

*2004 Abstract Form – Internal-Only Projects (no external funding).
Deadline for Abstract submission is 8:00 a.m. on June 23rd.*

Abstract Form

NOTE: Continuing Projects should enter the internal project number **and** use the project title from the previous year.

Project Number:	600125, 600026, 600027, 600031, 900245, 900389, 900393
External Project Number:	700125, 708125
Project Title:	MOOS Program
Project Manager:	Keith Raybould
Lead Scientist:	John Ryan
Lead Engineer:	Mark Chaffey

Project Description MOOS Program 2004:

In 2004, the MOOS mooring program will continue monitoring the OEM cable test mooring(s) that will be deployed at the end of 2003. The moorings will be recovered mid 2004 for evaluation. The program will also establish cable designs, shore side cable test protocols, and mooring configurations that will be robust and verifiable (via shore side testing and analysis) for MOOS and DEOS deployments at low/mid latitude sites. This work may be partially funded by NSF if the proposal submitted at the beginning of June 2003 is successful and will be performed as a collaboration with WHOI (Frye et al). Further work associated with preparing for the MOOS science experiment deployment will be placed on hold till the survivability of the OEM cable has been established (to free up the resources needed for the development and deployment of MOOS Light below), with the exception of testing the Tiburon cable laying toolsled at the MSE sites at Shephards Meander, and development of timing and node-node communications systems.

Following a recommendation made at the recent MOOS workshop, we will develop a "MOOS Light" mooring, that will be deployed in the vicinity of M1 (site optimization and instrument payload to be determined by science). The mooring system will include the MOOS surface expression, with integrated power generation and distribution, buoy to shore communications, MMC, SIAM software and SSDS sub-systems. The mooring will be deployed towards the end of 2004 and will run side-by-side with M1 to verify end to end integrity of the data sets, prior to replacing M1 with a MOOS mooring in 2005. The mooring will also act as a test bed for testing UWC vertical profiling towards the end of 2004.

Evaluation and testing of vertical profilers (VP's) (commercial and the MBARI buoyancy driven VP) will be undertaken in 2004. Initially, candidate VP's will be tested

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on a small test mooring that will be easy to deploy and recover. After the most promising VP approach(s) for benthic and UWC applications have been selected, the systems will be deployed on the MOOS Light mooring and on the MSE benthic test node (it is unlikely that a single VP design will meet both UWC and benthic applications).

AUV docking will proceed with testing of the high risk elements of the system including sea testing of homing algorithms, design and bench testing of power and data transfer systems, design and tank testing of the latching mechanism. The PDR will be held mid year. Detailed design work will follow.

Cabled observatory efforts will include Systems Engineering for NEPTUNE, co-ordinating the design and test of the sub-systems being performed at partner Institutions, managing the MariPro tasks, MARS permitting (including multi-beam surveying of the cable route), testing the survival of cables crossing the mouth of the Canyon near Moss Landing, and Education and Outreach (EARTH).

Approximate level of resources for each of these activities are as follows:

- 600027 **MOOS Mooring Technology Development**, test and verification OEM cable(s), node-node comms, timing (PM Chaffey: PE: Chaffey/Hamilton) (3 FTE)
- **MOOS Light** (1.5 FTE) (PM: Kelley, Engineering support: O'Reilly/ Gomes/ Erikson/ McBride/ Mellinger/ Chaffey/Hamilton) program includes integration of the following sub systems (FTE estimate is for integration and test only, not for sub-system development):
 - MOOS surface expression
 - SIAM
 - MMC
 - Vertical Profiler
 - SSDS
- Test and evaluation program of **Vertical Profilers**, integrate onto MOOS Light (1.25 FTE) (PM/PE Hamilton)
- 600026 Sub-system development of **SIAM** for MOOS Light (3.5 FTE) (PM/PE: O'Reilly) (there is also a proposal pending with the NSF for community entrainment of ISI/PUCK technology applied to cabled observatories)
- 600031 Sub-system development of **Shore Side Data System**, to be tested with MOOS Light (3 FTE) (PM: Gomes) (also NSF grant pending, to develop interoperability of data archives at different Institutions)
- 900393 **AUV Docking** (2 FTE+MS/HT/TP) (Sibenac)
- 900389 Test **Tiburon Cable Laying Tools**led Shephard's Meander (0.25 FTE) (PM: Bird, PE Massion)
- 600125, 700125, 708125, **MARS** (1.25 FTE) (PM: Raybould, PE Massion) (a proposal is just about to be submitted to the NSF to cover systems engineering costs and O&E for NEPTUNE)
- 900245 **EARTH** (PM: Matsumoto)

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Abstract Phase: **LABOR** Resource Request Form

Project Title:	MOOS Program
Project Manager:	Keith Raybould
Lead Scientist:	John Ryan
Lead Engineer:	Mark Chaffey

Please place an “X” to the left of the resources you expect to need for this project, as well as next to “<10” (less than) or “>10” (more than) to indicate estimated need.

Research: IAG					
☒	Research: SAD/Software Engineer		< 10 days	☒	> 10 days
Development					
☒	Development: Electrical Engineer		< 10 days	☒	> 10 days
☒	Development: Software Engineer		< 10 days	☒	> 10 days
☒	Development: Mechanical Engineer		< 10 days	☒	> 10 days
☒	Development: Machinist		< 10 days	☒	> 10 days
ITD					
	ITD: Video Lab/Samples Tech		< 10 days		> 10 days
	ITD: Technical Writer		< 10 days		> 10 days
DMO					
☒	DMO: Ocean Observatory Tech		< 10 days	☒	> 10 days
	DMO: CTD Instrumentation Tech		< 10 days		> 10 days
	DMO: Diver		< 10 days		> 10 days
COO					
	COO: IS Administrator		< 10 days		> 10 days