

## ***Interactive comment on “Combining high-resolution satellite images and altimetry to estimate the volume of small lakes” by F. Baup et al.***

**F. Baup et al.**

frederic.baup@cesbio.cnes.fr

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Dear Anas Ghadouani,

Please find enclosed a revised version of our manuscript and our responses to the Referees. We have taken into account all their constructive comments to improve the quality of the manuscript. We paid a special attention to their comments on the generalization of this study to other small lakes. We modified abstract, introduction and added part “4.4 Discussion” to make this important aspect appears clearly. We widely modified the description of the radar altimetry processing, adding a new figure

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(Figure 7) to help the reader in understanding how were chosen the valid altimeter heights. We also strengthen the validation of the lake surface using high resolution images part, adding here too, a new figure (Figure 8).

The major changes to the text and figure captions appear in red in the new version of the manuscript.

Unfortunately, there is one question of Referee 1 we do not understand: “SAR+Optical Images: What are the theoretical estimates on a real estimation? Is there a method of determining this? Optical (cloud detection, atmospheric correction, resolution), SAR (backscatter, geo-referencing, speckle filtering, resolution)”. We would do our best to answer it once reformulated.

We hope these modifications will satisfy the Referees comments.

We are looking forward to hearing from you.

Sincerely yours,

Frédéric Baup, Frédéric Frappart, Jérôme Maubant

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/10/C8188/2014/hessd-10-C8188-2014-supplement.pdf>

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Combining high-resolution satellite images and altimetry to estimate the volume of small lakes

Frédéric BAUP<sup>1</sup>, Frédéric FRAPPART<sup>2,3,4</sup>, Jérôme MAUBANT<sup>1,2,5</sup>

- [1] Centre d'Études de la Biosphère (CESBIO), UMR5126, IRD – CNES – OMP – INSU - Université de Toulouse, 24 rue d'Embaquès, 32000 Auch, France
- [2] Géosciences Environnement Toulouse (GET), UMR5563, OMP, Université de Toulouse, CNRS, IRD, 14 avenue Edouard Belin, 31400 Toulouse, France
- [3] Laboratoire d'Études en Géophysique et Océanographie Spatiales (LEGOS), UMR5566, Observatoire de Midi-Pyrénées, Université de Toulouse, CNES, CNRS, IRD, 14 avenue Edouard Belin, 31400 Toulouse, France
- [4] Groupe de Recherche en Géodésie Spatiale (GRGS), France
- [5] École Supérieure des Géomètres et Topographes (ESGT), 1 boulevard Pythagore, 72 000 le Mans France

Correspondence to: Frédéric Baup (frederic.baup@cesbio.cnrs.fr)

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Fig. 1.

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