

### Dispenser Calibration

- Calibrate about every year.
  - If cruises back-to-back, no need to calibrate in between them.
- Only calibrate the 10 mL dispenser.
- Record the S/N of the dispenser, balance, air thermometer, and water thermometer.
- Rinse inside of dispenser and let fully dry before calibration.
- Fill a 500 mL beaker with DIW and place a thermometer in.
- Use another thermometer to measure air temperature.
- Prime the dispenser (ensuring no air bubbles in tubing).
- Place a clean and dry 100 mL beaker on a METTLER TOLEDO analytical balance.
  - Record weight of the beaker. DON'T TARE.
- Using the dispenser, transfer 10 mL of DIW into the 100 mL beaker on the balance.
  - Make sure last drop goes in.
- Record weight of beaker + water, air temperature, and water temperature.
- Repeat 10 times.
- Note: Virginia Key barometric pressure is 1013.2 mb.

### CALCULATIONS

**A.  $rw$**  =  $0.999842594 + 0.00006793952 * (\text{temperature}) - 0.00000909529 * (\text{temperature})^2 + 0.0000001001685 * (\text{temperature})^3 - 0.000000001120083 * (\text{temperature})^4 + 0.000000000006536332 * (\text{temperature})^5$

**B. Vol (@RT)** =  $(\text{buoyancy correction}) * ((\text{beaker weight} + \text{water weight}) - (\text{beaker weight})) / (rw)$   
buoyancy correction = 1.00105

**C. Vol (20C)** =  $(\text{Vol (@RT)}) * (1 + 0.00001 * (20 - (\text{temperature})))$