



NOAA

IGM20/COP17, Aruba

Oct 5th, 2023

Support WCR's Oil spill Early Detection through Satellite

Remote Sensing: COSTA Program Update

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What is COSTA

With the availability of high resolution, publicly available satellite imagery, routine oil spill monitoring can provide the first warning of a spill or intentional vessel oil discharge, help inform and direct spill response resources during major spills, and help countries find and target chronic leak sources.

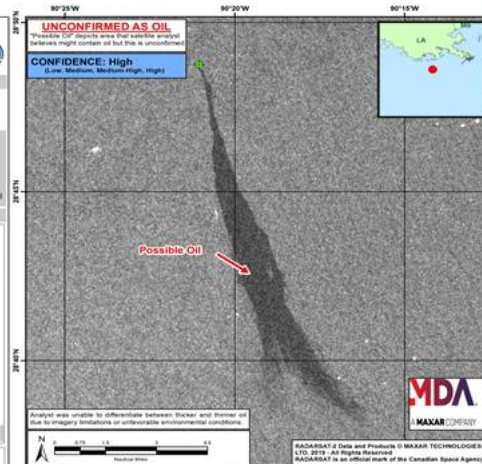
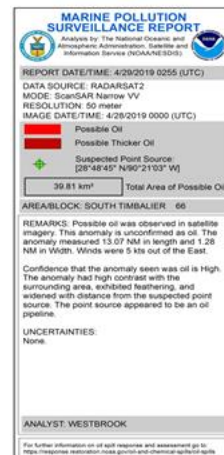
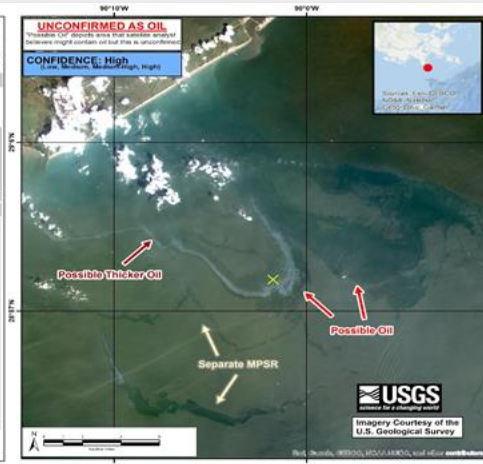
COSTA (Collaboration for Oil Satellite Tracking in the Americas) is an international effort to enable nations in the Americas to stand up **satellite oil spill monitoring and early detection capabilities** in the Gulf of Mexico, Caribbean and adjacent oceans.





Final Decisions from The 16th meeting of the COP to the Cartagena Convention: DECISION VI : RAC/REMPEITC-Caribe

1. Urges the Secretariat to continue to enhance the promotion of the work of the Centre and disseminate information on their activities and capabilities to Contracting Parties in the Wider Caribbean Region.
2. Recommends that the Secretariat strengthen collaboration in the region on oil spill monitoring.
3. Requests the Secretariat, RACs and other partner agencies to actively explore opportunities for replicating and upscaling training for detection of oil spills using satellite remote sensing technology as well as for other emerging pollutants.
4. Encourages those Contracting Parties in a position to do so, to commit human or financial resources to support the operations of RAC/REMPEITC-Caribe.





COSTA has since grown in partners and coverage

- **US** Since 2009, US National Oceanic and Atmospheric Administration (NOAA)'s Satellite Analysis Branch (SAB) has established a 24/7 satellite marine pollution program to monitoring marine oil spills in the US EEZ .US NOAA occasionally support satellite monitoring of international large spills, but the formal request process can request in significant delay.
- **Trinidad and Tobago.** TT is the first Caribbean country trained by NOAA and has fully establish their operational oil monitoring program since July 2021. They expanded to cover Eastern and Southern Caribbean in March 2023 in a pilot test, and plan to fully expand earlier next year.
- **Mexico and Peru** has finished their training in mid 2022, and have transitioned to near real-time monitoring. Mexico is currently monitoring in Southern GOM.
- **Colombia is the latest country to join COSTA.** They are in phase 3 operations with SAB analysts imagery support. And will be fully operational by the end of this year.
- **Central American countries through Central America Integration System (SICA)** has shown interest to join COSTA.

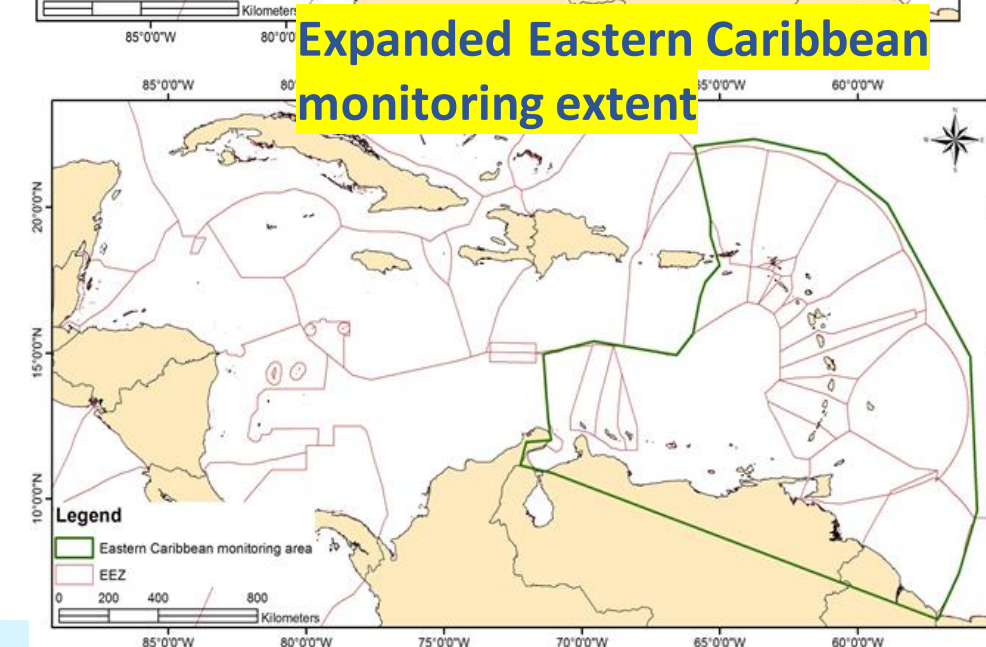
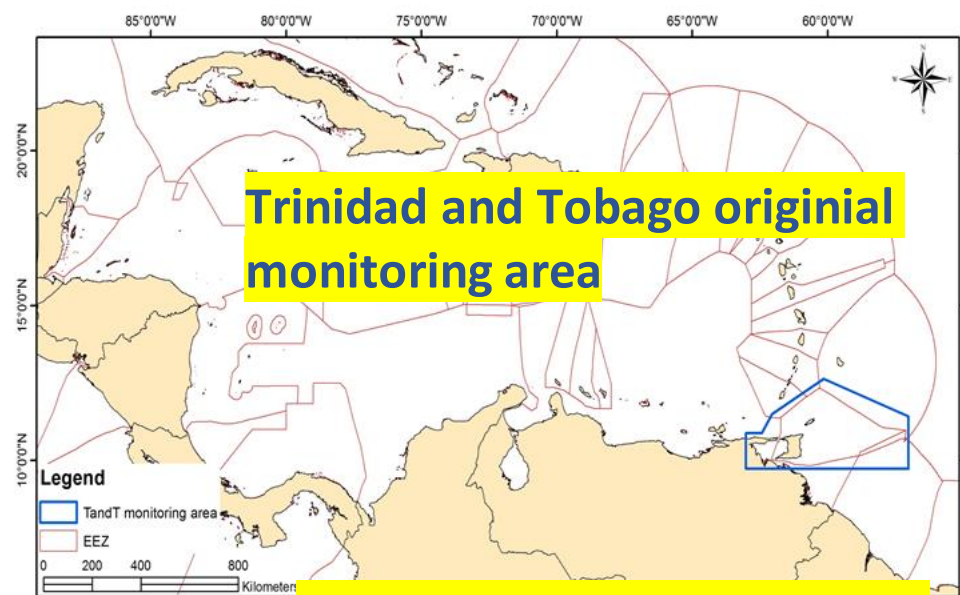


Support IMA's Effort to Expand Monitoring for Eastern and Southern Caribbean Region

Additional 22 countries and territories can be covered in this expansion.

Please contact RAC REMPEITC with the group in your country which can be the primary POC for receiving monitoring report.

Reach out to RAC-REMPEITC consultants Nadia Gour at ngour@racrempeitc.org or Matthew Martin at mmartin@racrempeitc.org



Countries proposed to be included in the IMA monitoring area

Country/territory name	Outreach, information sent (Y/N)	Outreach, POC replied (Yes/No)
British Virgin Islands	Y	Y
Saint-Martin	No	N/A
Saint-Barthélemy	No	N/A
Aruba	Y	Y
Bonaire	Y	Y
Curacao	Y	Y
Sint Maarten	Y	Y
Sint Eustatius	Y	Y
Saba	Y	Y
Anguilla	Y	No
Saint Kitts and Nevis	Y	Y
Antigua and Barbuda	Y	No
Montserrat	Y	No
Guadeloupe	Y	No
Dominica	Y	No
Martinique	Y	No
Saint Vincent and the Grenadines	Y	Y
Saint Lucia	Y	No
Barbados	Y	Y
Grenada	Y	Y
Venezuela	No	N/A
Guyana	Y	Y

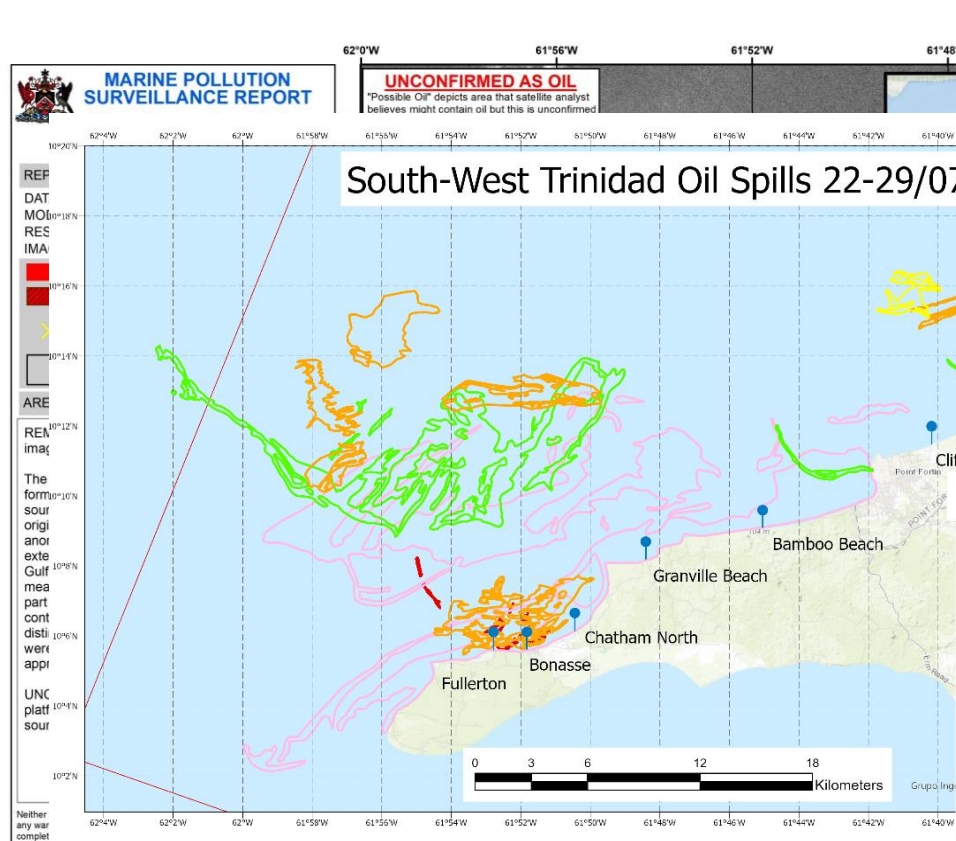




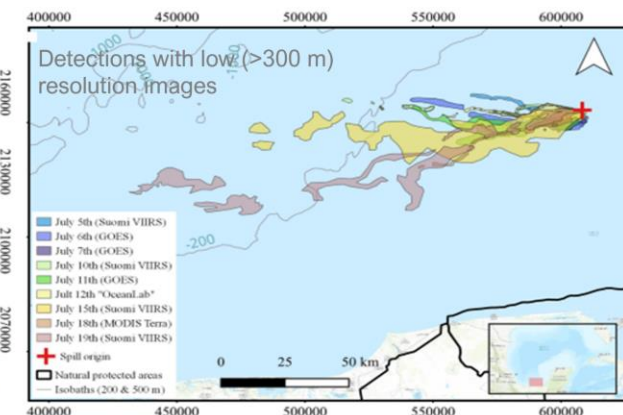
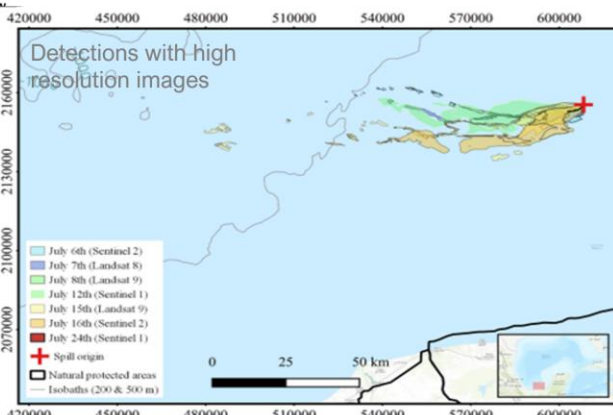
COSTA Supported several large spill events in July 2023

July 2023 Trinidad and Tobago spill offshore Cedros and La Brea

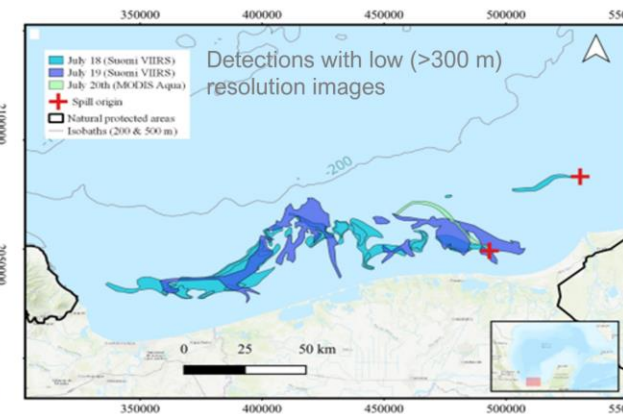
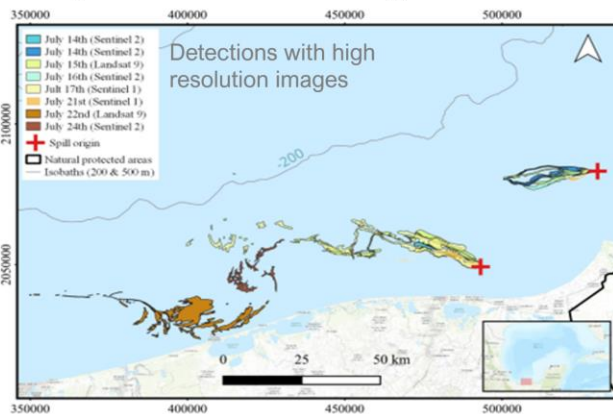
July 2023 Mexico oil spill



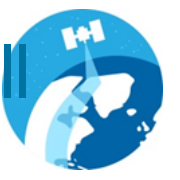
Oil spill first observed on July, 4th 2023



Oil spill first observed on July, 14th 2023



COSTA Supported the Recent Sunken M/V Cetus Oil Spill Using Satellite Imagery



On Friday May 27th 2022 , **Oil Tanker M/V CETUS** sunk in position 14-45.00N 070-31.0W (130 Nautical Miles North West of Aruba) leaving a considerable oil spill. 14 persons were rescued and two persons lost.

RAC/Rempeitc requested COSTA satellite imagery support from IMA in Trinidad and Tobago through NOAA on Friday night June 3rd.

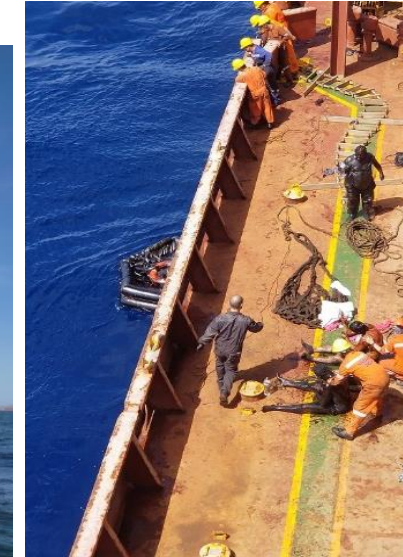
Upon request on June 3rd, IMA generated three MPSRs based on Sentinel 1 and Sentinel 2 imagery from June 1st and June 2nd. The reports were used by Dutch Caribbean Coast Guard in Aruba as well as Jamaica for oil spill response.

NOAA received formal support request for international support on June 8th, and ordered commercial Radarsat2 imagery to support the event, while working together with IMA. By then, no further oil anomaly was detected.

Cutting the response time of satellite support by 5 days, this event has demonstrated the advantage of having local satellite monitoring capability in the Caribbean region.



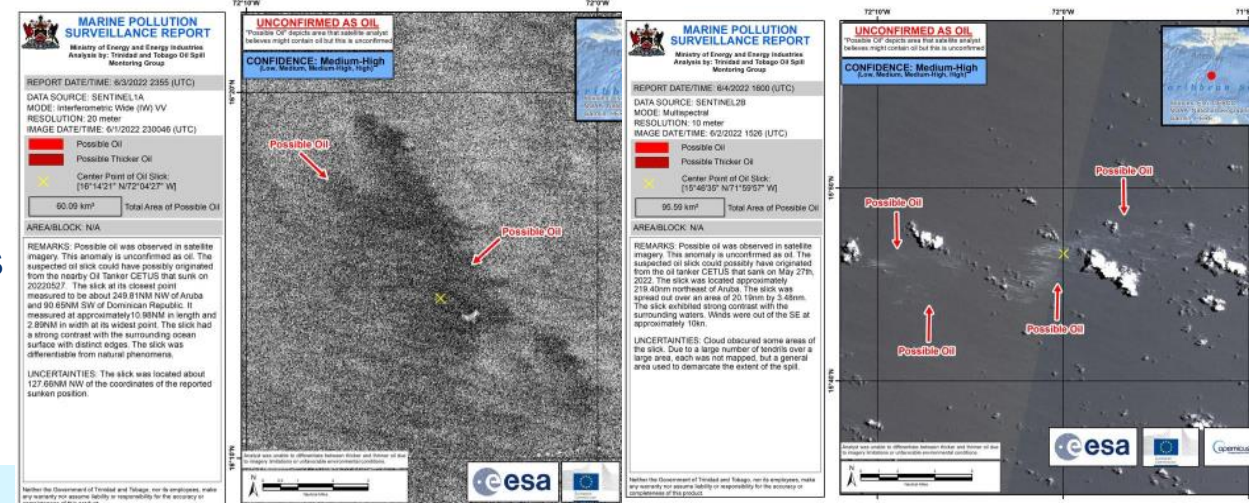
M/V Cetus Oil tanker



Crews were being rescued, covering in oil



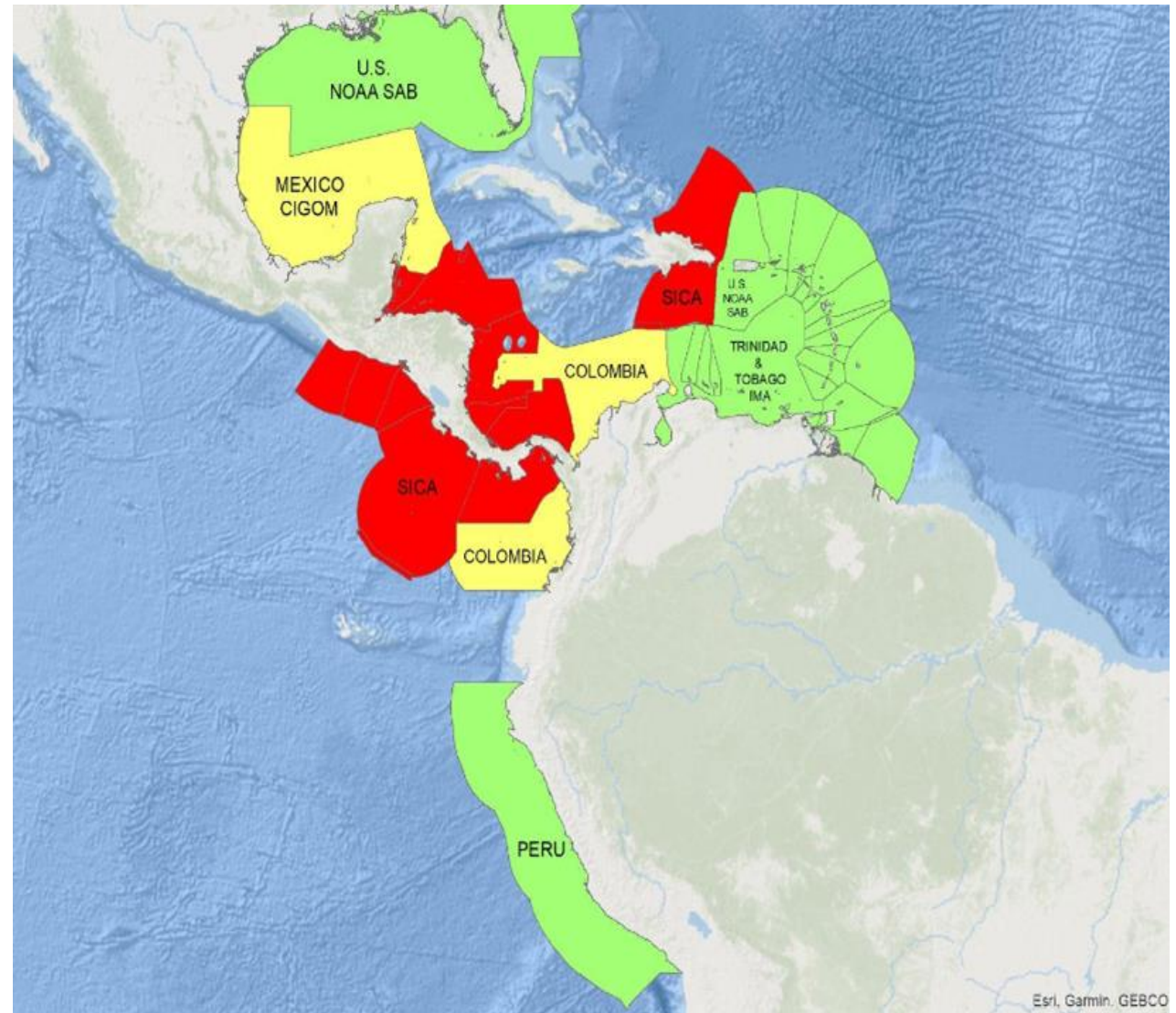
Picture of the oil spill





Next Steps

- A. Coordinate and train Central American Integration System (SICA)
- B. Look for COSTA partners to stand up long term monitoring in the WCRs which are not currently covered
- C. Develop regular meetings and mechanisms for COSTA partners as well as report user agencies to engage and communicate.
- D. Work closely with our organizational partners including AmeriGEO, UNEP, IOCaribe etc to support their regional efforts
- E. Look into collaboration on other marine and atmospheric pollution monitoring such as marine debris and methane emission.





Questions?

Thank you!

Please contact Bonnie Zhu at Xiaofang.zhu@noaa.gov

Or RAC-REMPEITC consultants Nadia Gour at
ngour@racrempeitc.org or Matthew Martin at
mmartin@racrempeitc.org

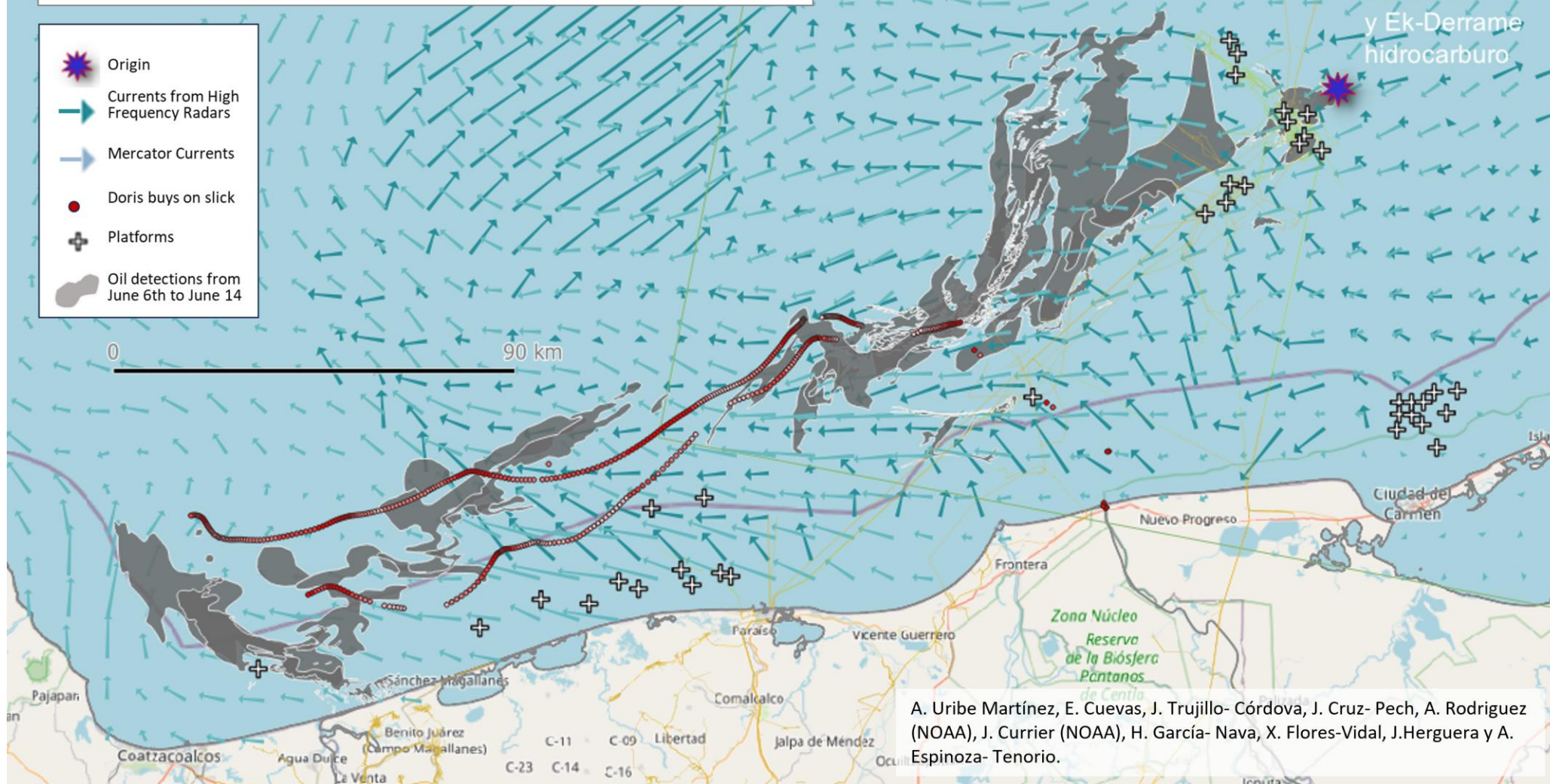


Extra slides



June 2023 Mexico Spill

Oil spill first observed on June, 6th 2023 at Cantarell field, southern Gulf of México.





COSTA Training and Operational support

- COSTA training program is based on the Marine Pollution Program from NOAA Satellite Analysis Branch. The final product MPSR (Marine Pollution Surveillance Report) is generated using GIS software and a NOAA developed python toolbox.
- Phase 1 PREPARATION hardware and software acquisition, installation of ArcGIS toolbar and report template, acquisition of ancillary data, providing documentation, determining satellite coverage, etc. (4-6 weeks)
- Phase 2 ACTIVE TRAINING...active training, 6 hours a week, can be done in Spanish or English (6.5 weeks). Both English and Spanish training have been provided and recorded.
- Phase 3 OPERATIONS WITH COSTA IMAGERY ANALYSIS SUPPORT...New collaborator becomes operational monitoring their and hopefully neighboring waters and NOAA and IMA analysts provide “second look” analysis support.



COSTA Organization Partners

- NOAA: provide original program, as well as training and expertise for satellite oil monitoring
- AmeriGEO: Critical role in capacity building, bringing on board Peru, Colombia and likely in the future SICA (8 central American country group). POC: Angelica Gutierrez
- UNEP Cartagena Convention: Critical role in supporting COSTA program in the Caribbean region, recognize and recommend satellite oil spill to be a regional priority. Aid in outreach and capability building. POC: Christopher Corbin
- RAC-REMPEITC: Caribbean's regional Marine Pollution Emergency, Information and Training center. Worked closely with COSTA to engage countries in the area for capability building and large events support. POC: Nadia Gour, Matthew Martin (USCG consultant)
- GEO Blue Planet and IOC-Caribe: Engage SAB initially to explore engaging countries to train in satellite oil spill monitoring, brought Trinidad and Tobago onboard. Continue to be very supportive of COSTA development. POC: Emily Smail, Lorna Innis

