Determining Atmospheric Deposition of Trace Elements to the Ocean/Ice System of the Arctic

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SCIENTIFIC OBJECTIVES:

The ability to readily derive ^{7}Be flux from the ocean/ice inventory provides the means to link the chemical concentration data of precipitation and aerosols to flux. I will propose to utilize the ^{7}Be inventory of the water column, ice, snow and melt ponds and the ^{7}Be concentration of aerosols to provide estimates of the atmospheric deposition of trace elements into the Arctic system, and evaluate the partitioning of ^{7}Be and trace elements between the ice/snow and the open water.

SAMPLE NEEDS:

For each station:

1) We have established a pumping protocol to analyze water samples of 700L for ^{7}Be. Seven depths will be sampled, to a depth of ~ 100m.

2) We will analyze several liters of snow for ^{7}Be.

3) We will analyze ~ 50 L melt pond water for ^{7}Be.

4) We will analyze 3 of the Landing high volume aerosol samples (of total 12) non-destructively for ^{7}Be.

5) We will analyze, non-destructively, aliquots of water suspended particle matter for ^{7}Be.

ANTICIPATED SCIENTIFIC COLLABORATORS:

1) PIs collecting and analyzing aerosol samples for trace elements.

2) PIs collecting and analyzing water column suspended particle matter.

3) PIs collecting and analyzing snow, ice, and melt pond samples for trace elements

BERTHS and LOGISTICS

We anticipate that the protocols for pumping will be similar to those used during the Peru-Tahiti GEOTRCES leg. In addition, time will be required for ice sampling (snow, ice, melt-ponds). For these activities, one -two berths will be required.