**Air sampling of coccoliths tentative protocol January 2020**

Paty Matrai, Bigelow Laboratory for Ocean Sciences

First, note that we have not attempted this type of sampling before.

I have adapted a standard aerosol sampling to allow collection of lith samples that can be observed and quantified similarly to marine lith samples analyzed by the Balch lab.

Supplies: (all sent, except flow meter hand carried by Balch lab)

HA filters, 25mm

25mm Filter impactor/holder (careful not to lose the SS support screen) (URG-2000-25F)

Impactor removal tool (URG-2000-25E)

Clean plastic tubing

Flow meter and connectors (Dwyer series RM, 10-100 SCFH w/ SS valve)

Vacuum pump (SKC BioLite+ high-volume, 115V)

Multiple outlet power strip

Microscope slides and cover slips (I think)

Not included:

Tubing connectors; extension cord; zip ties

- Find a place on deck (any deck) towards the bow as much as possible to attach the filter holder; place it facing downwards

- Find the best route for the tubing to connect to the pump, which only needs an electrical outlet; the length of tubing is not important for the sampling, though it will be a limiting step for the location of the pump

- Place the flow meter either between the pump air inlet and the sampler or after the pump air outlet. You will want to write the flow. The pump can pull 0-60L/min; the flow meter can read 10-100 SCFH = ~5-47L/min. I would set the pump flow adjust to read about half-way of the flow meter scale. That way it is easy to tell if the filter is “blocked” (=wet, frozen, other)

- Place an HA filter in the filter holder and close it

- Fill in log sheet with date, time start, lat, lon, flow

- Start pump and let it run for 24h (the first time)

**Now, the big unknown is to where/when to sample and for how long.**

I would prioritize stations, transects where/when coccolithophores are present in the water.

I would sample for a minimum of 24h and a maximum of 72h (assuming you are more or less in a region of similar characteristics). I’d rather have fewer samples with liths, even if it takes long.

- Fill in log sheet with details of end of sampling

- turn pump off

- Remove filter housing and bring to lab

- Ask Dave D. or Barney B. how to process the filter for coccolith biorefringency. They have the supplies and the protocol to process the samples. Please check after prep to see if any liths are present (?), whether 24h is long enough (if not, lengthen another 24h). **THANKS!!**

**LOG FOR ATMOSPHERIC LITH SAMPLES – BALCH SOUTHERN OCEAN CRUISE**

**P. MATRAI**

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| **SAMPLE #** | **DATE** | **TIME**  Local? UTC? | **LAT** | **LON** | **FLOW**  [SCFH?] |  | **COMMENTS** |
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