments and located it among the manuscript. Therefore the sentences from line 2 to line 4 in the page 3022 will be replacing by following sentence: Main subjects of the study were to characterize the shelf motion and steady current

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field, as well as determining the main driving force of currents within the study area. In this purpose the study was shed some light on the flow pattern of the selected area and explained some of the features encountered along the Iranian shelf.

- Although the term “motive force” are utilized in a few number of Oceanographic articles like as: 1- Elsevier Oceanography Series Volume 2. Chapter 2, Page 27.

2- C. D. Winant. Coastal Circulation and Wind-Induced Currents. Annual Review Fluid Mechanics, 1980, Vol: 12; 271-301.

3- G. T. Csanady. Hydrodynamics of Large Lakes. Annual Review Fluid Mechanics, 1983, Vol: 7; 357-386.

4- C. Garret et al. Boundary Mixing and Arrested Ekman Layers: Rotating Stratified Flow Near a Sloping Boundary. Annual Review Fluid Mechanics, 1993, Vol: 25; 291-323.

And others, but in agreement with referee the following modifications will be applied: Page 3020, line 7: the sentence The lasting regular sea breeze system is present almost throughout the year that performs motive force in diurnal and semi-diurnal bands similar to tides in other regions. Will be replaced as follow: The lasting regular sea breeze system is present almost throughout the year. This system performs the forcing in diurnal and semi-diurnal bands similar to tides in other regions. Page 3028, line 24: motive force will be substituted by forcing. Page 3037, line 24: motive force will be substituted by forcing system.

- The quantified estimation of sea breeze input in the coastal system tried to be addressed in page 3028, lines 16 to 20 and Table 1 comprises some statistics regarding sea breeze. In addition we would like to add another table containing some wind stress statistics interpreting wind based energy little bit more. Table 2. Mean variance and range of wind stress

As Attachment

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- In section 5 Conclusion Remarks, the last paragraph will be modified as follow: These findings confirm that in the shallow coastal waters off FB, two modes of motion could be distinguishable: first, high frequency motions (0.042 cph and higher), are mainly proportional to the sea breeze system and dominant in cross-shore direction. Second, low frequency motions located at synoptic weather bands in alongshore orientation. The low frequency motions are related to synoptic variability of the direct and remote wind impacts and shelf-controlled long-period wave currents. We think the conventional concept (direct wind-induced currents are dominate in the closed systems), is not sufficient to illustrate properly the complicate flow field in the southern part of the CS. Apparently the long-period wave currents, whose velocities are much greater than the direct wind-driven ones, are responsible for the major part of flow field variations. All this shows the need for detailed theoretical studies (coupled with field surveys and numerical models) of the flow field in the southern CS.

- The Technical Corrections and some more which we got them previously from others definitely will be applied to the manuscript in final version.

Best Regards P.Ghaffari

Please also note the supplement to this comment:

<http://www.ocean-sci-discuss.net/6/C1133/2010/osd-6-C1133-2010-supplement.pdf>

Interactive comment on Ocean Sci. Discuss., 6, 3019, 2009.