

**UCSD/SIO**

**Statement of Work**

**PI: Eric Terrill**

**Co-PI: Julie Thomas**

**Project Period: 7/1/2015 – 5/31/2016**

**SCCOOS Wave Buoy  
San Pedro Channel (near Breakwater)**

On behalf of the Coastal Data Information Program (CDIP), and as a supplement to the Southern California Coastal Ocean Observing System (SCCOOS) award NA11NOS0120029, this proposal is to request funds to the Integrated Ocean Observing System (IOOS) for a wave buoy and all necessary components to deploy offshore the Port of Long Beach, CA. The Port is faced with addressing issues with Under Keel Clearance as larger crude oil carriers are ready to enter Long Beach. Right now, these carriers are offloading the oil offshore onto smaller vessels in order to safely transit the channel. To accommodate these vessels, the Port is deepening the channel and, in collaboration with the National Oceanic Atmospheric Administration (NOAA), developing a nearshore wave prediction model.

CDIP will be providing an additional wave buoy to help with the validation and verification of the NOAA developed wave model. There are certain wave conditions where energetic waves and long period swells are present that are the most difficult for transiting. During this time, the larger vessels start to pitch, causing a 1200 foot tanker to lose 11 feet of draft for every degree of pitch. The validation of the model, particularly close to the breakwater, is thus, critical during these adverse conditions.

This buoy will remain at the location for at least one year to provide the necessary wave spectra for validation. These data will be handled with the standard CDIP processing including quality control and dissemination to the National Data Buoy Center for transmission to the National Weather Service office. Additionally, the data will be available on both the CDIP and SCCOOS website. CDIP will work with the local National Weather Service office in Oxnard, CA to assure that the data format is compatible with their system.

**BUDGET INFORMATION - Non-Construction Programs**

OMB Approval No. 0348-0044

**SECTION A - BUDGET SUMMARY**

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1.		\$	\$	\$	\$	\$
2.						
3.						
4.						
5. Totals		\$	\$	\$	\$	\$

**SECTION B - BUDGET CATEGORIES**

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
a. Personnel	\$	\$	\$	\$	\$
b. Fringe Benefits					
c. Travel					
d. Equipment					
e. Supplies					
f. Contractual					
g. Construction					
h. Other					
i. Total Direct Charges (sum of 6a-6h)					
j. Indirect Charges					
k. TOTALS (sum of 6i and 6j)	\$	\$	\$	\$	\$

7. Program Income	\$	\$	\$	\$	\$
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**Authorized for Local Reproduction**

**SECTION C - NON-FEDERAL RESOURCES**

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.	\$	\$	\$	\$
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)	\$	\$	\$	\$

**SECTION D - FORECASTED CASH NEEDS**

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$	\$	\$	\$	\$
14. Non-Federal					
15. TOTAL (sum of lines 13 and 14)	\$	\$	\$	\$	\$

**SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT**

(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16.	\$	\$	\$	\$
17.				
18.				
19.				
20. TOTAL (sum of lines 16-19)	\$	\$	\$	\$

**SECTION F - OTHER BUDGET INFORMATION**

21. Direct Charges:	22. Indirect Charges:
23. Remarks:	

<b>A/B. SALARIES &amp; EMPLOYEE BENEFITS:</b>				* Monthly Salary Recharge Rate	Actual F/T Equivalent Person-Months Dedicated to Project	Total Salaries and Emp. Benefits Requested	
Name and Payroll Title							
<b>Thomas, Julianna</b> Manager				\$20,597	0.45	\$9,269	
<b>Gray, Andrew</b> Senior Development Engineer				\$11,962	0.45	\$5,383	
<b>Aguilar, Victor</b> Sr. Marine Mechanician				\$8,944	0.40	\$3,578	
*Salary recharge rate is calculated for actual productive time only (except for non-faculty academic sick leave, which is charged as direct). The rates include components for employee benefits, provisions for applicable merit increases and range adjustments in accordance with University policy. Staff overtime or remote location allowance may be required in order to meet project objectives, and separate rates are used in those cases.							
<b>TOTAL SALARIES &amp; EMPLOYEE BENEFITS</b>						<b>\$18,230</b>	
<b>C. TRAVEL:</b> (DESTINATION & PURPOSE-ITEMIZE TRANSPORTATION, PER DIEM & MISC.)							
DOMESTIC	Air Fare	No. days	Per diem	Ground Transportation	Baggage Fee	no.trips	Total
Field Work/Maintenance							
San Diego, CA - Long Beach, CA	\$0	1	\$0	\$76	\$0	1	\$76
Technical Meeting							
San Diego, CA - Long Beach, CA	\$0	1	\$0	\$76	\$0	1	\$76
<b>TOTAL TRAVEL</b>							<b>\$152</b>
<b>D. EQUIPMENT:</b>							
<i>Environmental Monitoring System (Fabrication):</i>							
1 MKIII Wave Buoy (Wave Measurement)							\$49,030
Mooring Components							\$7,039
Shipping from Holland to San Diego, CA - OW							\$2,000
<b>TOTAL EQUIPMENT</b>							<b>\$58,069</b>
<b>E. PROJECT SPECIFIC SUPPLIES AND MATERIALS:</b>							
Buoy Paint							\$615
Vessel fuel							\$150
<b>H. OTHER:</b>							
Project Specific supplies, materials, and other expenses:							
Communications, Mailing/FedEx, Network Costs, Faxing, Copying & Telephones in support of research							\$163
<b>TOTAL SUPPLIES, MATERIALS &amp; OTHER</b>							<b>\$928</b>
<b>I. TOTAL DIRECT COSTS</b>							<b>\$77,379</b>
<b>J. INDIRECT COSTS:</b> (based on modified total direct costs & negotiated rate with cognizant audit agency DHHS):							
Rate: On-Campus				55.0%			
*Base:				\$19,310			
*Base is total direct cost less equipment and subcontract.							
<b>INDIRECT COST</b>							<b>\$10,621</b>
<b>K. TOTAL DIRECT &amp; INDIRECT COSTS</b>							<b>\$88,000</b>

**UCDS/SIO**

**Budget Justification**

**PI: Eric Terrill**

**Co-PI: Julie Thomas**

**Title: SCCOOS Wave Buoy**

**Project Period: 7/1/15 - 5/31/16**

**A/B. Salaries & Benefits:**

Funds are requested for Julie Thomas to oversee the CDIP team for deployment of wave buoy. Funds are also requested for Andrew Gray, Senior Development Engineer, and Victor Aguilar, Marine Mechanician, to prepare and deploy the buoy.

Salary recharge rates are calculated for actual productive time only (except for non-faculty academic sick leave, which is charged as direct). The rates include components for employee benefits, provisions for applicable merit increases and range adjustments in accordance with University policy, except postdoc rates which do not include components for downtime, so those rates are calculated for all working hours. Staff overtime or remote location allowance may be required in order to meet project objectives, and separate rates are used in those cases.

**C. Travel:**

Funds are requested for a truck rental to transport and deploy the wave buoy at the Port of Long Beach, CA. One additional trip will occur during the year to check on the maintenance of the buoy and attend a technical meeting with the Port officials regarding the wave data. Costs are estimated and subject to change based on the size of the truck needed at the time of rental.

**D. Equipment:**

Funds are requested for the fabrication of an Environmental Wave Monitoring System. This includes the purchase of one Datawell buoy that measures waves. This buoy also has the cunifer, bio-fouling resistant haul which extends the battery life. The remaining items for the fabrication will be the mooring, floats, and associated hardware necessary for the mooring system. This is a purchase versus lease because the wave buoy needs to be modified and, therefore, cannot be purchased off the shelf with the specification necessary to provide the wave spectra validation. This system will be deployed under water and cannot afford to be offline for long periods of time. In a lease situation, users could not ensure a responsive technician and it would require extended maintenance. Shipping costs are also included for the mooring components and buoy from Holland where the buoy is manufactured.

**H. Other/Supplies:**

Funds are requested for adding the bio-fouling bottom paint to the buoy. Truck/vessel fuel costs are requested during field experiment trips. Costs have been included which are project specific costs related to communications. Supply and expense items, categorized as project specific, and computer and networking services are for expenses that specifically benefit this project and are reasonable and necessary for the performance of this project.

# QUOTATIONS

# Quotation

 University of California  
 UC San Diego Disbursements  
 9500 Gilman Drive, MC 0955  
 LA JOLLA CA 92093-0955  
 UNITED STATES

 Date : 20-05-15  
 Quotation number : 34061  
 Your reference : E-mail V. Kellis dt. 190515

Qty	Part no.	Description	Price/Unit EUR	Disc. %	Amount EUR
2	10082	DWR-MkIII 0.9m AISI316 Without chaincoupling	36.570,00 -	7,00 %	68.020,20
2	10177	COMM. OPTION: HF	365,00 -	7,00 %	678,90
2	10173	COMM. OPTION: IRIDIUM	6.575,00 -	7,00 %	12.229,50
2	10272B	POWER SWITCH 3-port hatchcover	275,00 -	7,00 %	511,50
2	10266A	ITB FOR DWR-9	310,00 -	7,00 %	576,60
6	10068	BATTERY RC20B NON-HAZARDOUS	76,00	7,00 %	424,08
5	10091	HATCHCOVER DWR-MkIII	7.215,00	7,00 %	33.549,75
5	10119	COMM. OPTION: HF HATCHC.	175,00	7,00 %	813,75
5	10173	COMM. OPTION: IRIDIUM	6.575,00	7,00 %	30.573,75
3	10188B	SOLAR POWER SYSTEM FOR DWR-9	4.795,00	7,00 %	13.378,05
2	10272B	POWER SWITCH 3-port hatchcover	275,00	7,00 %	511,50
7	10128	TRANSMITTER PCB DWR/DWR-G/WR-SG Tuned to 29.900 MHz (4ea) Tuned to 29.750 MHz (3ea)	175,00	7,00 %	1.139,25
2	10089	BUOY FINDER	4.565,00	7,00 %	8.490,90
100	10029	SHACKLE 12mm AISI316	44,00	7,00 %	4.092,00
5	10042	RUBBER CORD 35mm/30m	2.080,00	7,00 %	9.672,00
5	10134	PP ROPE 12mm LENGTH 1000m	1.375,00	7,00 %	6.393,75
5	10135	PP ROPE 12mm LENGTH 500m	690,00	7,00 %	3.208,50
1	10174	COST OF AIRFREIGHT TO SAN DIEGO	3.505,00		3.505,00

$\$3,505 \times 1.119 = \$3,922 / 2 = \$1,961$   
 Rounded to \$2,000 to account for  
 possible change in the EURO rate.

**Total**
**197.768,98**

44,095 x 1.1119 = \$49,029

ENGLISH



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Currency I Have:

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EUR

Currencies I Want:

USD

RANGE: Custom

May 20, 2015

May 21, 2015

INTERBANK: +/- 1%

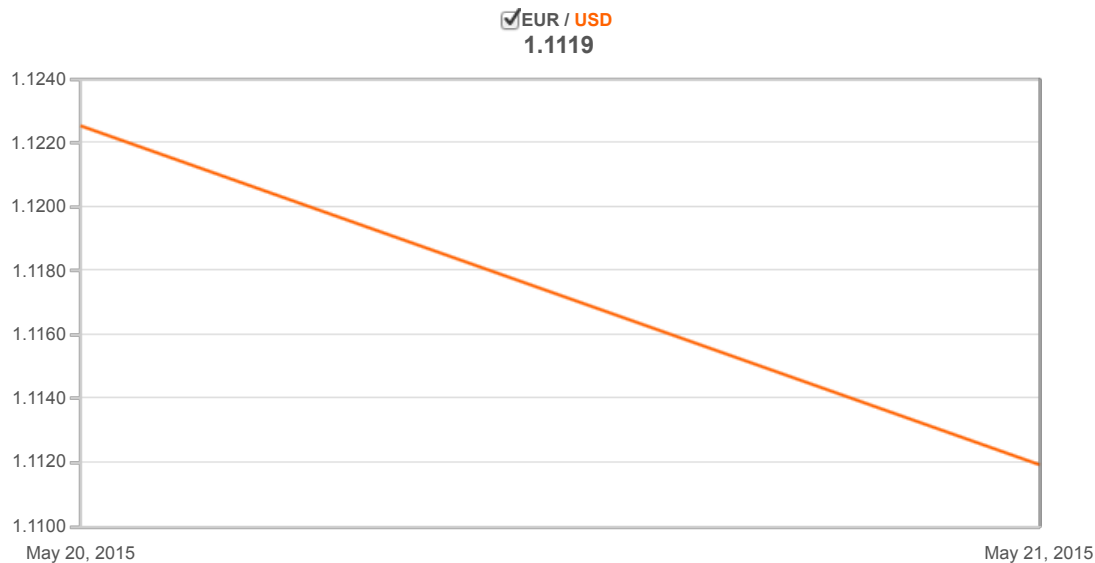
PRICE: Midpoint

VALUES: Rate

FREQUENCY: Daily

Graph Table

Daily MIDPOINT rates - Thursday, May 21, 2015 @ +/- 1%



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**NOAA-SCCOOS Wave Buoy Costs**

Anchor Chain - 1200 lbs	\$648	1	\$648
Aluminum Anode	\$10	4	\$40
Bungee - 15m	\$1,853		\$0
Bungee - 30m	\$3,075	1	\$3,075
Chain galvanized around anchor per ft	\$12	3	\$36
Float - large	\$158	1	\$158
Float - small	\$24	1	\$24
Hose cover for polyprop. 500ft	\$12		\$0
Mild steel ring	\$60	1	\$60
Polypro line terminations	\$60	6	\$360
Polypro Line per 200 m	\$353	1	\$353
Polypro Line per 500 m	\$870	1	\$870
Safety shackle	\$38	2	\$76
Sinkers	\$144	2	\$288
Stainless Steel Shackles 12mm	\$65	5	\$325
Stainless Steel ballast chain per foot	\$41	6	\$246
Swivel 1/2"	\$42	1	\$42
Misc. small components		1	\$432
<b>MOORING TOTAL:</b>			<b>\$7,033</b>