

## **Proposed publication agenda for MOBY project**

We have been reviewing the data and material we have generated over the last several years with a view toward identifying opportunities for publishing some of the data and results in archival publications. The goal is to generate appropriate archival references for the MOBY instrument as a public record for all the data sets that have been obtained over the last decade. While there has been considerable work and documentation over the course of time we feel that some additional work will be necessary to finalize the material needed for publication in archival journals.

Outlined below are three efforts that will hopefully result in at least 3 archival publications in the next year or so as time and resources are made available.

### **1) Document the Resonon instruments**

The report that was generated for NASA as a requirement for the funding of the instruments can be a basis for an archival paper. We feel there is some additional data needed to complete the documentation of the instruments for a publication as well as our future planning for their use. These perceived needs are listed next in no particular order of importance;

- a) Short term stability;
- b) long term repeatability/stability; and
- c) verification by measuring a known source.
- d) redo the “Wiggle” test to check the instrument stability with fiber movement.
- e) dark tests to look at variability of darks (temperature read out would be helpful)

Measuring a controlled source such as sphere that is monitored for stability can check the spectrograph stability. The short-term information would be a measure of the stability of the instrument over periods of a few hours after initial warm up. Measurements to give noise levels of the system by repeated measurements over a number of data cycles can be compiled. Any drifting or other changes can be noted.

These measurements can be repeated every few days from a cold start to see how the system repeats itself in a laboratory environment. We will have to decide on what length of time to pursue this but a few weeks would seem adequate. As a part of this effort, the instrument measurement setup could be taken down and reassembled to try and show repeatability of the use of the instruments.

Verification could be pursued by using the Resonons to make absolute measurement of a known source that may have been calibrated elsewhere. For example if FASCAL could calibrate an LED or other source then the Resonon spectrographs could be directly verified. It would seem

desirable to have some non-Planckian sources that have adequate blue signal to test the instrument SLC better in the critical blue region. It might be possible to use the instruments to measure a known reflectance and a known irradiance source. The details of which and how this is done can be determined later once a lab and person to do the work are identified.

We need input on all these proposed experiments and make an effort to be efficient about it in order to get the information needed with minimal disruption of everyone's busy schedules.

## **2) 2008 SIRCUS calibration of MOBY's spectrographs (MOS)**

The 2009 paper by Feinholz, et al. analyzed the previous SIRCUS calibration and discussed the Zong method of SLC using the matrix approach. This new proposed paper would reference this paper and primarily discuss what the differences are between the two calibrations and try and explain the impact any changes might have on the data sets. Some of the data has been worked up but Stephanie is still working on completing the analysis. There was data taken on various heads and we need to explore all of that to see what is relevant. An effort would be made to give an uncertainty analysis of the SLC and the impact on the overall data.

We will have to confer and organize the data to ascertain the most efficient way forward. At this point Al and Stephanie can confer and see if they can arrive at a suggested strategy to move forward.

## **3) Archived paper for MOBY**

MOBY has been described in some detail in the NASA TMs on Ocean Optics Protocols for Satellite Ocean Color Sensor Validation. While this is a very useful publication for the NASA community, it does not have widespread availability and is not necessarily a part of the science citation effort and hence may not have received the awareness within the larger community that is desirable for an instrument of its importance. We can decide at a later time what journal might be the most appropriate but would probably be a journal like Applied Optics or a suitable journal in the oceanographic community. The TM papers can be used as a basis for this paper and updated with newer work on the SLC and other issues.

It would be good to have a consensus on these goals for the MOBY group and hence comment and suggestions from everyone would be most useful.