

Review Form 1.7

Journal Name:	Journal of Advances in Mathematics and Computer Science
Manuscript Number:	Ms_JAMCS_110711
Title of the Manuscript:	Water Wave Solutions Obtained by Hamilton’s Principle
Type of the Article	

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Compulsory REVISION comments</p> <p>1. Is the manuscript important for scientific community? (Please write few sentences on this manuscript)</p> <p>2. Is the title of the article suitable? (If not please suggest an alternative title)</p> <p>3. Is the abstract of the article comprehensive?</p> <p>4. Are subsections and structure of the manuscript appropriate?</p> <p>5. Do you think the manuscript is scientifically correct?</p> <p>6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.</p> <p><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></p>	<p>1. In the manuscript, the authors consider the water wave problem in 2D under the assumption of potential flow over flat bottom. They derive an asymptotic expansion of the Lagrangian of the problem in terms of the dispersion parameter which is assumed to be small and consider waves that vary slowly in time. By invoking the variational principle, the simplified equations can be solved analytically.</p> <p>2. I would propose to add the word “Simplified” in front of the title</p> <p>3. Yes, but the English must be improved.</p> <p>4. Yes.</p> <p>5. The analysis up to Eq. 30 seems correct. My major concern is about the solution of Eq. 30. The solution in Eq. 31 is correct, but is it the only solution? Adopting Eq. 31 and Eq. 32 as the expressions of coordinates and velocities we see that these go to zero as time goes to infinity. Does this mean that both the free surface elevation and velocity vanish? In this is the case, then the total energy also vanishes. This is in contrast with the fact that in the present problem the total energy (Hamiltonian) should be conserved. I believe that the authors should comment on this issue.</p> <p>In equation</p> <div><div><div><div></div><div></div><div></div></div><div></div></div></div> <p>η_j are not defined.</p> <p>After Eq. (25), the order should be $O(\mu^8)$.</p> <p>6. I believe there are some recent references that could be mentioned due to their relation with the studied problem.</p> <p>There are several works that use Luke's variational principle to derive model equations that should be mentioned. E.g.</p> <p>Whitam 1967, Variational methods and applications to water waves <i>Proc. R. Soc. Lond. A</i> 2996–25</p> <p>M. Isobe, Time-dependent mild-slope equations for random waves, Proceedings of 24th International Conference on Coastal Engineering, ASCE, 285–299, 1994.</p> <p>Ch.E. Papoutsellis, A.G. Charalampopoulos, G.A. Athanassoulis, Implementation of a fully nonlinear Hamiltonian Coupled-Mode Theory, and application to solitary wave problems over bathymetry, European Journal of Mechanics - B/Fluids, Volume 72, 2018,</p> <p>Also, expressions that generalise the one in Eq. (23), have been studied in</p> <p>Athanassoulis GA, Papoutsellis ChE. 2017 Exact semi-separation of variables in</p>	

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	waveguides with non-planarboundaries.Proc.R.Soc.A473: 20170017.http://dx.doi.org/10.1098/rspa.2017.0017	
Minor REVISION comments 1. Is language/English quality of the article suitable for scholarly communications?	1. No, the English quality must be improved.	
Optional/General comments	The presentation of the computations must be written in a more clear and easy-to-follow way.	

PART 2:

	Reviewer’s comment	Author’s comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	(If yes, Kindly please write down the ethical issues here in details)	

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