

**Customer Alert:**  
**Notice of Clarification of ECO  $b_b$  angle nomenclature**  
**April 29, 2014**

WET Labs is correcting an error in our literature. ECO single channel backscattering instruments as built and calibrated have a physical centroid angle of  $120^\circ$ . The effective in-water centroid angle that accounts for the ECO backscattering sensor's instrument specific weighting function is  $124^\circ$ . Our literature that refers to a backscattering angle of  $117^\circ$  for the instrument was incorrect.

**WET Labs' Actions:**

All WET Labs' literature that refers to the  $117^\circ$  angle with respect to the ECO backscattering instrument is being updated to reflect the fact that the in-water angle is  $124^\circ$ . All references in our literature to the  $117^\circ$  angle with respect to the VSF of water and natural particle populations as discussed in Boss and Pegau, 2001 are correct.

**Instruments Affected:**

The literature for WET Labs' single and three channel ECO backscattering sensors with the LED source bore paired with the backscattering detector, i.e. the ECO bb, ECO bb3 and ECO Triplet-w.

The backscattering instruments where the backscattering and chlorophyll sensors use the same detector are not affected.

We anticipate completing our literature update in this respect by July, 2013.

**Customer Actions:**

All weighting functions and calibrations provided with our instruments are correct with respect to the  $124^\circ$  angle, therefore where data from the instruments was converted to the backscattering coefficient using the WET Labs calibration no data reprocessing is necessary.

Where clients have referred to the instruments backscattering angle as  $117^\circ$  the reference should be changed to  $124^\circ$ .

With respect to comparisons to other data sets, the difference between  $117^\circ$  and  $124^\circ$  for water and natural particle populations should be on the same order as the uncertainties inherent in the instrument and method and should not affect derived parameters, inferences or conclusions.

**Future Actions:**

WET Labs does not anticipate future actions in this regard.

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**References:**

J. M. Sullivan, M.S. Twardowski, J.R.V. Zaneveld and C. C. Moore, Chapter 6, Measuring optical backscattering in water,. In: A.A. Kokhanovsky ed. *Light Scattering Reviews 7: Radiative Transfer and Optical Properties of Atmosphere and Underlying Surface*, S Praxis Books, DOI 10.1007/978-3-642-21907-8\_6, © Springer-Verlag Berlin Heidelberg 2013

E. Boss and W. S. Pegau, “Relationship of light scattering at an angle in the backward direction to the backscattering coefficient,” *Applied Optics*. 40 (30):5503–5507 (2001).

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