

MOOS Requirement	Technical Solution Adopted	Status	Demonstration of Technology with Science Experiment
Operate networks of benthic, water column and met instruments over extended periods of time (>1 year). Extend spatial coverage with distributed benthic nodes, profilers and AUV's	a) OEM cable is essential for delivering power, to avoid the need to replace batteries. Distributed node architecture b) Develop vertical profiling capabilities, evaluate commercially available VP's, establish feasibility of integrating with MOOS mooring c) ROV cable laying d) Develop AUV docking	a) OEM Cable • New cable design from JDR on order for test mooring to be deployed 3/04. • Second test mooring to be deployed in 2004 when 2nd cable passes shore tests • MBARI cable test rig being manufactured b) Vertical Profiling • Purchase and test McLane and Seahorse VP's in 2004 c) ROV Ventana cable laying tested in 2002. Tiburon ROV cable laying toolsled ready for testing early 2004 d) AUV docking trade studies developed in 2003	a) OEM cable: Shepard Meander Experiment 2006 b) Vert Profilers • Test MBARI VP in support of Ryan and Haddock cruises 2002/2003 • Test McLean VP in 2004 at Shepard Meander supporting Paul's science • Test Seahorse VP 2004 in support of Ryan and Haddock science c) Tiburon cable laying: Shepard Meander 2006 d) AUV Docking: Deploy system on MARS 200x
Portable for process studies, deployment in locations such as California Coast, Juan de Fuca	Selected buoy design that can be deployed off R/V Point Sur (i.e. not cabled observatory, or a high cost spar buoy that would have	Waiting on demonstration of survivability of OEM cable (high risk element)	Shepard Meander Experiment 2006

	to be towed out)		
Respond autonomously to episodic events , fronts, event plumes, algal blooms, upwelling, down canyon sediment transport, initially with human in the loop (notification) and later fully autonomously	On board processing of data, smart network, using SideArm and SIAM capabilities	SIAM software for event response not developed. This is a future capability, but the foundation is in place to add this capability when needed	Not planned yet
Reduce difficulties associated with configuring a mooring with a new set of instruments prior to each deployment. Reduce level of skilled resources needed to configure mooring	Self configuring system (plug and work, smart network), (SIAM)	Oct 2003, benchtop demonstration for CIMT	a) CIMT deployment June 2004 b) 3 mooring array south of Monterey Bay 2005
Solve the metadata problem of not having the metadata needed to interpret the data, automatically associated with the data in the archive. This will be essential for managing multiple deployed systems	SIAM, PUCK, SSDS	a) Shore test mooring in the parking lot, and MOOS test mooring (PUCK, SIAM, SSDS) has demonstrated the feasibility of the systems developed b) SSDS work this year has developed much of the needed SSDS infrastructure in support of the AUVCTD program	a) CIMT deployment June 2004 b) 3 mooring array south of Monterey Bay 2005
Expandable. Easy to (a) add nodes to system (b) add new instruments to nodes (c) add new platforms as they become available to provide better spatial coverage, such as vertical profiling and AUV docking, or new moorings	Object oriented software, standardized interface	Oct 2003, benchtop demonstration for CIMT	3 mooring array science experiment south of Monterey Bay 2005

Flexible. Work with intermittent network connection, over many different communications systems and protocols (satellite, microwave, packet radio)	Portal, SIAM	Demonstrated with test mooring 2002/3	a) CIMT deployment June 2004 b) 3 mooring array south of Monterey Bay 2005
Connect development to community efforts in ocean observatory development (OOI, NEPTUNE, DEOS)		a) OEM cable development now progressing with NSF funding and WHOI as a partner. Success of program critical for OOI moorings, both for DEOS and for coastal arrays of moorings b) MARS is test bed for the OOI plate scale cabled observatory NEPTUNE c) Duane and Dan's Sensors and Sensor Network proposal approved by NSF d) using SSDS and SIAM on MARS may help demonstrate value of transferring this technology to cabled observatories	