

XIII. Radioactive Materials

Section XIII of the 2007-2008 season plans lists the radioactive materials to be used and provides information regarding their form, nuclide, site, and specific use.

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
B-002-N	³ H ³⁵ S ¹⁴ C	³ H - Leucine ³⁵ S - Methionine ¹⁴ C - DMSO ³⁵ S - DMSP ¹⁴ C - DMSP	R/V <i>Nathaniel B. Palmer</i>	Impact of solar radiation and nutrients on biogeochemical cycling of DMSP and DMS in the Ross Sea
B-016-L	¹⁴ C	¹⁴ C - Sodium Bicarbonate	Palmer Station, R/V <i>Laurence M. Gould</i>	Palmer, Antarctica Long Term Ecological Research Project: Climate Migration, Ecological Response, and Teleconnections in an Ice-Dominated Environment (Phytoplankton Group)
B-045-P/L	³ H	³ H - Thymidine/Leucine	Palmer Station R/V <i>Laurence M. Gould</i>	Palmer, Antarctica Long Term Ecological Research Project: Climate Migration, Ecological Response, and Teleconnections in an Ice-Dominated Environment

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B-047-N	¹⁴ C	¹⁴ C – Sodium Bicarbonate	<i>Nathaniel B. Palmer</i>	Study to determine the influence of UV radiation of phytoplankton growth rates
B-050-L	¹⁴ C	¹⁴ C-Sodium Bicarbonate	<i>Laurence M. Gould</i>	Study of the influence of UV radiation on phytoplankton growth rates
B-228-N	¹⁴ C ³ H ⁵⁵ Fe	¹⁴ C-Sodium Bicarbonate ¹⁴ C-Leucine ³ H-Thymidine ⁵⁵ Fe- Ferrous Chloride ¹⁴ C-Glucose	<i>Nathaniel B. Palmer</i>	Study of growth rates, metabolism, and the influence of iron availability on phytoplankton communities
B-195-M	¹⁴ C ³⁵ S	¹⁴ C – Sodium Bicarbonate ¹⁴ C – Acetate ¹⁴ C – Methane ³⁵ S – Sodium sulfate	McMurdo Station	Collaborative Research: Microbial Diversity and Function in the Permanently Ice-Covered Lakes of the McMurdo Dry Valleys, Antarctica
B-200-N	³ H	³ H - Thymidine/Leucine	<i>R/V Nathaniel B. Palmer</i>	Interactive effect of UV vertical mixing on phytoplankton and bacterial productivity of Ross Sea Phaeocystis bloom
B-203-N	¹⁴ C	¹⁴ C - Bicarbonate	<i>R/V Nathaniel B. Palmer</i>	Interactive effects of UV and vertical mixing and phytoplankton and bacterioplankton in the

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				Ross Sea
B-272-N	¹⁴ C	¹⁴ C - Bicarbonate	<i>Nathaniel B. Palmer</i>	Study of the influence of UV radiation on phytoplankton growth rates
B-386-N	¹⁴ C	¹⁴ C - Sodium Bicarbonate	<i>R/V Nathaniel B. Palmer</i>	Study of the influence of UV radiation on phytoplankton growth rates
B-422-M	¹⁴ C ³ H ¹⁴ C ³ H ¹⁴ C	¹⁴ C –Sodium carbonate ¹⁴ C – Toluene ³ H – Thymidine ³ H – Toluene ¹⁴ C – Bicarbonate ³ H –Leucine ¹⁴ C - Leucine ¹⁴ C - Acetate ¹⁴ C - Glucose	McMurdo Station/Dry Valleys	The Role of Natural Legacy on Ecosystem Function and Structure in a Polar Desert.
O-215-N	⁶³ Ni	⁶³ Ni – Foil	<i>R/V Nathaniel B. Palmer</i>	ANSLOPE - Cross slope exchanges at the Antarctic Slope Front (source is inside an electron capture detector of a gas chromatograph)
O-257-S	⁶³ Ni	⁶³ Ni – Foil	South Pole Station	South Pole Monitoring for Climatic Change -- U.S. Department of Commerce NOAA Climate Monitoring and Diagnostic Laboratory (source is

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				inside an electron capture detector of a gas chromatograph)
O-398-N	⁵⁷ Co	⁵⁷ Co – cobalamin (Vitamin B-12)	R/V <i>Nathaniel B. Palmer</i>	Study of the influence of UV radiation and carbon dioxide concentrations in seawater on various enzymes of phytoplankton origin
B-024-M	³ H	³ H - Water	McMurdo Station	
B-069-M	⁴⁵ Ca	⁴⁵ Ca - Calcium	McMurdo Station	
B-234-M	¹⁴ C ³ H	¹⁴ C - Sodium Bicarbonate ³ H - Thymidine	McMurdo Station	
G-091-M	¹³⁷ Cs ²⁴¹ AmBe	¹³⁷ Cs - Sealed Source ²⁴¹ AmBe - Sealed Source	McMurdo Station	
I-153-M	²⁴¹ Am	²⁴¹ Am - Sealed Source	McMurdo	
B-022-P	³ H ¹⁴ C	³ H - Tryptophan ¹⁴ C - Tryptophan	Palmer Station	