

Interactive comment on “Geodynamical processes in the channel connecting the two lobes of the Large Aral Sea” by E. Roget et al.

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First of all, we would like thank the anonymous reviewer for complementing our view of the evolution of the channel with an insider's view.

However, at present we believe that it is difficult to directly link the existence of the straight with the faults in the region, although it would be an interesting point to consider in the future. Accordingly, after the paragraph introduced thanks to a first reviewer in which it is written “It is indeed possible that during the present shrinking period, bottom erosion in the channel has been acting upon its previous historical bed, which was later buried by sediment”, we wish to add: “Tectonics of the region might also have played a role in the formation and localization of the channel. According to some

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geological data, there is a system of tectonic faults passing through Chernyshev Bay and the former Tschebas Bay and oriented from northwest to southeast, not far from the location of the channel (e.g., Rubanov et al., 1987). Oberhänsli et al. (2007) have shown that during the Bronze Age shifts in the water courses may have been due to tectonic dynamics in the lower Amu Darya river valley”.

Now we would like to consider the reviewer's comments about the work of Dr. Nourgaliev's team: On page 5, after “...according to the old bathymetry, although the strait connecting the eastern and western lobes should have disappeared by 2005, it is still there (line 2)”, we are glad to add: “Furthermore, in situ hydrographic measurements (Zavialov, 2005) and seismic profiles (Nourgaliev's personal communication to Zavialov, 2005), both recorded in August 2004, showed that within a transversal section on the westernmost side of the channel, there was a central region where the total depth was about 7 m.”

Following to the reviewer's recommendation, we will merge figures 2 and 8 and their references in the text will be modified. Also we agree with the reviewer that it's worthwhile to give the coordinates of the cross section represented in figure 6. This will be done in the revised version of the paper.

A close-up of the bathymetry at the western outflow region of the channel – according to the map developed previous to the present shrinking episode – was already given in figure 7 where the bathymetric levels below 24.3 m.a.s.l. (5.8 m ABOVE (sorry for this mistake) the surface level during the campaign) are given with a resolution of 0.5 m down to 5 m depth.. However, we have attached a figure (delta.jpg) containing a wider close-up of the northern part of the channel – taking as a reference the surface level recorded during the 2005 field campaigns – which moves further into the Chernyshov Bay, into a region with a total depth of 14 m. Within this figure (the right-hand figure in delta.jpg) – with an even smaller resolution than figure 7 – the blue squared frame shows the region that coincides with that within the blue frame which is now also drawn on figure 7, included on the left-hand side of the figure in delta.jpg. As observed, there

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is no deltaic feature. This is as we expected, considering that the bed erosion of the channel has started to play a crucial role in the present shrinking episode and the bathymetry was developed before the shrinking period. However, we would not like to include this discussion in the paper.

Table 1 will be removed and the information it provides will be given in the caption of figure 2 and in the text.

Finally, as we believe that it's worthwhile to consider the historical role that tectonics might have played in the existence of this channel, we are including this possibility within the text. And in the acknowledgments section we would also like to thank this anonymous reviewer for his/her contribution.

Elena Roget in name of all co-authors

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 5279, 2009.

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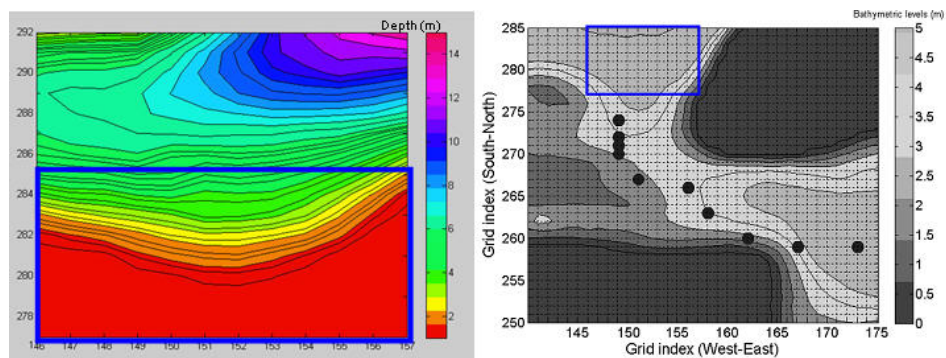


Fig. 1. Close up of the bathymetry at the western outflow region of the channel (see response to reviewer 2)

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