Greening the U.S. Academic Fleet: Progress Report March 5, 2013

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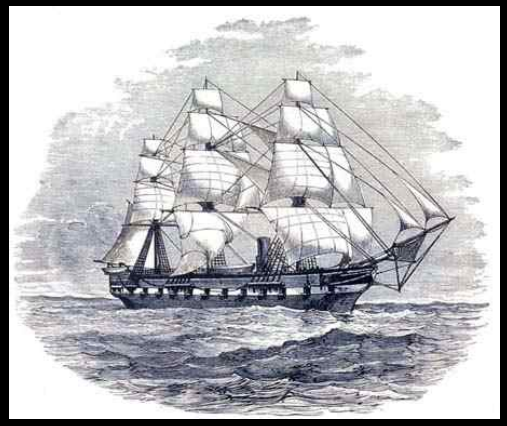
Greening the Research Fleet

January 10-11, 2012

Nicholas School of the Environment



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Greening Shore Facilities: UCSD Nimitz

Bruce Applegate and Zoltan Kelety

Sullivan Solar Power
Leading the Solar Energy Revolution

1-800-SULLIVAN

Search

Home | About Us | Solar Power Information | Locations | Incentives | Portfolio | Contact

Home > Commercial > UCSD Nimitz

UCSD Nimitz

Prev Next

Solar Installation Location:

San Diego, California

System Size:

82.512 KWAC

System Components

Modules: (406) Sharp NU-U235F1
Inverter(s): (1) PV POWERED PVP 100KW
Mounting: Roof

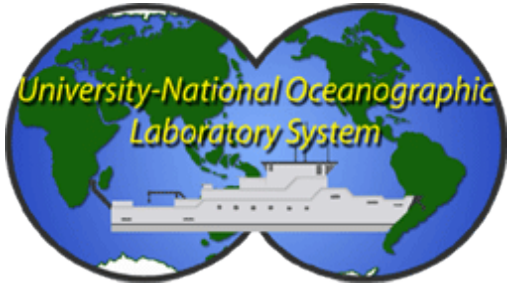
This 82,500-Watt solar installation at Nimitz Marine Facility was done as a part of University of California, San Diego's "Clean Renewable Energy Project" which consists of five separate UCSD project sites, all with specific requirements. With a wide open roof, this site lent itself well to solar. The project employs Sunlink ballasted racking and the system is uniquely attached to the roof without penetrations.

Around the Pier: Scripps Now Powering Point Loma Ship Facility with the Sun

on OCTOBER 7, 2012 · 2 COMMENTS

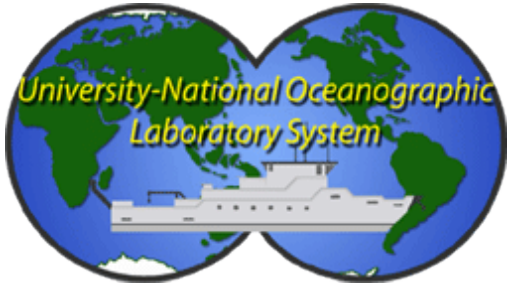
Nimitz Marine Facility installs photovoltaic system


NEW HORIZON
IMO 7723821



One of five sites installed by UCSD Campus Clean Renewable Energy Project. UCSD directed Sullivan to use a ballasted racking system to minimize roof penetrations. This system maximizes available roof space while avoiding the many obstacles on the roof, to provide maximum yield from the PV system.

Sullivan Solar Power also provided a Level 2 electric vehicle charger for use by staff and visitors.



University of Delaware: R/V Sharp
Bill Byam

Power Use and Operational Efficiency

1. Duty cycle study carried out by AKA. Monitors on power panels, drive motors and rectifier panels.

2. Four months of data.

University of Alaska
R/V Sikuliaq
Dan Oliver, ARRV Project Manager

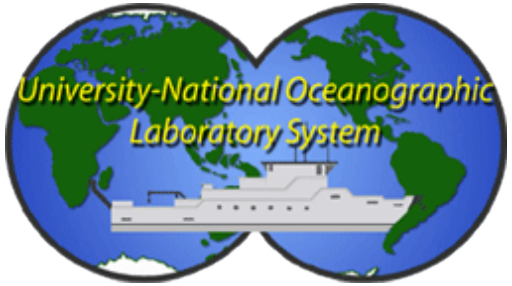
1. Non-ablative bottom coating: reduced frictional resistnace for improved fuel economy. Low VOC results in reduced solvent emissions and no release of biocides into the water: International Paint- Intershield 1673 Inerta 160.

2. Incinerator to burn solid waste and waste oil. Burning waste oil reduces the need for diesel to run the incinerator.

3. Integrated power plant which combines ship's service electrical power and propulsion power into a common electrical plant with load management system. More efficient as it matches power output with power needs.

4. Waste heat recovery system to heat interior of ARRV and for hot potable water.

5. Fluorescent lighting to gain energy efficiency over incandescent lighting.



6. Ultrasonic anti-biofouling systems used in seachests.

7. Bio-degradable hydraulic oil to minimize environmental risk from accidental discharge.

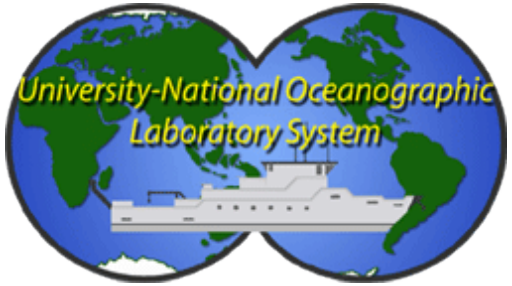
8. Double bottom hull design: no fuel or oil storage tanks next to shell.

9. Diesel engines are EPA Tier II compliant with MARPOL Annex VI combustion exhaust limits.

10. MSD will exceed US requirements and comply with pending MARPOL standars. Fress water flushing systems.

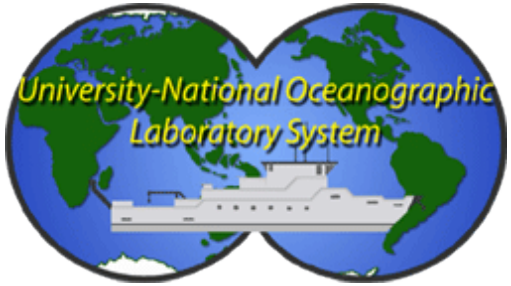
11. Trash compactor to process solid waste

12. Minimizes underwater radiated noise for science activities and reduced impact on marine mammals



Graduate School of Oceanography
University of Rhode Island
R/V Endeavor: Tom Glennon

1. Biofuel (B5) used for engine: used vegetable fuel
2. Bio-hydraulic fluid used in A-frame, J-frame, portable Knuckleboom crane and main crane.
3. Bio-lube for weather deck machinery: grease bearings and sliding surfaces
4. Proposal for energy monitoring and audit by Alaris to be submitted this spring to NSF



SNAME Marine Vessel Environmental Performance (MVEP) and SuPORT

Tim Leach (Glosten) and Craig Covil (ARRUP)

As outgrowth of Green Workshop, Glosten and ARRUP are working to develop criteria to provide tools to consider the overall impact of and operating and maintaining port facilities and vessels.

Phase 1 - Introduction and Information Gathering
Phase 2 - Performance Analysis / Analysis Tools
Phase 3 - Recommendations for Performance Improvement
Phase 4 - Implementation

The goal of this process is to provide UNOLS operators the ability to measure and compare environmental performance of ships and ports in order to facilitate reductions of overall impact to the environment and to reduce operating costs