

Interactive comment on “The importance of Atmospheric Correction for Airborne Hyperspectral Remote Sensing of Shallow Waters. Application to Depth Estimation” by Elena Castillo-López et al.

Anonymous Referee #3

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<General Comments>

The topic is interesting and from an engineering point of view, the technique is important. I have the following general comments

(1) The authors mentioned “to assess the best atmospheric correction method”. 4 methods are described in page 4. However, error values between 4 methods are not well described.

(2) Geometry of the sun position, viewing direction, and observation point is critical for radiative transfer but it is not described well.

(3) Scope of AMT is measurement of gases, aerosols, and clouds of the Earth's atmosphere. But the paper describe atmospheric correction

(4) Estimated water depth and validated data should be compared clearly and presented in a figure or a table.

(5) Figures and their captions are not consistent. I recommend to submit another journal or resubmit the manuscript by describing radiative transfer of the water and atmosphere and estimating error analysis in more detail.

<Specific Comments>

(1) Page 2, line 25, ozone ozone absorption has strong spectral dependency. The incident solar light to the surface is also affected by ozone absorption.

(2) Page 4, line 8, incident light sensor (ILS) Description of the incident light sensor is needed.

(3) Page 7, line 14, NNDD Definition of NNDD should be described.

(4) Page 12, Figure 3, Y axis "top of atmosphere reflectance": Usually reflectance is between 0 and 100%. Values look strange. The caption is "NNDD" but figure shows reflectance.

(5) Page 13, Figure 4 The figure shows NNDD but the caption is "CTI".

(6) Pages 13 and 14, Figures 4, 5, 6, and 7 What is the unit of CTI? Definition or description of X axis "range" is needed. Explanation of linear lines is needed.

<Technical Corrections>

(1) Page 2, line 10, $K_u = K_d > K_u = -K_d$ or Line 9 Eq $K_d - K_{Fu} > K_d + K_u$

(2) Page 12, figure 2 There is no (a) (b) and (c) in the figure. The second photos looks like (c).

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