While working on a complete uncertainty budget for MOBY, we have recently determined that the depth reference point on the buoy that has been used for MOBY data reduction is not correct. A better estimate of the depth would add 24.5 cm ±5 cm to the depth of the top arm, effectively increasing the derived Lw and Lwn. We can look at the effect of this offset in several ways.

We averaged the KLu (1-5m) for a recent deployment, and used this average to determine the ratio between the data with this factor to without. Figure 1 below shows the multiplicative factor (black line) with red lines illustrating the correction with ±5 cm to this offset. The blue line corresponds to the axis on the right, and is the uncertainty range in the ratio for the full 10cm between the high and low estimate of depth.

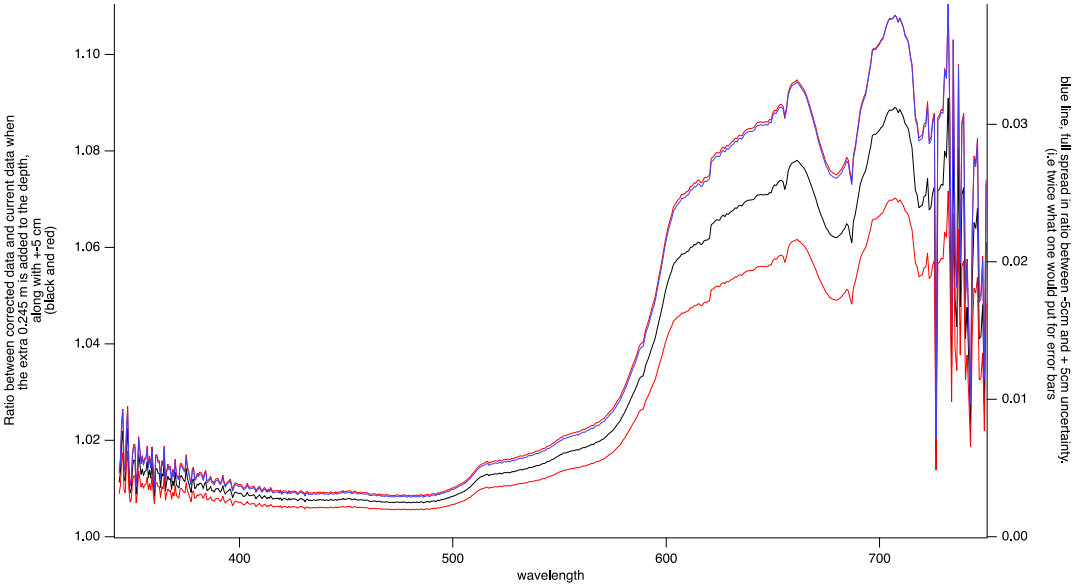


*Figure 1) Ratio between data with the 24.5 cm offset to top arm depth over that without and the effect of a ±5 cm error in this estimate of the offset.*

As can be seen, the factor is very small in the blue wavelengths, and only starts to become significant above 550 nm. It is fairly large at 600 nm and above. The uncertainty due to the ±5 cm is small relative to the correction factor.

Another way to look at this effect on specific satellite channels is to look at the correction for the VIIRS bands when applied to the data from several deployments. Figure 2, below shows the ratio of the post correction/pre correction for several MOBY deployments and the VIIRS channels. The correction is less than 1% for the blue VIIRS channels, less than 2% for the 550 nm channel, and approximately 5% for the channel at 670 nm.

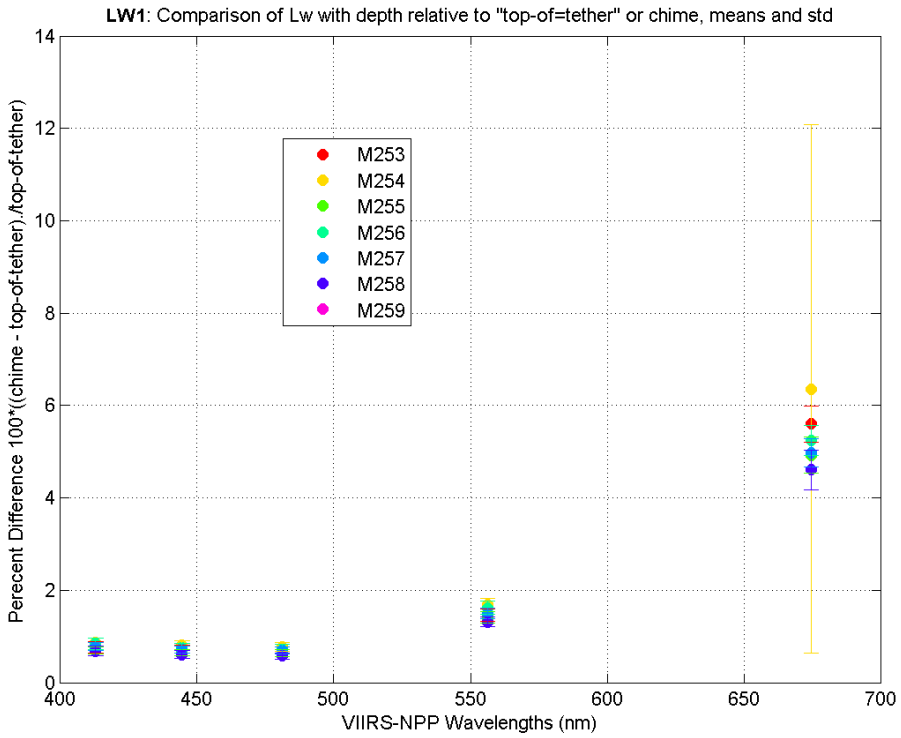


*Figure 2) Percent difference between Lw1 calculated with the current estimate of depth and the new value including the 24.5 cm offset, for several recent depolyments.*