CHARLES SWANN TO CHAIR
DISASTER RESISTANT UNIVERSITY
ADVISORY COMMITTEE

The Ole Miss Disaster Resistant University Advisory (DRU) Committee met on December 6, 2007, and chose Charles Swann to replace Buster Clark (recently retired) as committee chair. Jeremy Dew volunteered to serve as secretary for the DRU Committee. The Committee expressed its thanks to Buster Clark for his help and devotion to the cause of natural hazard mitigation.

The DRU Committee also reviewed on-going natural hazard mitigation projects on the UM campus and reviewed potential new projects. Among those projects nearing completion is the installation of storm warning sirens to supplement the four existing sirens. These additions should guarantee warnings can be heard everywhere on campus. The sirens have arrived, but the metal poles on which they will be mounted are not expected to arrive until early 2008. Plans are in place to install storm shelters in 2008.

Seismically activated natural gas shut-off valves have been installed on the gas lines at both Stockard-Martin and Crosby dorms. These valves are designed to close natural gas supplies into buildings during earthquakes thus preventing ruptured gas lines from filling indoor spaces with highly flammable methane. These valves are expected to provide the same protection during tornados and in the event the exposed gas lines are damaged by cars or service vehicles.

Seismically activated gas shut-off valves were recently installed at the University of Mississippi to help mitigate damage in the event of a serious earthquake.

CCEP SPONSORS EARTHQUAKE WORKSHOP FOR THE MID-AMERICA EARTHQUAKE CENTER

The U.M. Center for Community Earthquake Preparedness (CCEP) sponsored a public earthquake workshop in the Oxford Conference Center November 13, on behalf of the Mid-America Earthquake Center. The workshop provided an overview of the Mid-America Center's recent work to estimate the potential cost of a major Central U.S. earthquake. Dr. Chris Mullen, CCEP Director, and Professor of Civil Engineering, provided local arrangements and participated in the panel discussions. Charles Swann attended as geology subject matter expert and assisted Dr. Mullen.
CMRET CONDUCTS CRUISE TO MC118

The CMRET planned and executed a scientific, deep-water cruise to Mississippi Canyon 118 (MC118), site of the Gulf of Mexico Hydrates Research Consortium's Sea-floor Observatory, November 5-13, aboard LUMCON’s R/V Pelican, out of Cocodrie, La. This was a busy cruise, crowded with vital objectives. A complete cruise report is being compiled but a brief summary follows:

ACCOMPLISHMENTS

The TSS (dynamic motion sensor) acquired by the Consortium via Vernon Asper, University of Southern Mississippi, was installed. The ultra-short baseline (USBL) transducers were installed and the system calibrated. It appeared to work flawlessly.

The University of Georgia’s microbial filter and the University of South Florida’s X-Ray Fluorescents/Mass Spectrometer system (for high resolution analysis of hydrocarbon fluids in solution in the lower water column at an active gas hydrate/vent site) were deployed and operated separately and in concert with excellent results. The former had been deployed successfully on previous cruises but the latter had never undergone a successful deployment to depth until this cruise.

The storm monitor deployed in July was recovered successfully, in good condition, and with good data. A third storm monitor was deployed.

Two dives of the Station Service Device (SSD) were made with the USBL navigation system. All markers and instruments left on the sea-floor on previous site-visits were located with pin-point accuracy.

Many hours of video of the sea-floor at MC118 were recovered via multiple cameras on the SSD.

Sediment samples were recovered from the vicinities of both the Northwest and Southwest crater complexes using push-cores in box-core samples. Precise locations of these cores were made possible by attaching the USBL to the cable immediately above the corer. Specifics of sample collection were followed as per instructions from Mandy Joye (University of Georgia) and Charlotte Brunner (University of Southern Mississippi). Additional samples were collected for geochemical and geotechnical analyses by Roger Sassen (Texas A&M University) and Rudy Rogers (Mississippi State University).

CHALLENGES STILL REMAINING

Instruments remain on the sea-floor. Due to electrical failures/difficulties, the SSD was
not able to exit the lander cage (and maintain power). As a result, no instruments could be recovered and no samples recovered directly using the SSD.

The Video acquired on this cruise is murky due to the amazing amount of particulate matter in the water column. The source of this suspended material and debris covering the instruments is possibly related to the changes observed in the hydrate outcrops – diminished and exhibiting slump features.

CMRET PARTICIPATES IN NATIONAL AND INTERNATIONAL HYDRATES RESEARCH

In December 2007, Dr. Woolsey and Dr. Macelloni traveled to Italy for a multipurpose scientific trip. During the first part of the month, the two members of CMRET staff joined the University of Rome “La Sapienza” marine geology group, led by Dr. F.L. Chiocci, on board the Italian main research vessel R/V Urania, in a multitask research cruise off-shore Mt. Etna volcano.

In appreciation of scientific effort and long time friendship Dr. Woolsey (holding the flag from left corner) received from Dr. F. L. Chiocci, Chief Scientist of the research cruise (holding the flag from the right corner), the R/V Urania flag.

Further, Dr. Woolsey and Dr. Macelloni attended, as members of the Defense Committee, to the M.S. defense of Miss. Simona Caruso, who had been a visiting scholar at MMRI/CMRET during the period

Brad’s Bio-fuel Blog by Brad Crafton

To start off I’d like to announce that the MMRI alternative fuels project is progressing nicely. I started here in January ’07 by building a prototype “homebrew” setup for turning waste oil into biodiesel. That project was successful and Dr. Woolsey allowed me to acquire an industrial grade small batch processor in order maximize throughput and quality. We have been satisfied with the results of the updated equipment thus far. Pending a longer trial period of this machinery, we will be proposing that the physical plant utilize a similar facility (with a larger throughput) to satisfy their diesel needs.

In addition to the production of biodiesel, I have been working with the engineering departments on educational outreach projects teaching the science of biofuels to high school students. This has led to Charleston High School’s science club getting a grant from Sayle Oil for the purpose of producing biodiesel at the high school for the education of the students. As their senior design project a group of chemical engineering students here at Ole Miss is designing an ion exchange tower that MMRI will build and use to optimize the cleaning of biodiesel. This will be very beneficial since our current method is water dependent.

As we look to the future of the MMRI alternative fuels project, our main focus will be on new feedstock technology. Current biodiesel plants are using food-based oil which has many drawbacks. The best solution to this issue is the use of dedicated energy crops such as algae. Certain species of algae can have a biomass that is 50% fuel grade oil, whereas soybeans have only 13% oil content. The future looks very bright for this research, and I will keep you updated as it progresses.
October 2006 to October 2007 who presented her dissertation about “Sea-floor characterization and evolution of the MC 118 Hydrates Mound”, graduated Summa cum Laude in Geology. Following these activities, Dr. Woolsey was invited to present the GOM Gas Hydrates Sea-floor Observatory project at the University of Rome and at the University of Padua.

CHARLES SWANN AND CHRIS MULLEN INVITED TO PARTICIPATE IN TUNICA EARTHQUAKE MEETING

The Mississippi Emergency Management Agency sponsored the New Madrid Seismic Zone Catastrophic Disaster Response Planning Workshop in Tunica, Mississippi on December 12. This workshop focused on planning for a major earthquake in the Central U.S. County emergency managers and representatives from several local, state, and federal agencies discussed the difficulties likely to face emergency responders during such a catastrophic event. Charles Swann and Dr. Chris Mullen (U.M. Dept. Of Civil Engineering) were both invited to attend as subject matter experts. Another meeting is scheduled next year to consider all aspects of this type of emergency and the damage likely to occur in Mississippi.

ANNUAL MEETING OF THE GULF OF MEXICO HYDRATES RESEARCH CONSORTIUM HELD IN OXFORD

The CMRET hosted the fall meeting of the Consortium, October 10-11. Thirty-five hydrates workers met in Oxford, Mississippi, to establish priorities for the next year and to assess where research for the Observatory now stands. Eleven presentations of research were made, including an update of geophysical systems, results of analyses of pore-fluid samples collected at MC118 and array updates. Productive small group sessions established immediate and intermediate-term needs for the station to become a complete and functioning monitoring station. Prioritized objectives for the next three cruises were established.

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