M254 Status

We will be releasing the newest MOBY data, probably on Monday January 27, 2014 to the normal sites. Data will be available from the beginning of this newest deployment on January 7th. We have been watching and evaluating the data since the beginning of this deployment. There is an issue that I will describe below, which may cause "good day" Lw1, and nLw1, product to be depressed by up to 0.5%. We are actively working on understanding this issue, which is described below.

The Problem: It appears at random times, even in cases of very clear weather, that LuMid is too high relative to the LuTop and LuBot radiances. Problems in the Lu data are identifiable in several ways, but is evident when looking at the KL's derived from the three arms, where KL (Top-mid) appears too low, while KL(mid-bot) appears too high relative to KL(top-bot) by the same amount. So far, in the cases we have seen, the offset in KL appears spectrally independent.

Our Actions:

1) We are working on scheduling a diver to go to the site and investigate the situation.

2) We are placing a cap on the accepted deviation, in the blue wavelengths, for the variation between KL(top-mid) and KL(mid-bot) of 0.01 for the good data. This will cap the possible underestimate of Lw1 and nLw1 to 0.5% at all wavelengths due to this error, as we understand it.

3) We will mark as "questionable" data for which every other indication indicates that this would be "good" data, but the deviation of KL(top-mid) and KL(mid-bot) is >0.01. In the questionable data we are removing the Lw1 and nLw1 data from 350 to 580 nm, and totally removing the Lw7 and nLw7 data from the file. The Lw7 and nLw7 product is based on LuMid, thus would not be a good product in this case.

4) We are continuing to work on understanding the problem and correct it.

Our Suggestions for this deployment:

There are structural differences in the various KL's above 575nm that increase rapidly with increasing wavelengths due to Raman scattering, but for wavelengths below 575 nm, the KL's we can derive, in a homogeneous water column, should be consistent and equal, thus KL(top –bottom) is most accurate below 575 nm.

 So:

a) Lw1 or nLw1 for all wavelengths with good data could be underestimated by 0.5%.

b) If you are only concerned with wavelengths <580 nm use the Lw2 or nLw2 product (or with satellite bandwidths that do not go significantly above 575nm). For these wavelengths, the Lw2 or nLw2 product, which uses KL(top-bottom),

would be the most accurate, and should not have a problem even with the data marked questionable.

c) for wavelengths >580 nm use the current Lw1 or nLw1 product which will still be the most accurate for these wavelengths.  This is a better approximation for KL from 0-1m at these wavelengths then the other KL's.

Note that we are working on an improved product for wavelengths above 575nm, where Raman scattering and Chl Fluorescence have a significant effect.  I am hoping to have this improved product available by the summer (with associated publication/documentation).