



Analysis of Radar within Coast Guard Vessel Traffic Services

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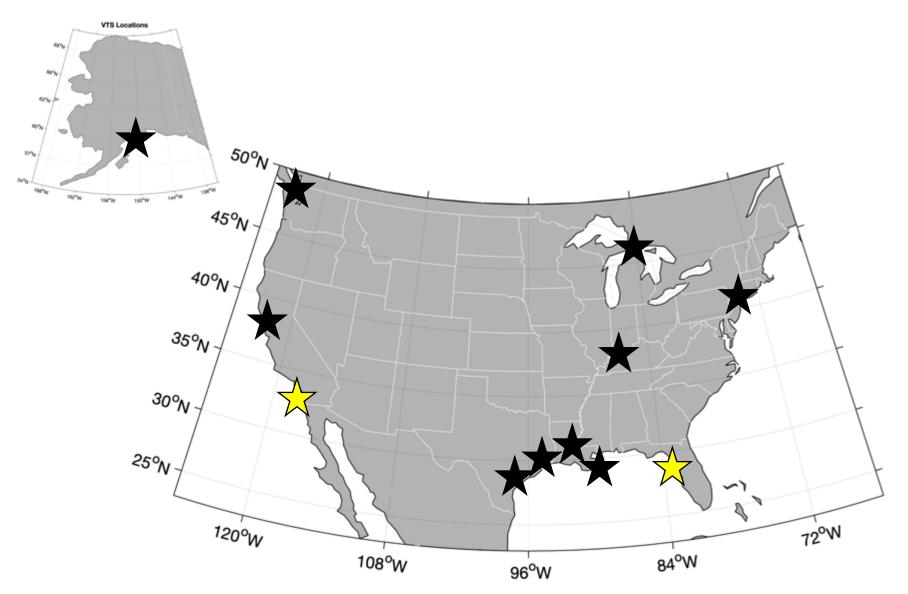






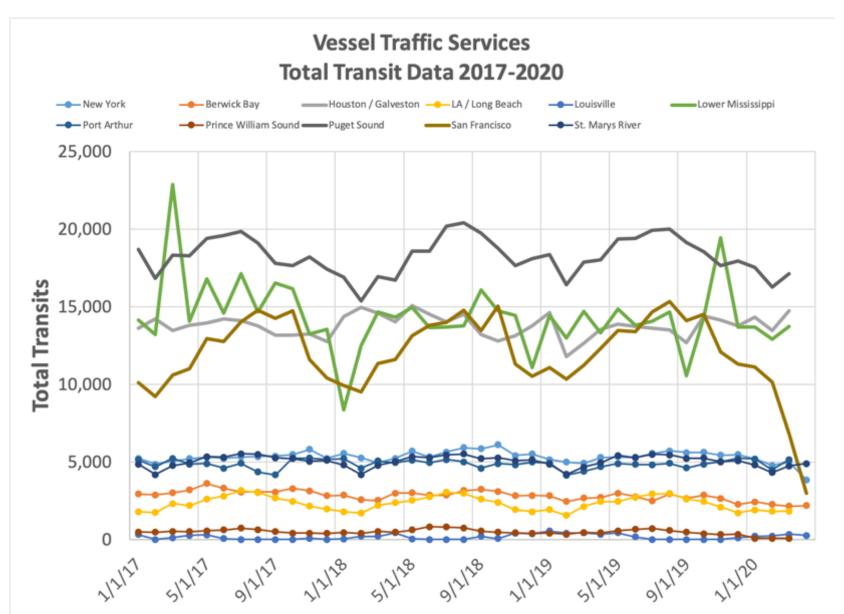
VTS Locations





VTS Traffic Volume

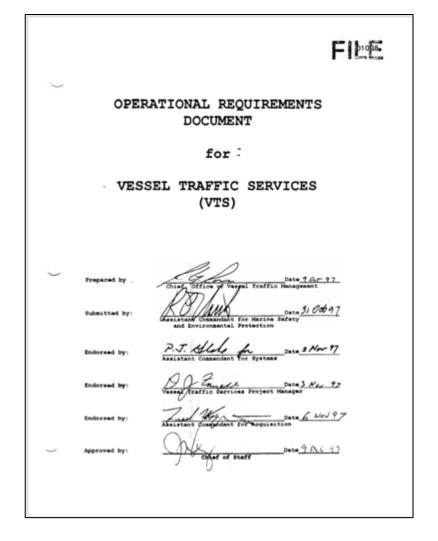




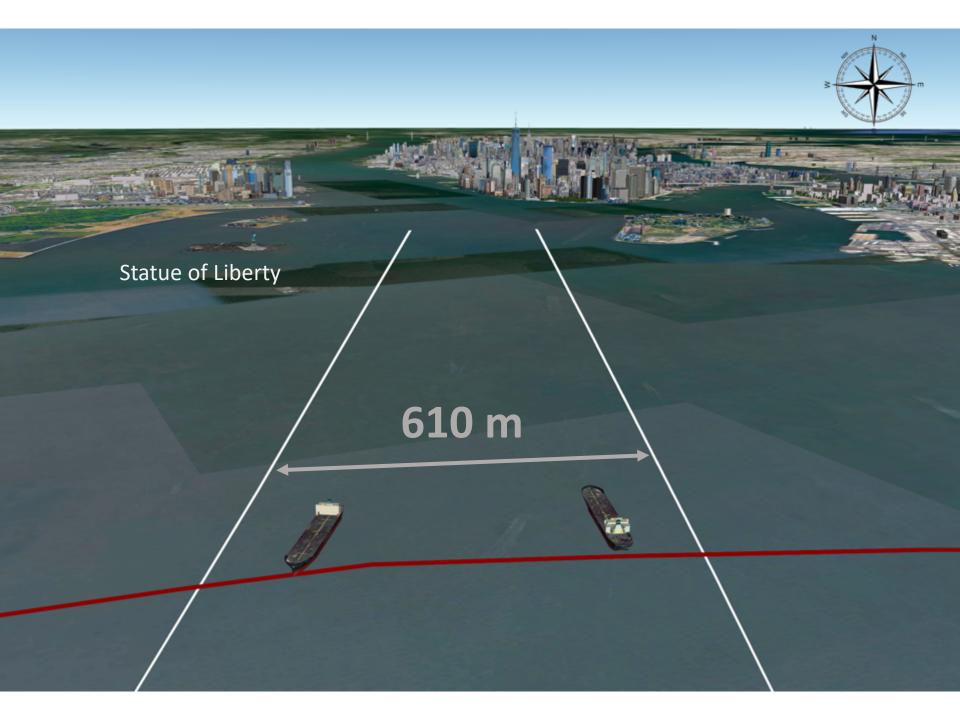


Research Project Overview

 VTSs need to distinguish two separate targets of 20 m or greater in length when they are 50 m apart at a sensor to target distance of 3 nm or 500 m apart at a sensor to target distance of 24 nm







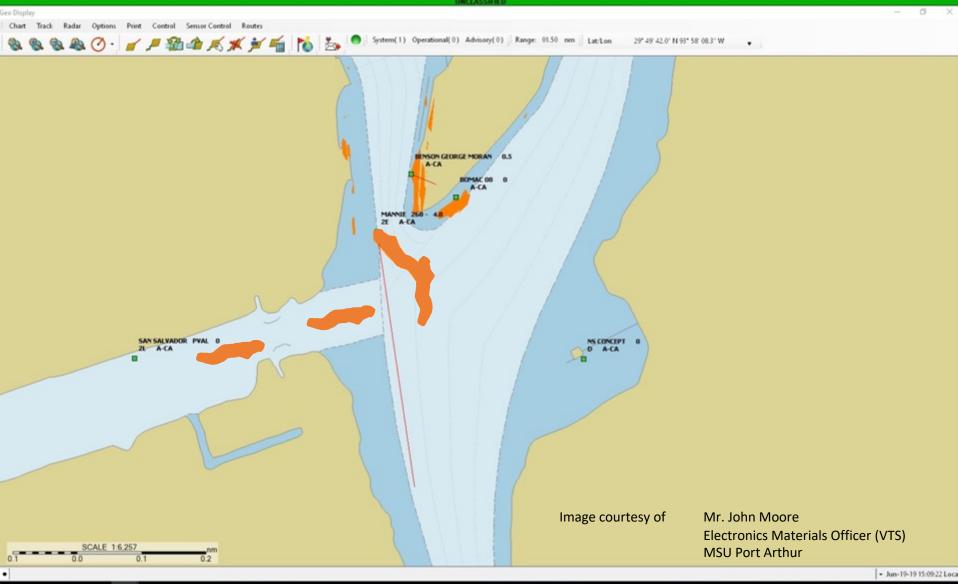


Radar Use Within VTS

- Anchorage Monitoring
- Small vessel detection (non VTS users)
- Ship and Barge breakaways
- Debris monitoring
- Monitoring Aids to Navigation(ATON)
- AIS failure
- Monitoring aspect ratio of vessel

Research Project Overview







Milestones and Performance Metrics

No.	Milestone	Percentage completed	Completion Date	New Plans / Contingency
M1	Kick-off meeting to discuss project plan, objectives, and outcomes	100%	Jan 2020	
M2	Release Request for Information	25%	June 2020	
M3	Select recommended radars	0%	Dec 2020	
PM1	Gather requirements from at least 6 VTS centers and HQ	100%	Apr 2020	
PM2	Submit RFI to at least 5 vendors	25%	Jun 2020	
PM3	Recommend at least 2 radars for consideration	0%	Dec 2020	



COVID19 Impact – Contingency Plans

- The ability to travel to the VTS centers ceased mid March
- Conducted 4 on site meetings with VTS centers (New York, Louisville, Houston and Port Arthur)
- Since lockdown have conducted phone interviews with 4 of the VTS (New Orleans, Puget Sound, San Francisco and Berwick Bay)
- Briefed the Coast Guard HQ team last week on status of research to receive feedback and define future analysis

End User Engagement



LT Eric Romero

CG-741 Office of Shore Forces Weekly contact



Mr. Greg Hitchen **CWO2 Virgil Bankes**

VTS New York

Mr. Brian Page

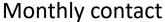
CG-761 Office of Sensor Capabilities



Mr. Nick Frascella

VTS Louisville

Mr. Steven Nerheim Mr. Johnny O'Rourke **VTS Houston**



LT Dan Dougherty

Command, Control, and Communications Engineering Center (C3CEN) Phone Interview in February 2020



Mr. Scott Whalen

Mr. John Moore



LCDR Thao Nguyen

Mr. Tony Jones

Mr. George Petras



LT CMD Russ Hall

CG-771 Office of Requirements & Analysis Monthly contact



Mr. Laird Hail

Mr. Xavier Villarreal

VTS Puget Sound

VTS San Francisco

Mr. Darin Mathis

CG-NAV Monthly contact



Mr. Robert Blomerth

Mr. Scott Humphrey

ELC2 Tom Bound

LT Tim Veach

Mr. Don Boudreaux

VTS Berwick Bay



Sensor Inventory

 99 cameras and 47 radars in ten Coast Guard VTS (LA/LB and Tampa excluded)





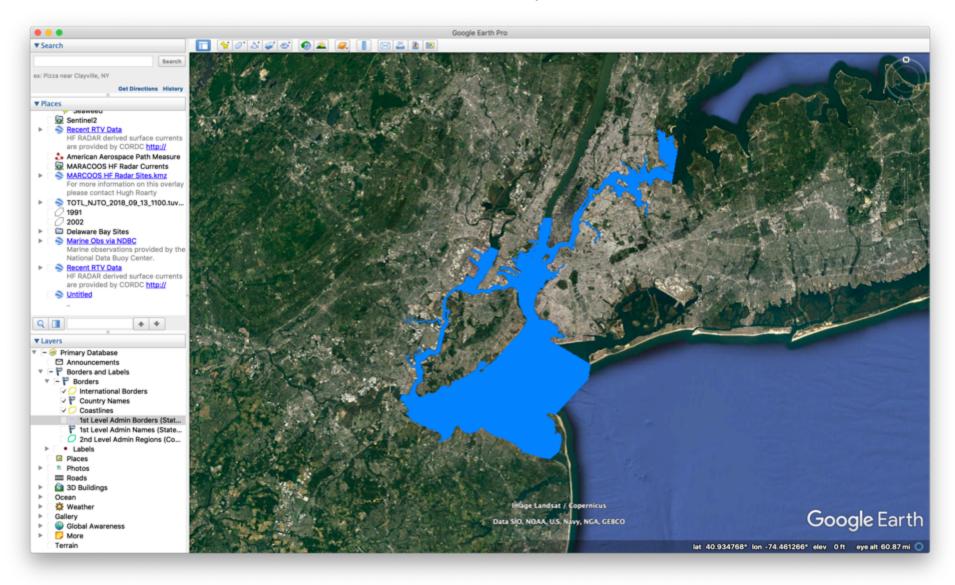


Research Work and Accomplishments

- Boundaries of All VTS entered into GIS and Google Earth
- Radar and camera locations entered for New York, Houston, Port Arthur, New Orleans, Louisville, Berwick Bay, Puget Sound and San Francisco
- The coverage zones for each sensor have been estimated and verifying now
- Radar specifications for the 47 radars have been collected

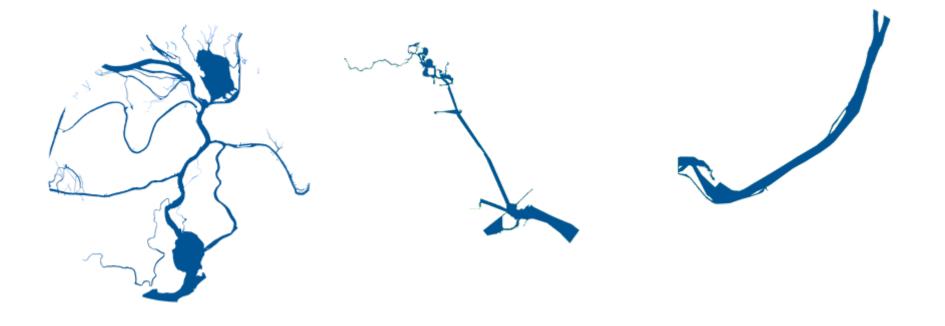


Research Work and Accomplishments





Diversity of VTS Environments



Berwick Bay

Houston

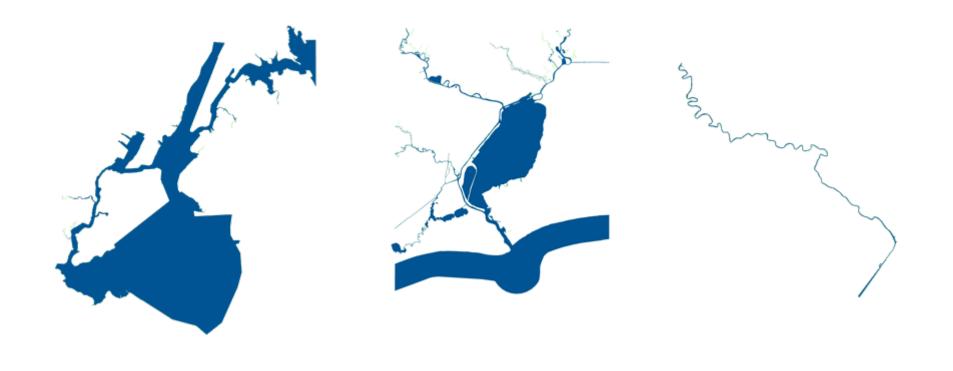
Louisville



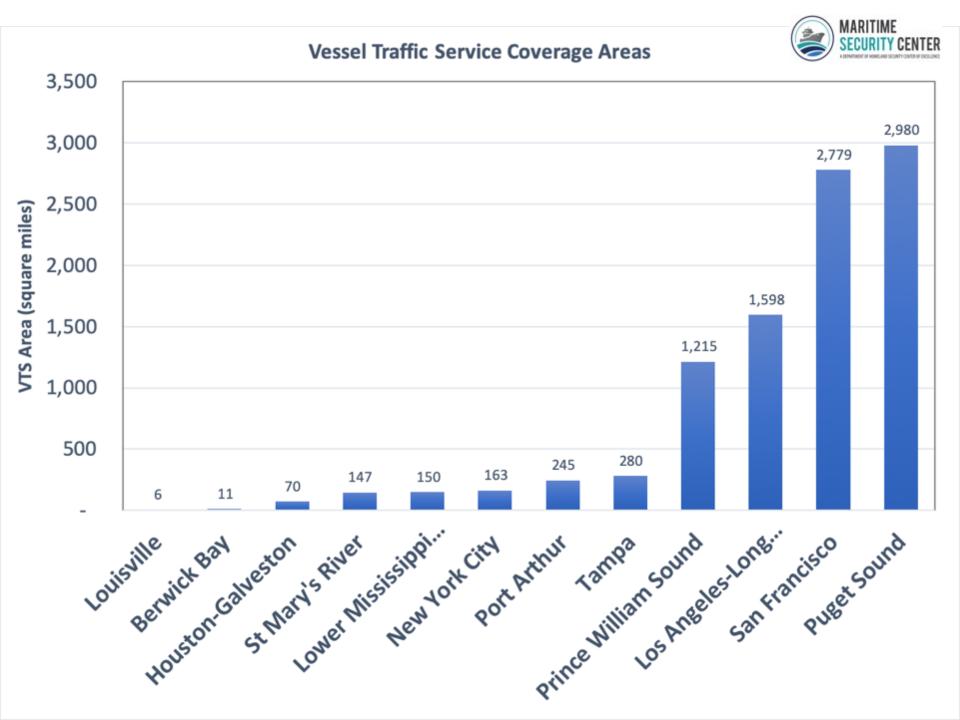
Lower Mississippi

Diversity of VTS Environments

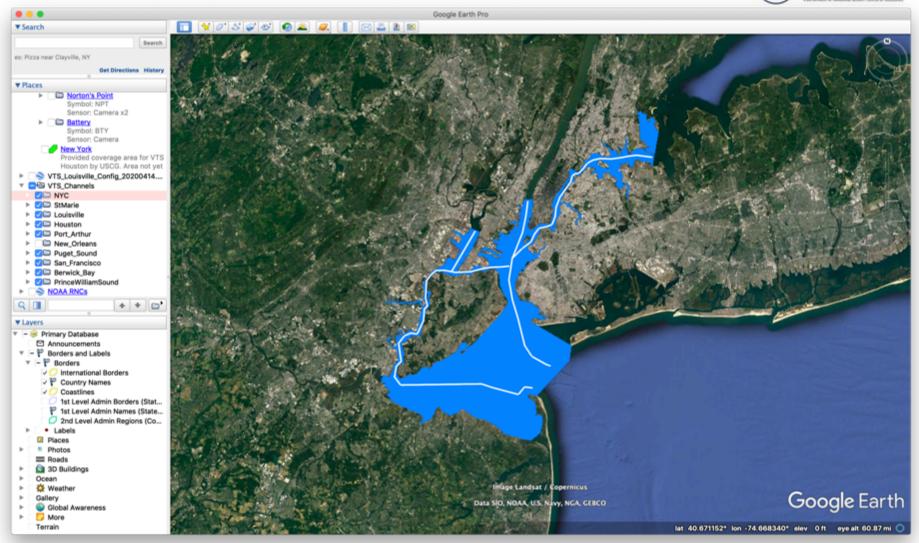
New York City



Port Arthur

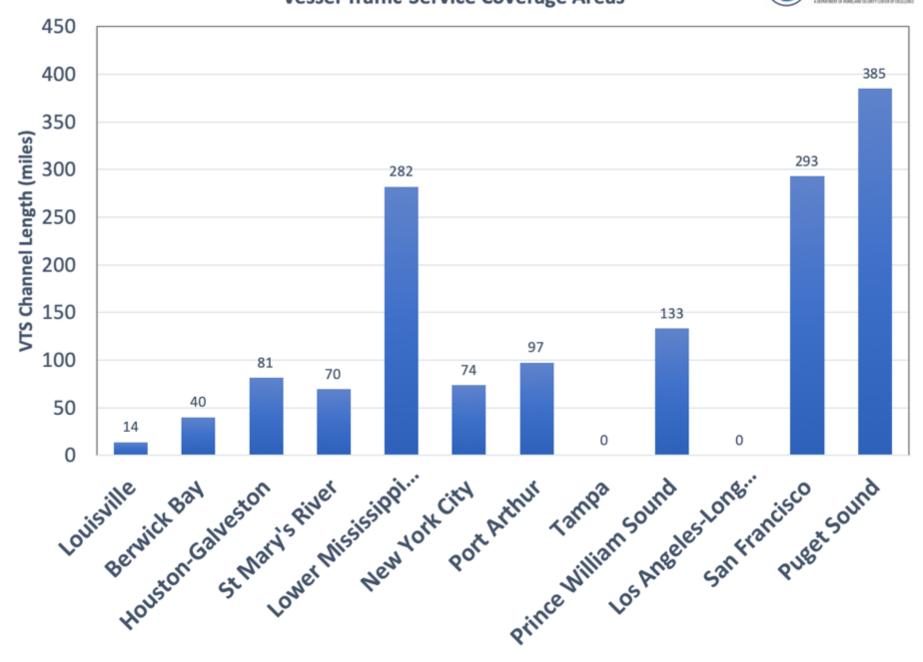






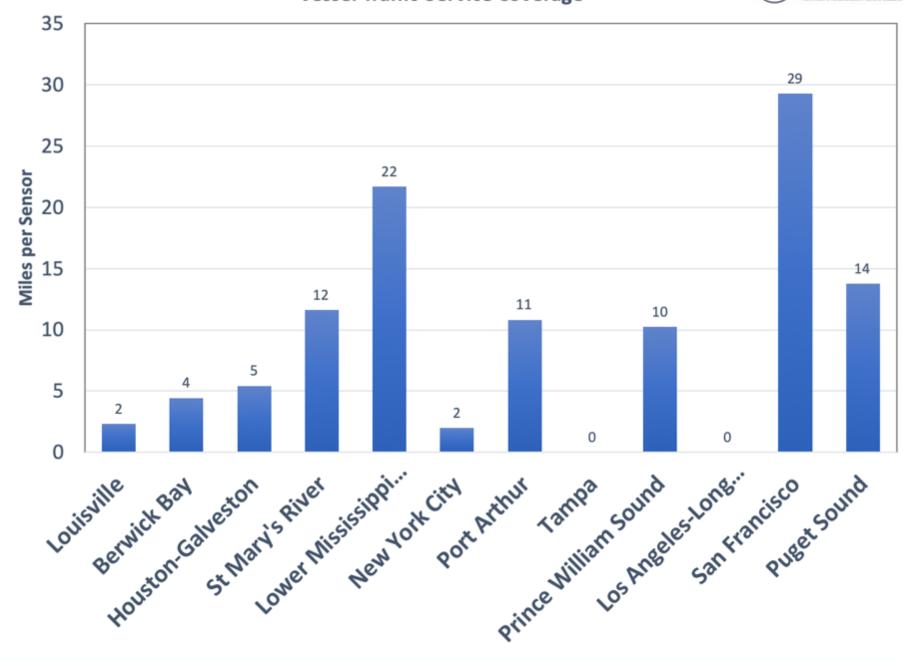
Vessel Traffic Service Coverage Areas



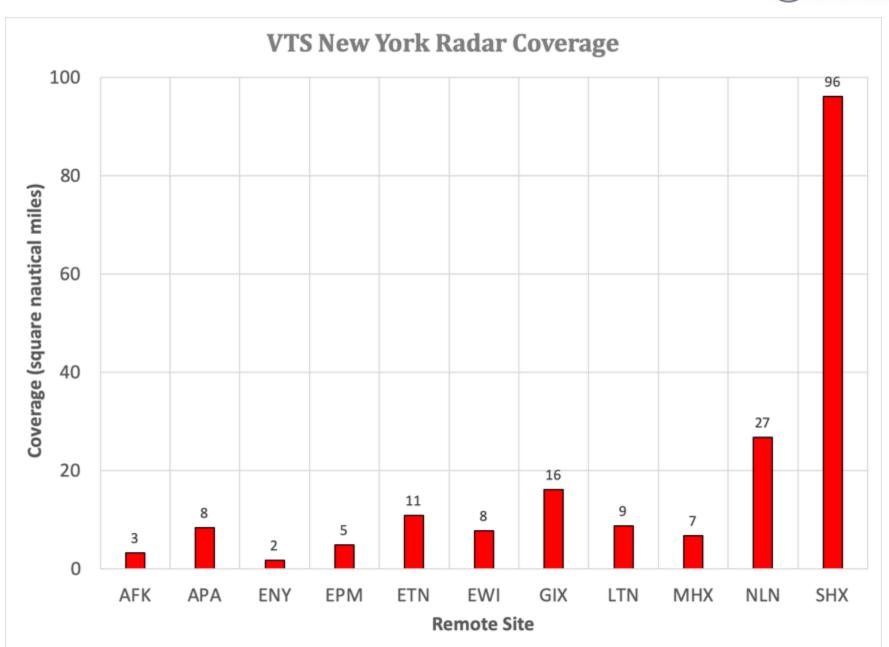


Vessel Traffic Service Coverage

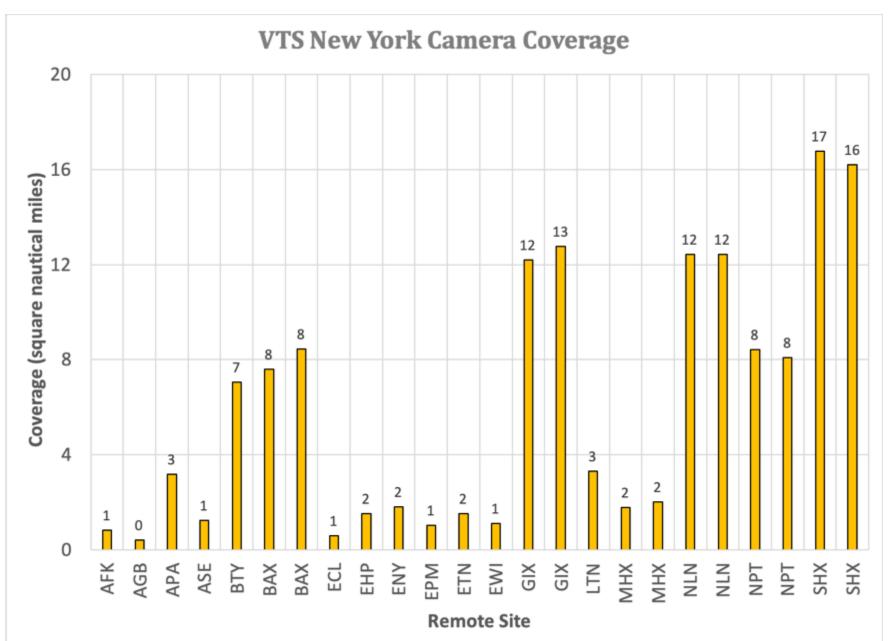






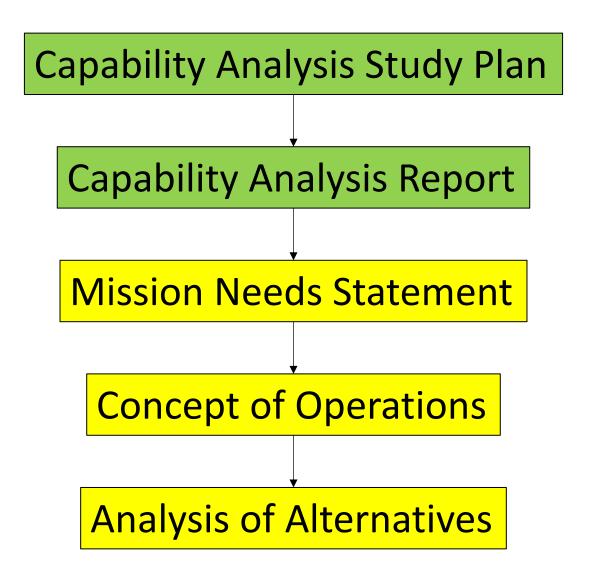






Anticipated Project Impact and Transition

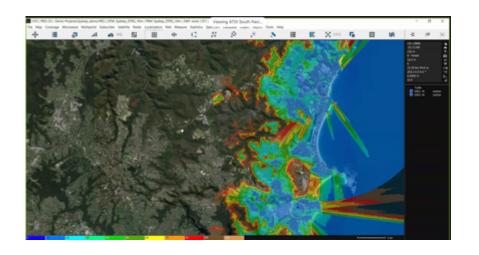






Plans for the next year

- Develop GIS for remaining VTS locations
- Release Request for Information (RFI) to radar vendors
- Model current and potential future radar performance in HTZ Warfare
- Analyze responses from radar vendors



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INSTRUCTIONS FOR MSC PI RESEARCH PROJECT PRESENTATION

Please prepare slides for 15 minutes of presentation and 10 minutes for questions and answers. Use the following MSC slide template. Presentations will be held via Webex

Your presentation should include:

- Title slide
- Project Overview and Objectives
- Milestones
 - '(a milestone chart with the major milestones and due dates from approved workplans and a
 specific indicator as to whether the milestone is on track as planned. If it is not, they should
 specifically state why, how they are handling it and the impact (e.g., new anticipated date of
 completion and whether it impacts ability to complete other milestones or the project on time).
 If they need to make adjustments, please encourage them to be forthcoming and proactively
 work those adjustments with us. "
 - INSERT A SLIDE FOR COVID19 IMPACT ONLY IF THIS APPLIES TO YOUR PROJECT.. "Specifically state potential impacts to work from SARS-COV-2 (e.g., labor if students cannot return, travel dependent research, schedule or output impacts) and their proposed mitigation/alternate plans for completing the work. - They should especially identify if the intended outputs would need to change due to these impacts."
- Engagement with end users.
- Research activities, findings and outcomes to date.
- Anticipated impact of the project and Transition of your project's outcomes.
- Plans for the next year (remaining milestones, beyond this project?)

Please include the DHS acknowledgement/disclaimer on last slide. The use of images from your work is highly encouraged.

Please send your completed presentation to MSC@stevens.edu, no later than May 6, 2020.