

**International Hydrographic Organization and Republic of Korea
Hydrographic Science Capacity Building
at the
Joint International Hydrographic Applied Science Program (JIHASP)
*University of Southern Mississippi***

***Master of Science in Hydrographic Science
FIG-IHO-ICA IBSC Recognized at Category “A”***

The University of Southern Mississippi

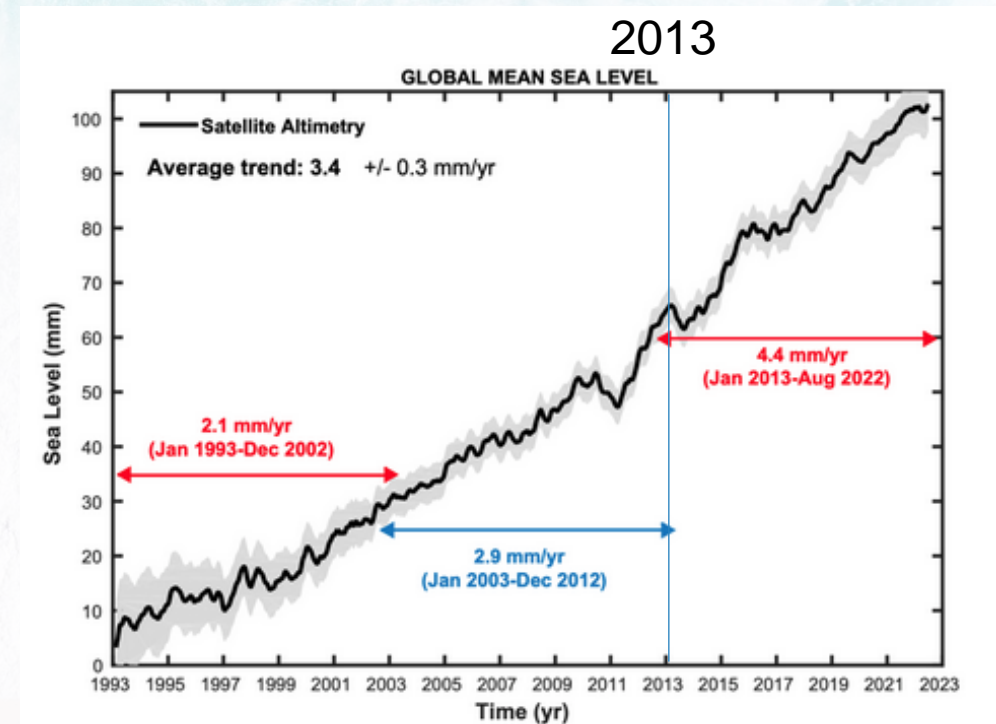
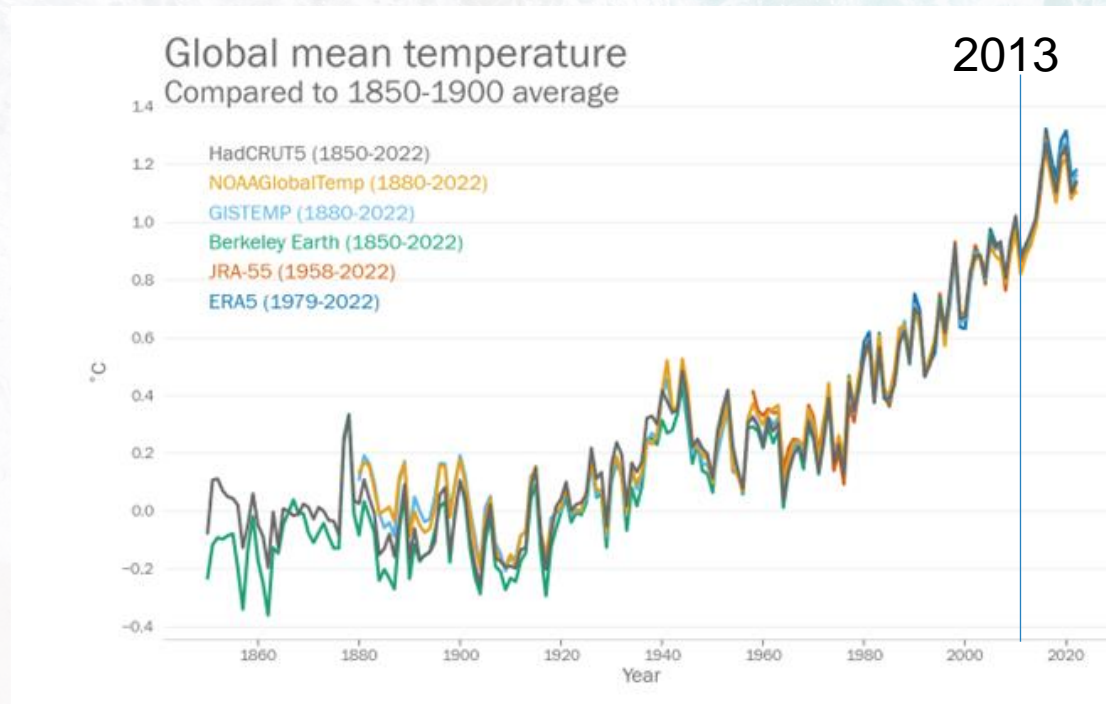
College of Arts and Science

School of Ocean Science and Engineering (SOSE)

Division of Marine Science (DMS)



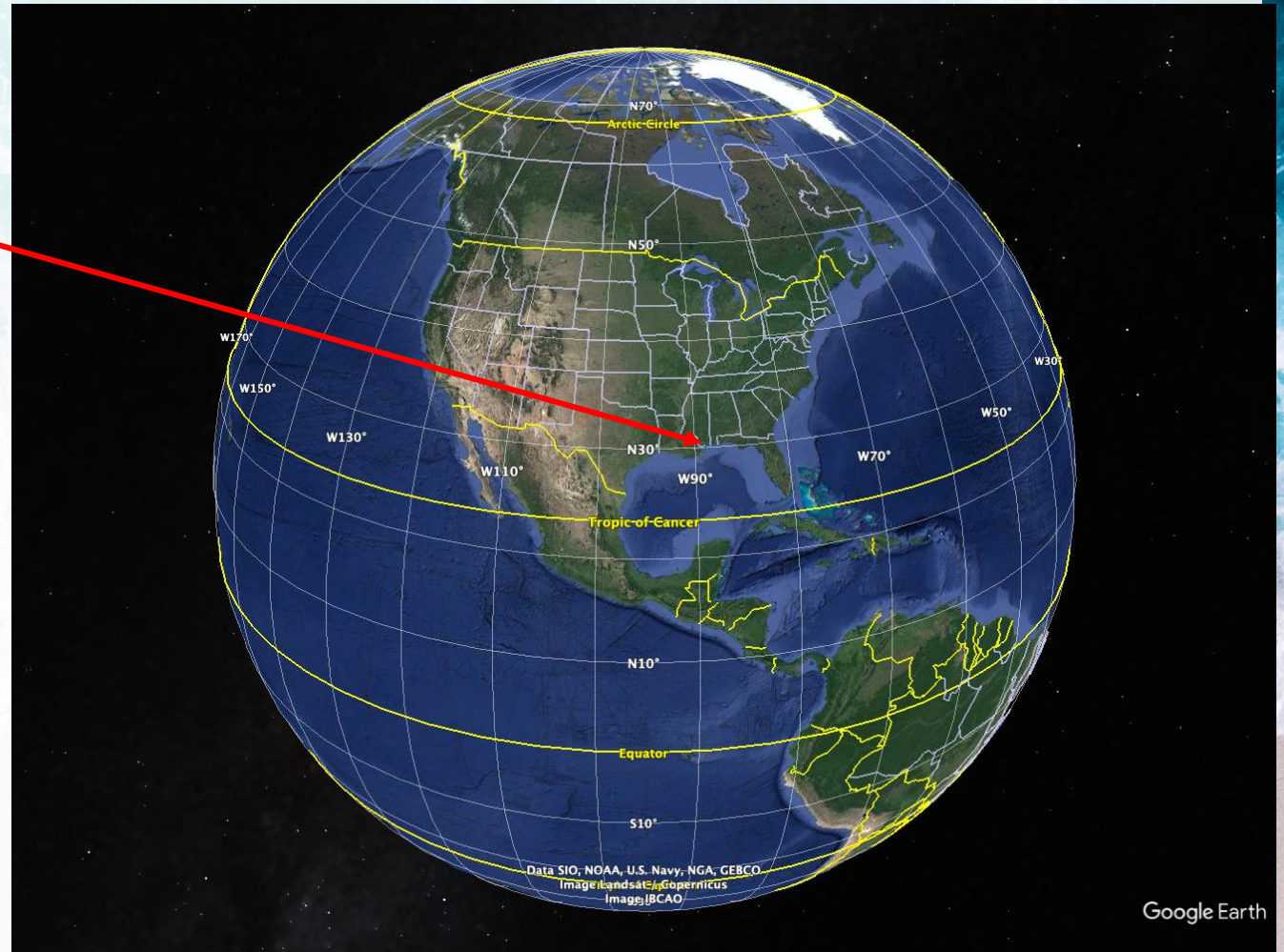
Changing Climate A Challenge To Meeting UN Sustainable Development Goals



Source: <https://public.wmo.int/en/media/press-release/eight-warmest-years-record-witness-upsurge-climate-change-impacts>

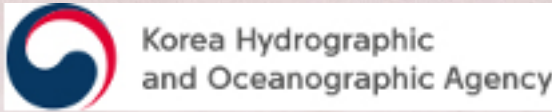
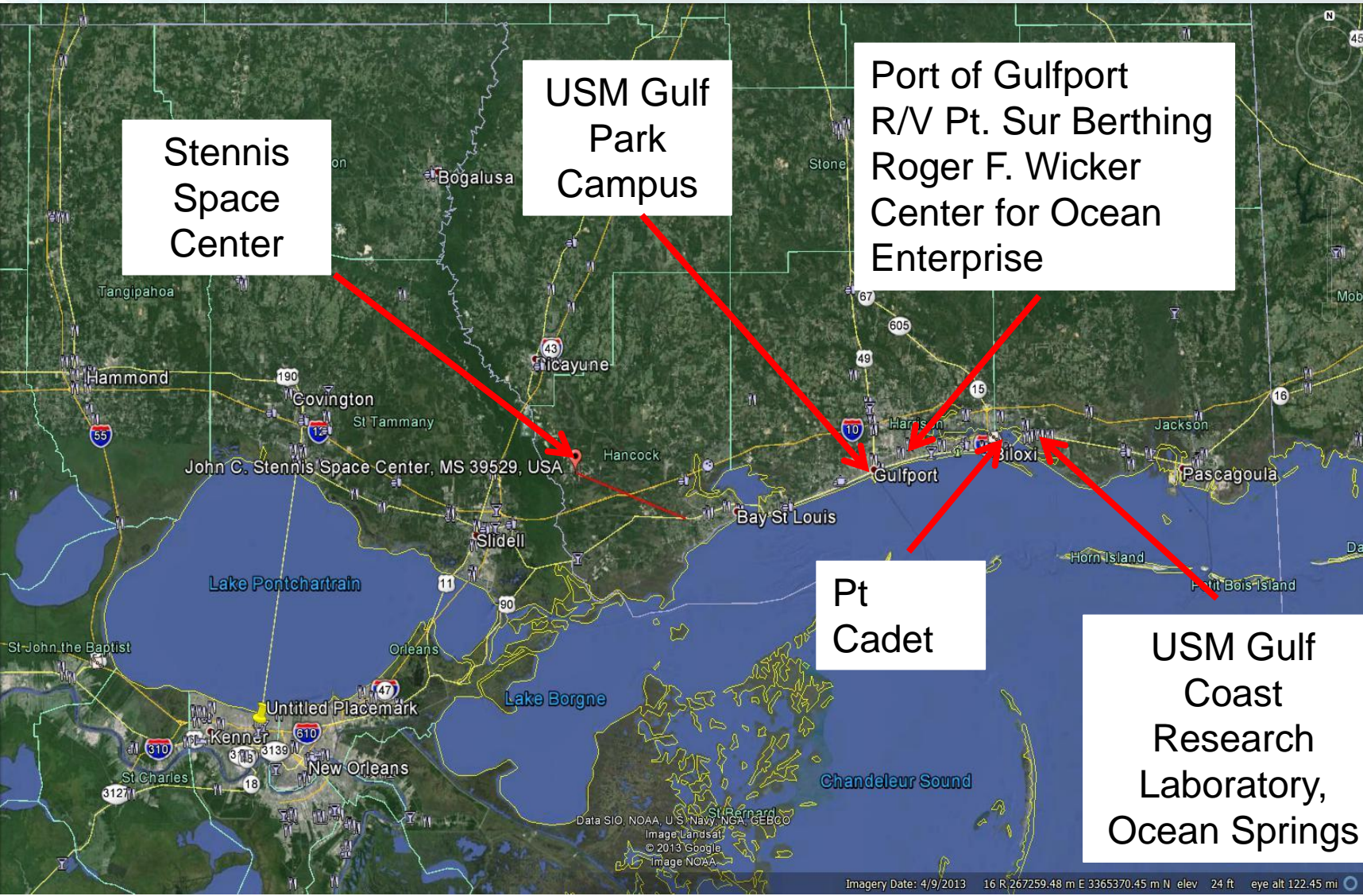
Where to Find Us

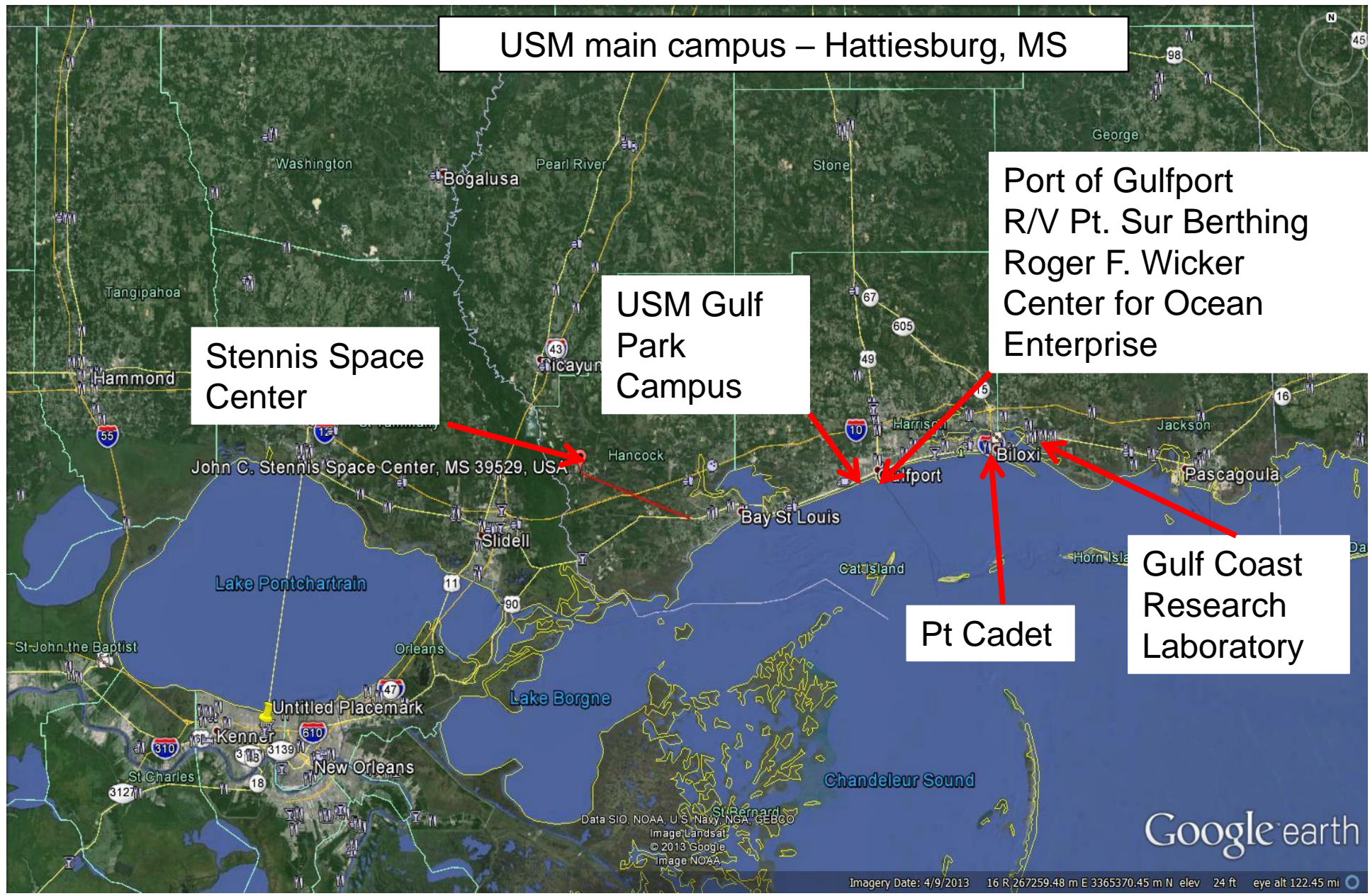
- The University of Southern Mississippi is based in Hattiesburg, Mississippi
- USM occupies 5 sites on the Gulf of Mexico coast



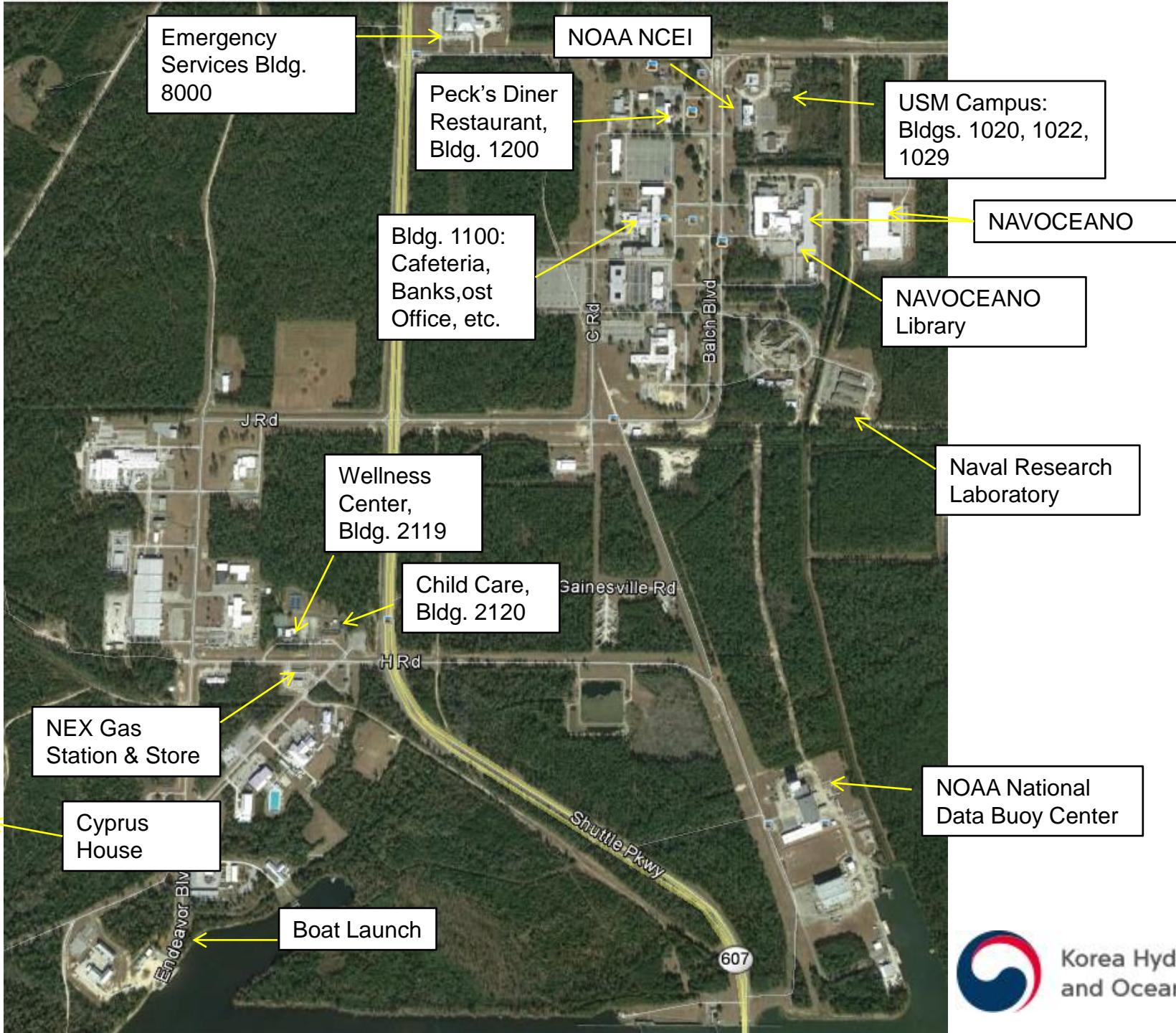
USM main campus – Hattiesburg, MS

Mississippi Gulf Coast Region





Stennis Space Center Facilities



Stennis Space Center Facilities



OCEANO

Research
ory

NOAA National
Data Buoy Center

Photo credit : Petty Officer 1st Class Nathan Laird



Port of Gulfport

Marine Research Center



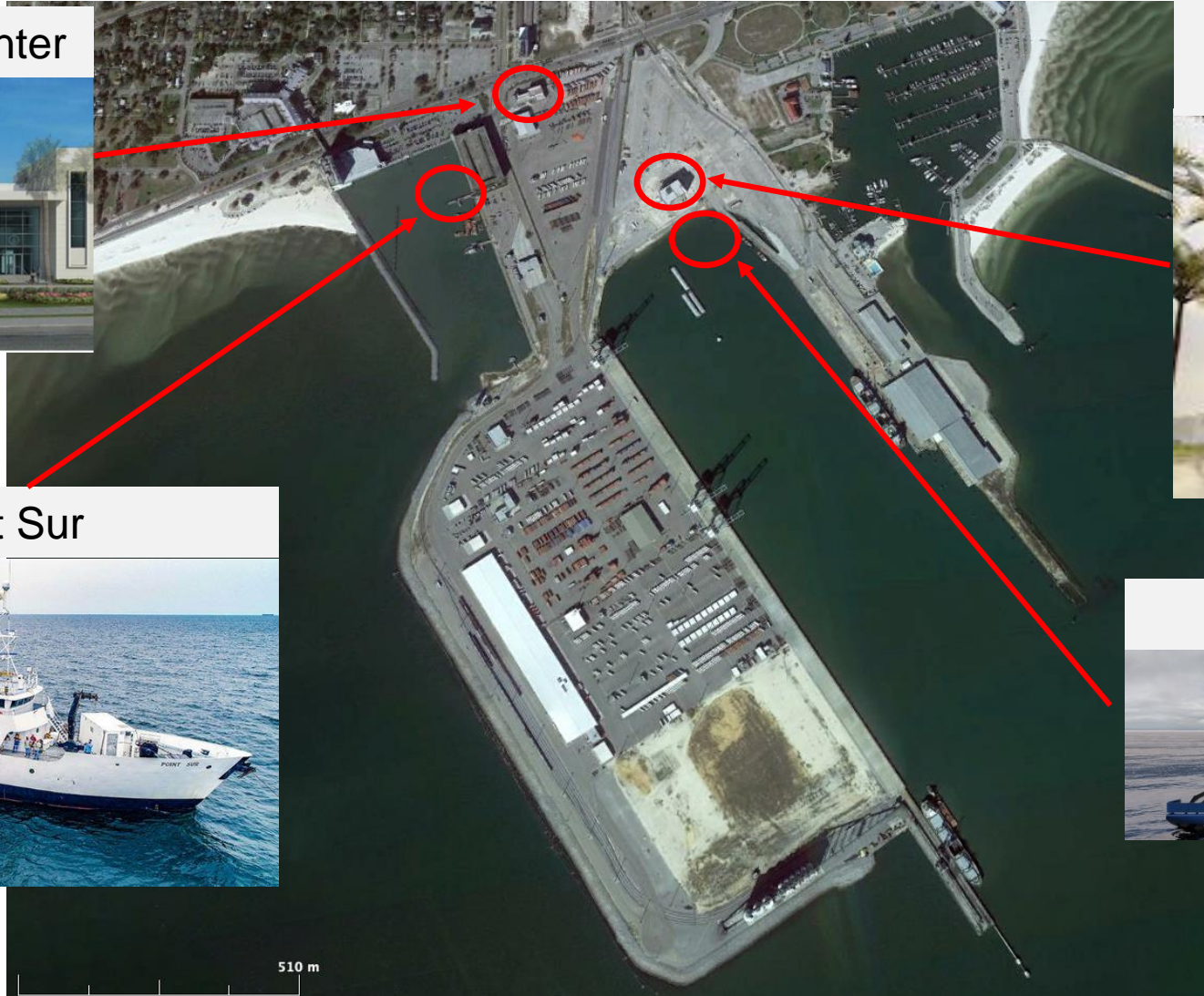
Roger F. Wicker Center for Ocean Enterprise



R/V Pt Sur

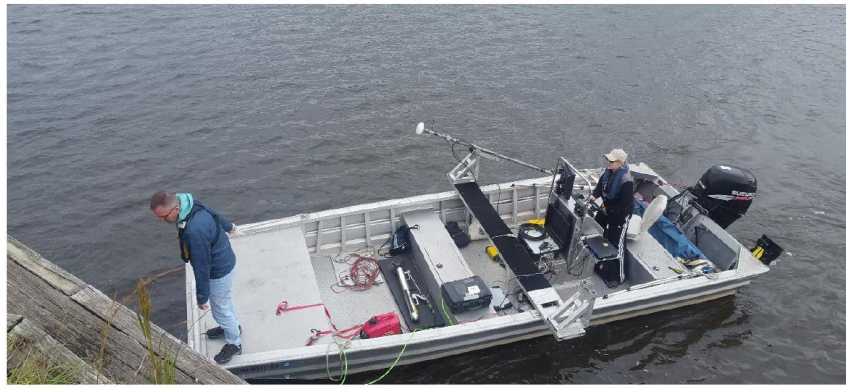


R/V Gilbert Mason



Survey Vessels

6 m Survey Skiff



Teledyne Z Boats



8.8 m Survey Vessel Under Construction



Seafloor Systems Echo Boat



8.8 m R/V Le Moyne



Timeline

- 1981 USM given the leadership of Marine Science in Mississippi
- 1985 Center of Marine Science established
- 1987 M.S. in Marine Science established
- 1990 Ph.D. in Marine Science established
- 1996 Institute in Marine Science established
- 1998 Department of Marine Science established
- 1999 Cat-A, JIHASP M.S. Hydrographic Science established
- 2001 Hydrographic Science Research Center established
- 2004 Ph.D. in Marine Science with option for Cat-A established
- 2007 B.S. in Marine Science established
- 2013 USM JIHASP chosen for IHO-ROK Programme of Technical Cooperation
- 2017 Cat-B B.S. in Marine Science with hydrographic science emphasis established
- 2017 Ocean Engineering B.S. program established



Joint International Hydrographic Applied Science Program Kickoff 1999

Capt. Don Roman, Executive Officer, NAVOCEANO
Don Durham, CNMOC Technical Director
Dr. Denis Wiesenburg, Chair, DMS
RDML Timothy McGee, CNMOC
Landry Bernard, Deputy Commander, NAVOCEANO
Dr. Don Cotton, USM Vice President of Research

USM-U.S. Navy Partnership JIHASP



JHASP Program

Summer

Hydrographic
Science Field
Project

Early
Summer

Nautical
Cartography &
GIS

Law and Policy

Spring
Semester

Water Levels
for
Hydrographers

Applied
Bathymetry

Kinematic
Positioning

Hydrographic
Data
Management

Remote
Sensing for
Hydrographers

Fall
Semester

Classical
Geodesy

Oceanography
for
Hydrographers

Math Concepts
for
Hydrographers

Applied Ocean
Acoustics

Nautical
Science

Practical
Hydrographic
Science

Surveying and Repairs in the Field



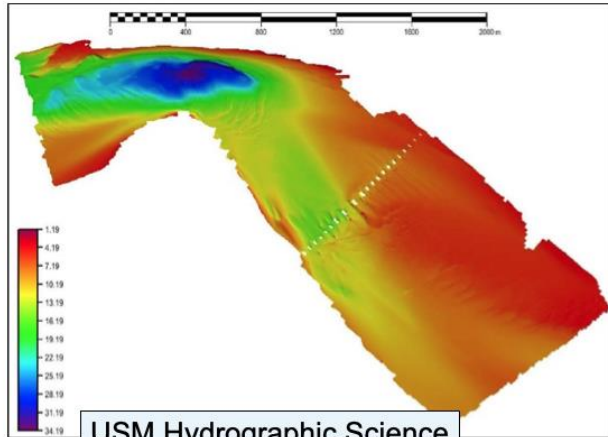
Installing Tide Gauge and Surveying with ASV



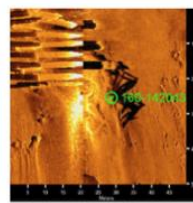
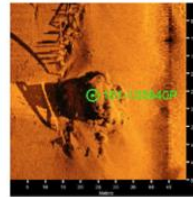
Learning to Level and Conduct GNSS Static Survey



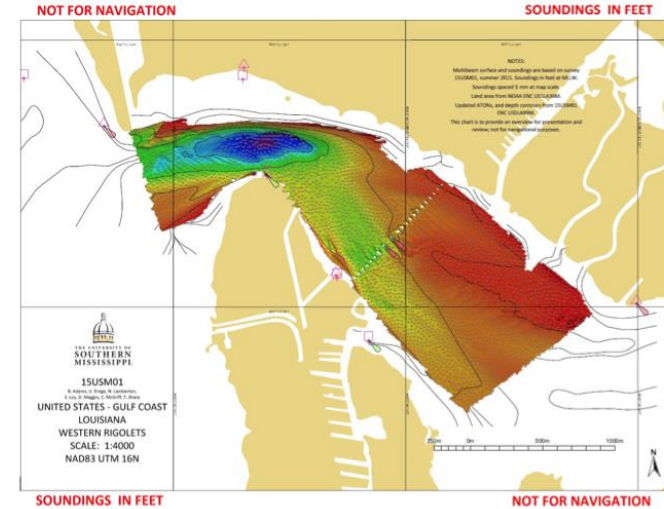
Class of 2015 Survey in the Rigolets



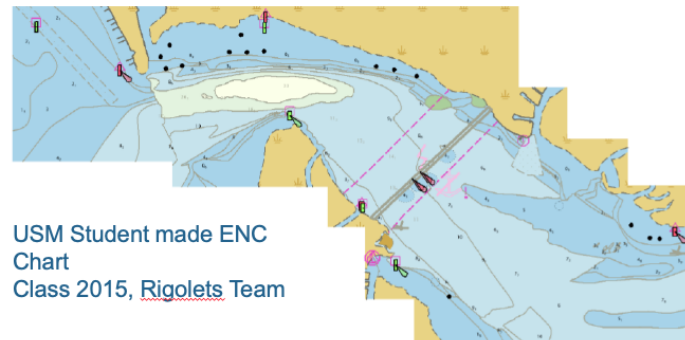
USM Hydrographic Science
Class 2015, Rigolets Team



Nautical Charting



15USM01: Western Rigolets ENC



USM Student made ENC
Chart
Class 2015, Rigolets Team



IHO

International
Hydrographic
Organization



Korea Hydrographic
and Oceanographic Agency

Hydrographic Student Sources Completion Numbers

Graduating Year	Total Graduated	U.S. Navy Officers	Navy Civilians	NOAA	Other USG	International	IHO	Other
2000	11	3	8	0	0	0	0	0
2001	12	3	9	0	0	0	0	0
2002	14	2	9	0	2	1	0	0
2003	12	5	3	0	0	2	0	2
2004	10	4	2	1	0	2	0	1
2005	10	4	1	1	0	2	0	2
2006	13	4	2	0	1	2	0	4
2007	8	5	2	1	0	0	0	0
2008	10	2	2	2	0	3	0	1
2009	5	2	1	0	0	1	0	1
2010	11	3	2	1	0	3	0	2
2011	9	1	4	1	1	1	0	1
2012	12	2	2	2	0	2	0	4
2013	11	3	4	0	0	2	0	2
2014	13	2	2	0	0	3	3	3
2015	13	2	1	1	0	2	3	4
2016	13	2	1	0	0	3	4	3
2017	12	2	2	0	0	2	2	4
2018	9	2	3	0	0	3	1	0
2019	9	2	1	0	0	2	2	2
2020	11	2	2	0	0	1	2	4
2021	5	1	2	0	0	1	0	1
2022	7	1	1	0	0	0	3	2
2023	15	2	0	0	0	7	1	5
SUM	255	61	66	10	4	45	21	48

2013-2014
First IHO
Students



Hydrographic Student Sources Completion Numbers

Students (2022 – 2023)

Students, 2023-2024, 14 students

Mauritius	1
Nigeria	4
Türkiye	1
New Zealand	1
Australia	1
USA-Navy	2
USA-Others	4
Total	14

PhD (Hydrography emphasis) Students: 2

International Students 36 countries	
Australia	Netherlands
Bahrain	Nigeria
Bangladesh	Peru
Brazil	Philippines
Bulgaria	Romania
Canada	Saudi Arabia
Ecuador	Slovakia
Egypt	Slovenia
Estonia	Sweden
Gambia	Taiwan
Ghana	Thailand
Guatemala	Tonga
India	Trinidad And Tobago
Jamaica	Tunisia
Malaysia	Türkiye
Mauritius	Uganda
Mexico	UK
Montenegro	USA

Hydrographic Science Research Center

Research/Projects &
Funding for Students

State-of-the-Art
Vessels and
Equipment for HYD
academic exercises

HSRC
Research

School of
Ocean
Science &
Engineering

Teaching Through
Research -
Research Through
Teaching



IHO

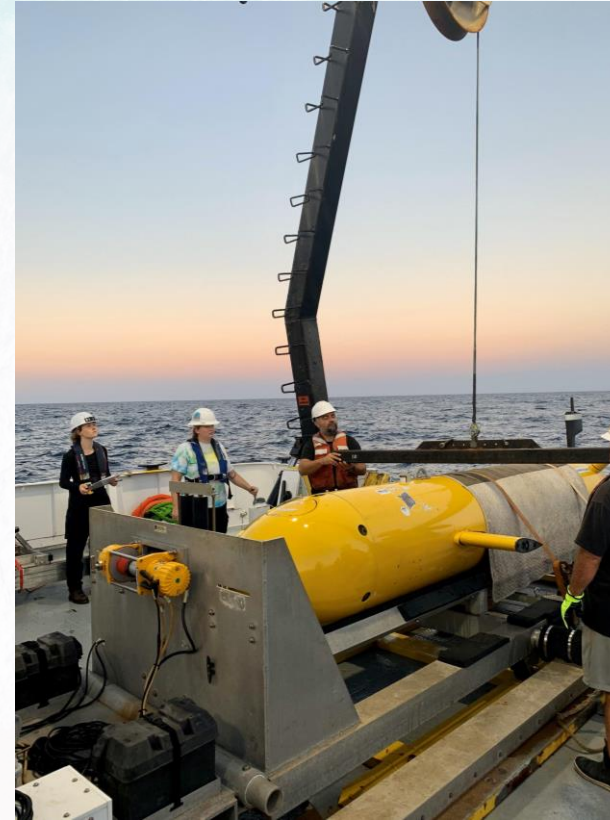
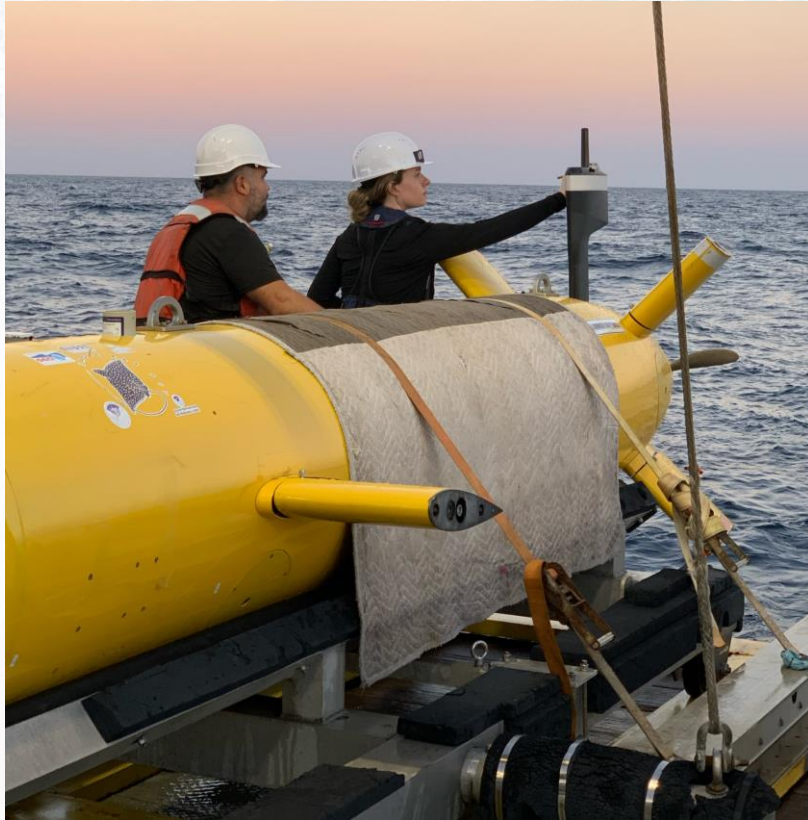
International
Hydrographic
Organization



Korea Hydrographic
and Oceanographic Agency

HSRC Provides Research Opportunities to 2-Year Cat-A Students

“Eagle Ray” 3000 m Rated AUV



HSRC Provides State-of-the-Art Equipment to 1 & 2 Year Students

"Sea Eagle" C-Worker 5 Autonomous Surface Vessel



IHO Capacity Building Work Programme

- Students fully supported to attend USM JIHASP Cat-A, M.S. program
- Financed by the Republic of Korea, Korean Hydrographic and Oceanographic Administration
- Managed by IHO-ROK Programme Management Board



IHO-ROK Programme of Technical Cooperation: USM Students in JIHASP

2023-2024	Mr. Hunish Mattarooa	Mauritius
2023-2024	Mr. Mustafa Kanat	Türkiye
2022-2023	Mr. Diego Fernando Mendez Porta	Guatemala
2021-2022	Mr. Zubayer Ahmed	Bangladesh
2021-2022	Mr. Marlon Estropia	Philippeans
2021-2022	Mr. Nuttachai Luangaram	Thailand
2019-2020	Mr. Adrian Montufar	Mexico
2019-2020	Mr. Rami Lamouchi	Tunisia
2018-2019	Mr. Kiril Anjutin	Estonia
2018-2019	Mr. Mohd Massuoadi bin Mojd Zikri	Malaysia
2017-2018	Ms. Valentina Cornelia Pavel	Romania
2016-2017	Mr. Abdul Halim Ahmad Norfin	Malaysia
2016-2017	Mr. Gilbert Avila Alviola	Philippeans
2015-2016	Mr. Jasim Butaiba	Bahrain
2015-2016	Mr. Devendra Ragoonath Madhow	Mauritius
2015-2016	Mr. Babatunde Luqman Akanbi	Nigeria
2015-2016	Mr. Lucian Dutu	Romania
2014-2015	LtCdr. Shaikh Imtiaz Bin Firoz	Bangladesh
2014-2015	Sub Lt. Uchechukwu Kelechi Erege	Nigeria
2014-2015	Mr. Maylord De Chavez	Philippines
2013-2014	LtCdr. Mohammad Minhaz Uddin	Bangladesh
2013-2014	Mr. Antonio Aitherando Jamau Williams	Jamaica
2013-2014	Mr. Hembal Teckmun	Mauritius

IHO-ROK Capacity Building Legacy

21 students from 14 different countries have:

- Received a M.S. in Hydrographic Science from USM, having access to cutting edge technology while in the program;
- Received a certificate of successfully completing a hydrographic science program certified at the Cat-A level by the IBSC;
- Had the opportunity to spend a year in the United States serving as cultural ambassadors for their home country;
- Had the opportunity to share their prior survey experiences and knowledge with their fellow students and faculty;
- Developed life-long friendships with fellow students from the U.S. and other countries and grown their international hydrography network.

IHO-ROK Capacity Building Legacy

- 2 (~10%) IHO-ROK sponsored students, Valentina Pavel '18 and Marlon Estropia '22, have been awarded the Hydrographer of the Navy Education Award by the Hydrographer of the U.S. Navy and Commander, Naval Meteorology and Oceanography Command. *The Hydrographer of the Navy Award is intended to acknowledge the efforts of a student in JIHASP that exhibits not only strong academic skills, but stands out from his or her peers in conduct, performance, and leadership.*
- 1 IHO-ROK sponsored student, Devendra Madhow '16, was in his country's delegation to the 3rd Session of the IHO Assembly in 2023.

Summary

- USM is deeply honored to be the institution chosen by the IHO and Republic of Korea to educate students in a Cat-A Hydrographic Science program.
- USM is proud of the achievements of its Hydrographic Science alumni, including those sponsored by the IHO-ROK, many of whom have risen to leadership roles within hydrographic offices in their countries and within private industry.
- Alumni from 36 different countries, 14 of which have IHO-ROK sponsored students, illustrate the impact USM has made in building capacity in the international hydrographic science community.

Thank You

Stephan D. Howden

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Director, Hydrographic Science Research Center

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