

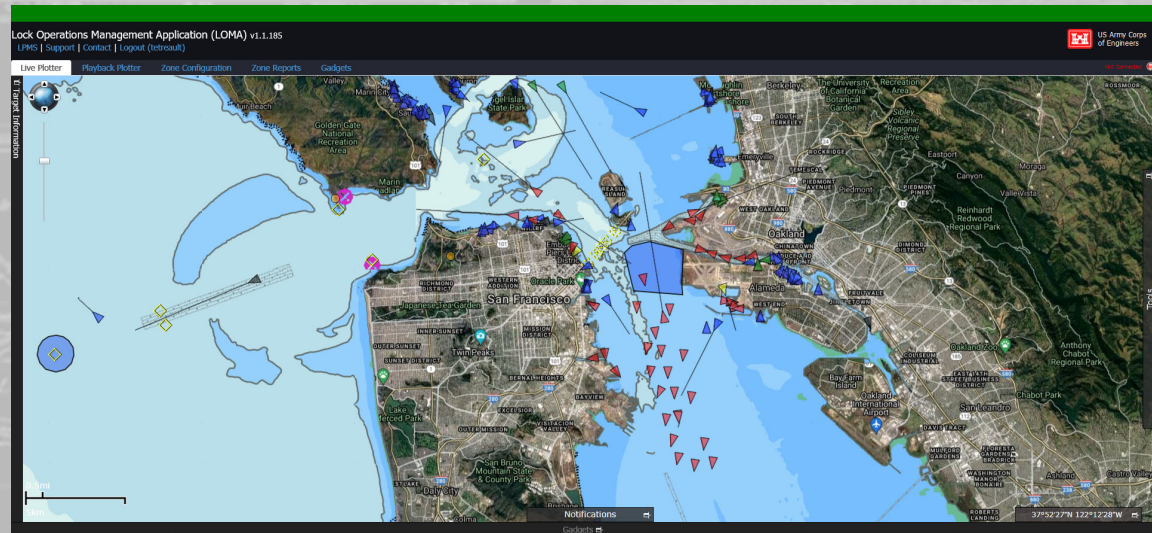
Lock Operations Management Application (LOMA) Introduction

- User set up
- Primary functions
- Additional capabilities

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10 May 2021



US Army Corps
of Engineers®

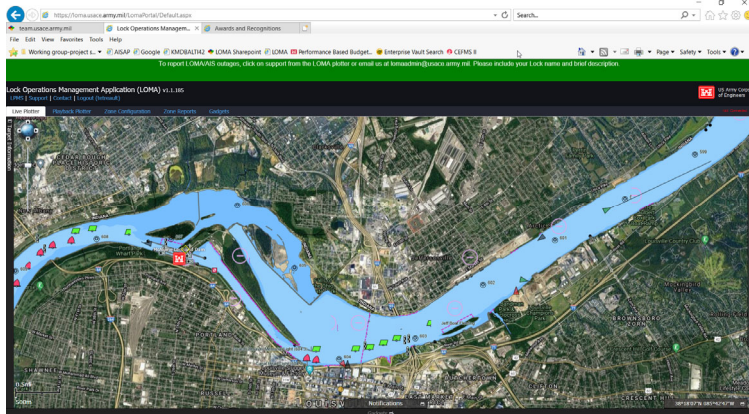
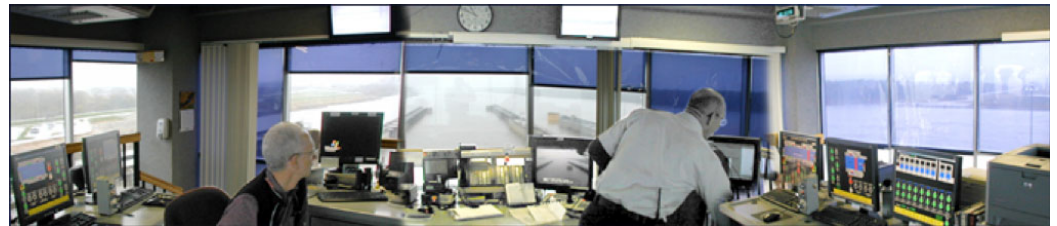




LOMA Introduction



- LOMA system overview
- Origin and purpose
- Field equipment
- Software
- User interface
- Demonstration and hands-on instruction





LOMA Origins and purpose

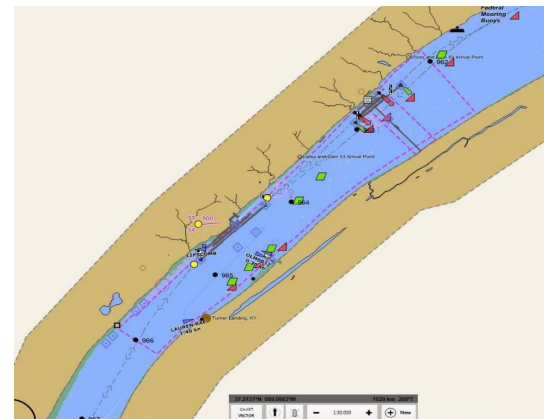


Origin:

- Mid-2000s USACE began investigating use of AIS
 - RTCV, AISEP, analysis in support of project studies
- 2009 ARRA funding
 - “LOMA 1”
 - Primarily aimed at lock operations – hence “LOMA”

Purpose

- Provide end users information needed for decision support
 - Lock operators
 - Vessel operators
 - Corps management
 - Other systems – internal and external
- Leverage AIS capabilities
 - Vessel tracking
 - Analysis
 - Transmit capabilities



LOMA AIS equipment

AIS VHF Antenna



GPS Antenna



AIS AtoN Station

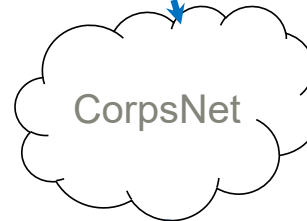


Power supply

Power in – Main or solar panels



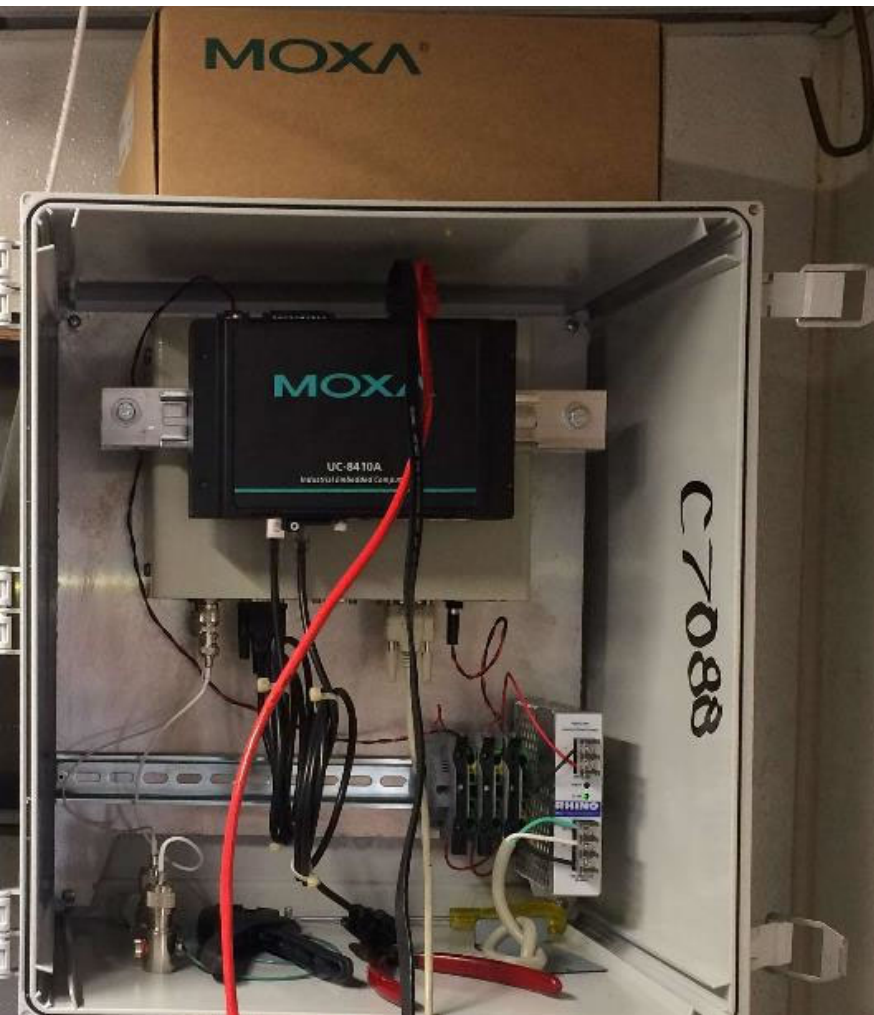
Cell modem



Data to/from LOMA system

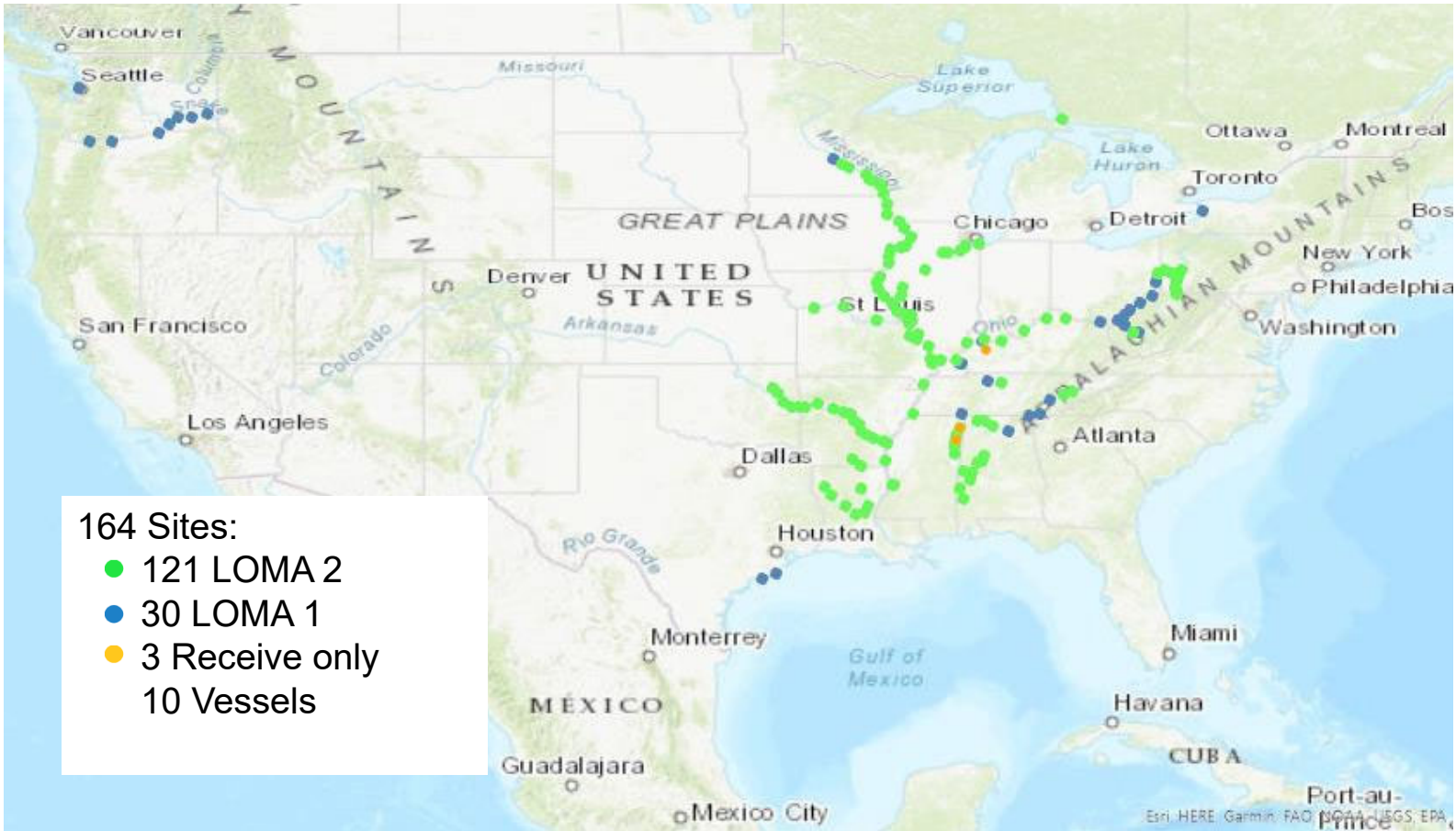
Functions:

- Receive and transmit AIS messages
- Store-and-forward received data when network lost
- Collect data on system health
- Manage AIS transmissions
- Others in development



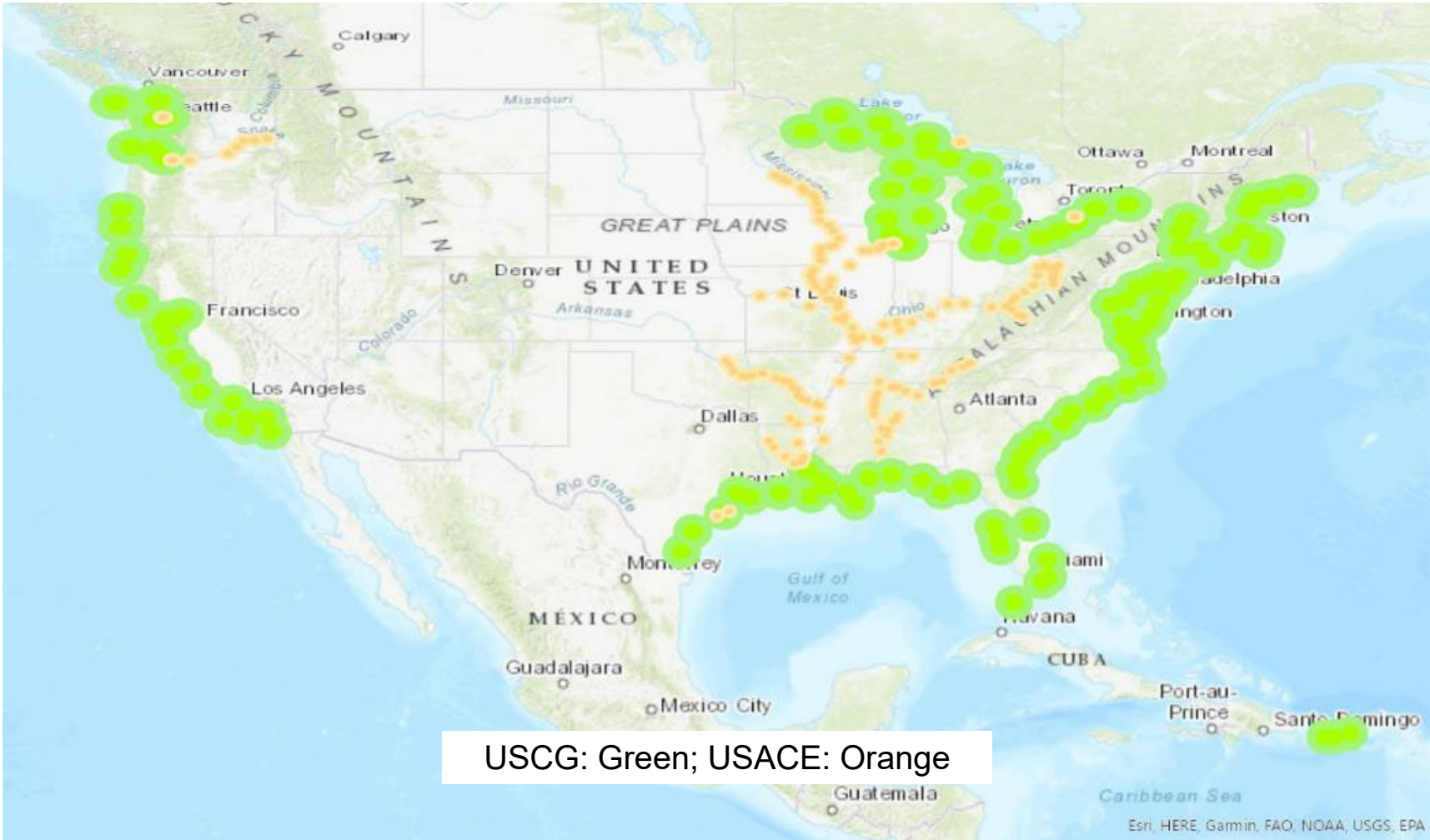


LOMA AIS equipment locations



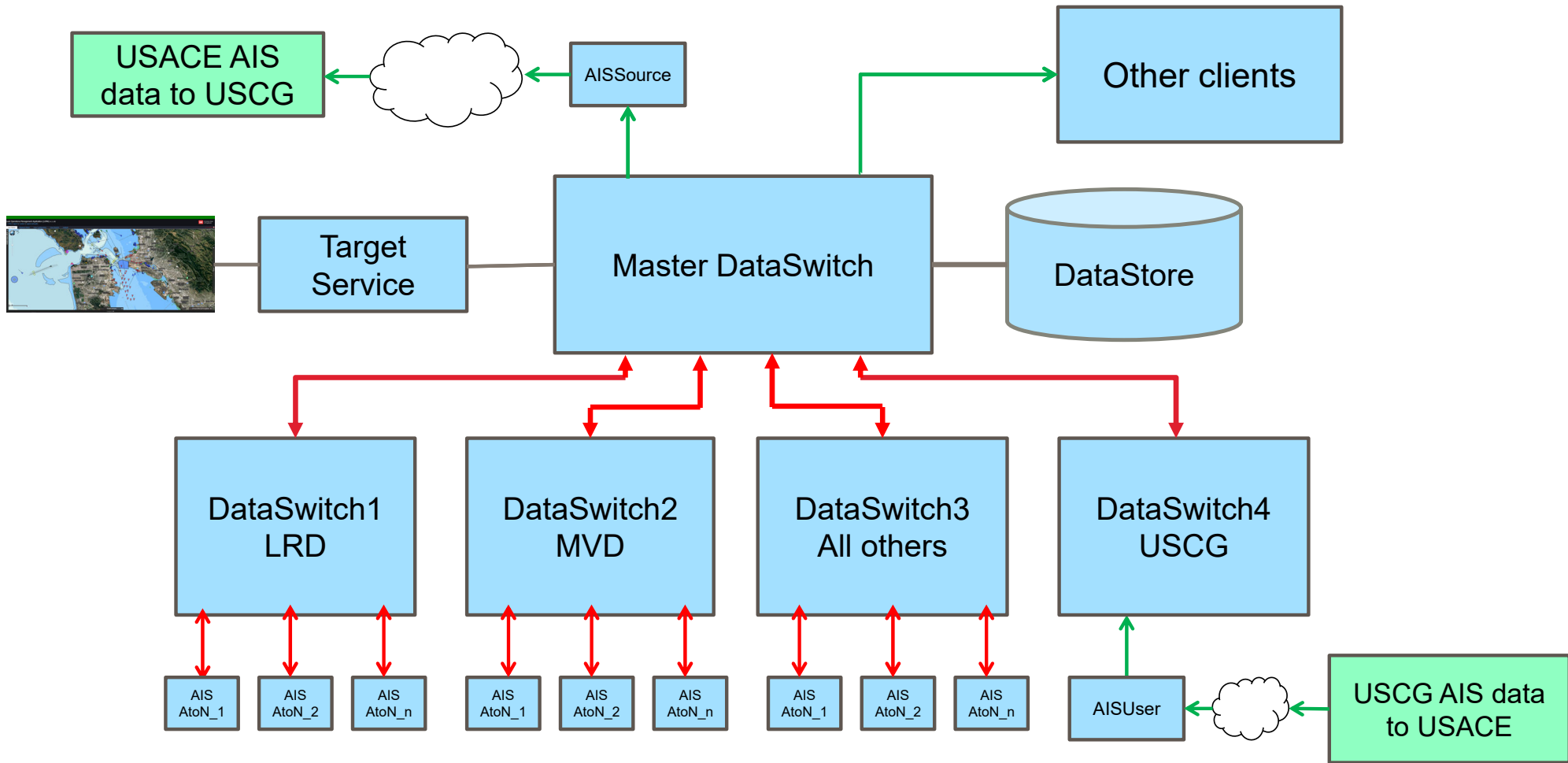


Approximate AIS coverage





LOMA software





Demonstration and hands-on instruction



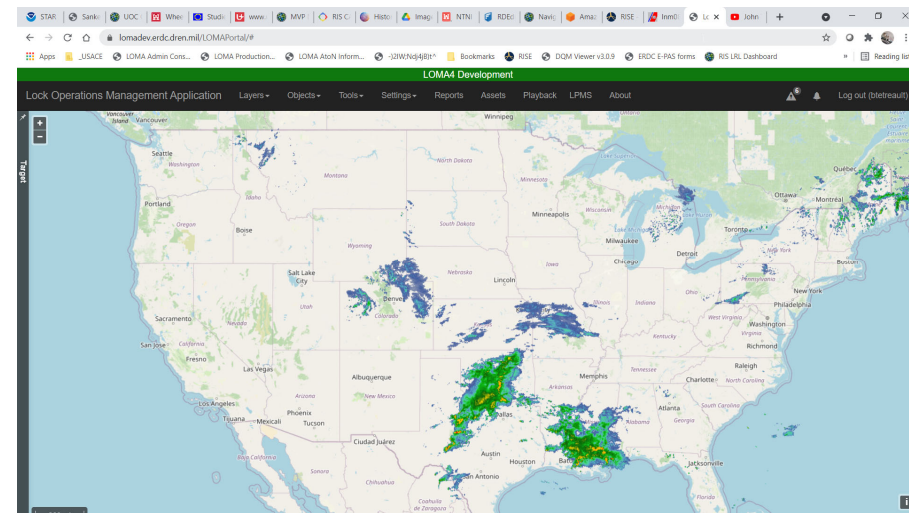
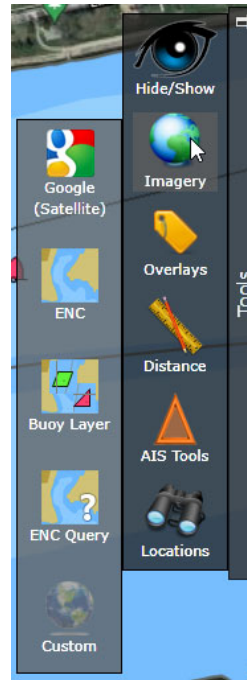
- Initial set up
 - Log in
 - User Settings
 - Default view
- Overview of the user interface (Plotter)
 - Tools overview – quick reference sheet
 - Ways to move around – cursor, mouse, Locations
- Primary functions
 - Imagery and symbology
 - Getting vessel information
 - Target Tags
 - Target Data window
 - Find a vessel
 - Marker creation
 - Zone creation
 - Zone alerts, notifications
 - Zone reports
- Additional functions (if time and interest)
 - Filters
 - All, Active, Filtered, or No AIS
 - ENC Query
 - Measuring distance
 - ETA
 - Playback (currently unavailable)
 - Others?

But first – any questions?



LOMA Day 2 - Review

- Questions or issues?
- Additional functions:
 - Filters
 - All, Active, Filtered, or No AIS
 - ENC Query
 - Measuring distance
 - Others?
- LOMA updates:
 - New sites
 - Coverage analysis
 - Updated software - LOMA4
 - Demonstration
 - User testing



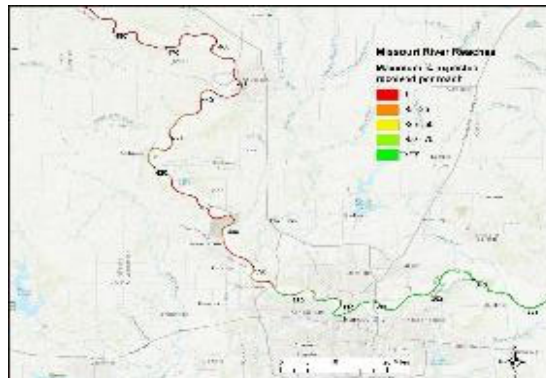


LOMA UPDATE – 2020 ACTIVITIES



- New sites: Vicksburg Bridge, USACE PATHFINDER
- 2nd generation equipment
 - Deployed to 131 of 164 sites
 - LRD install trip 17-31 May 2021

- Coverage analysis
 - Identify gaps
 - System monitoring



- LOMA4 software development update

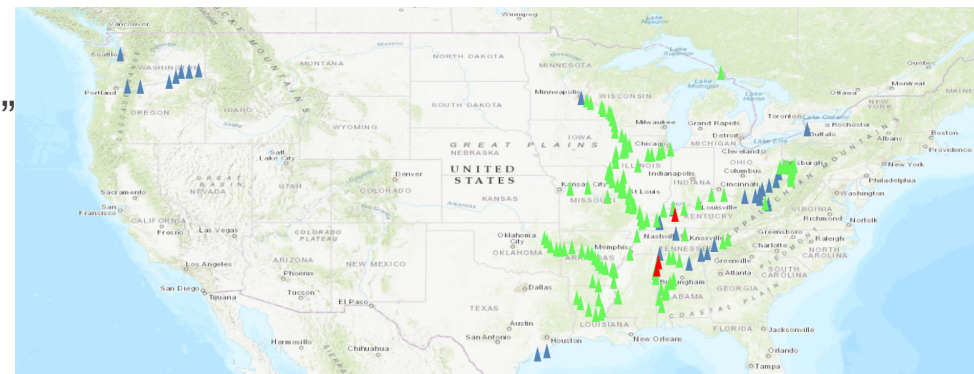
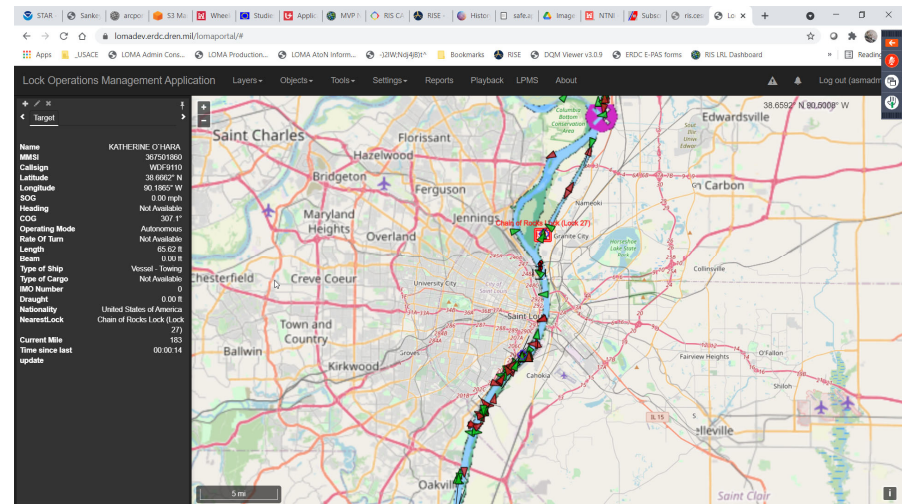


- Additional capabilities
 - ▶ Store-and-forward data
 - ▶ “Scatter hoarding”
- Cell Modem capability
 - ▶ For non-lock locations



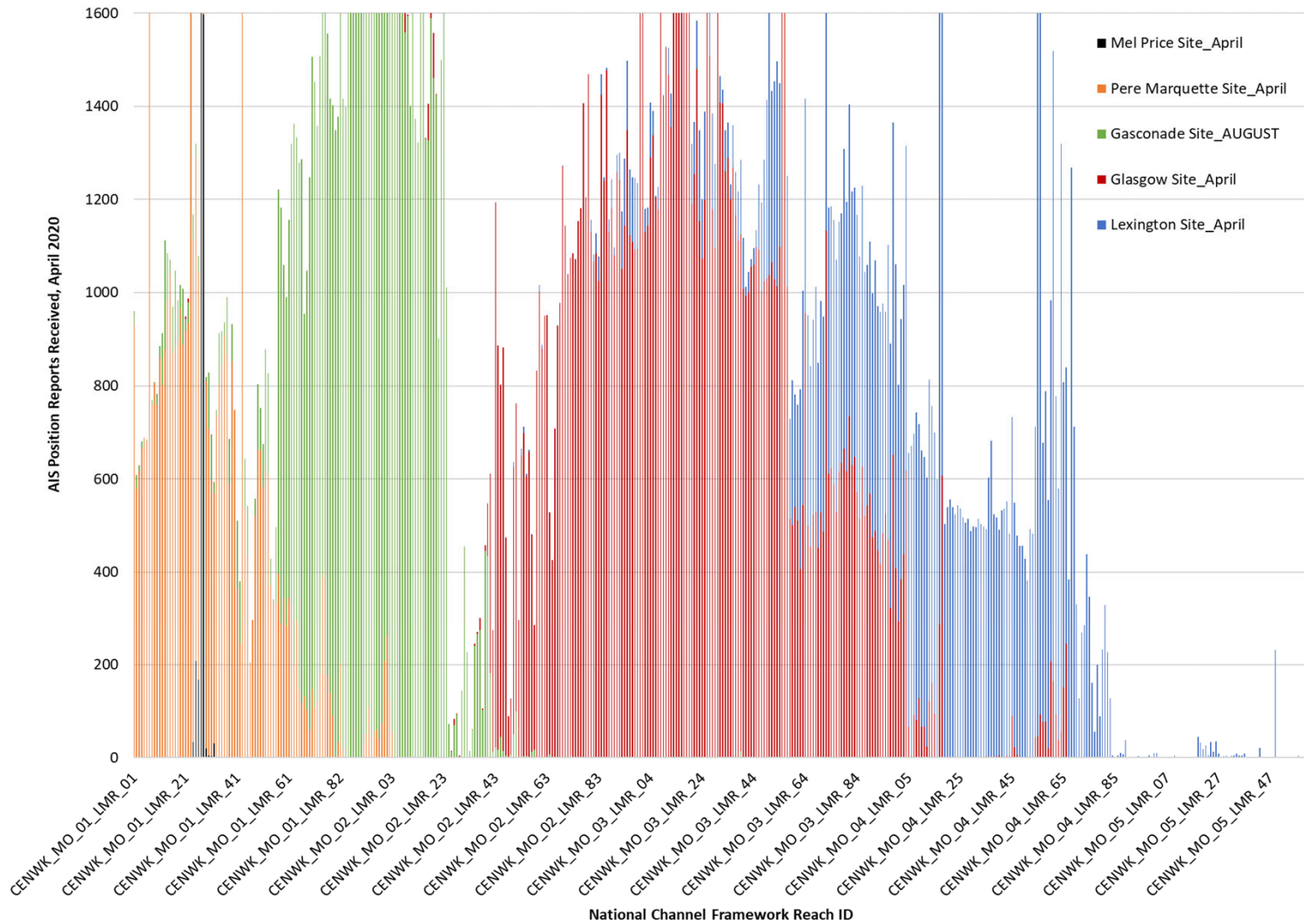
AIS COVERAGE ANALYSIS

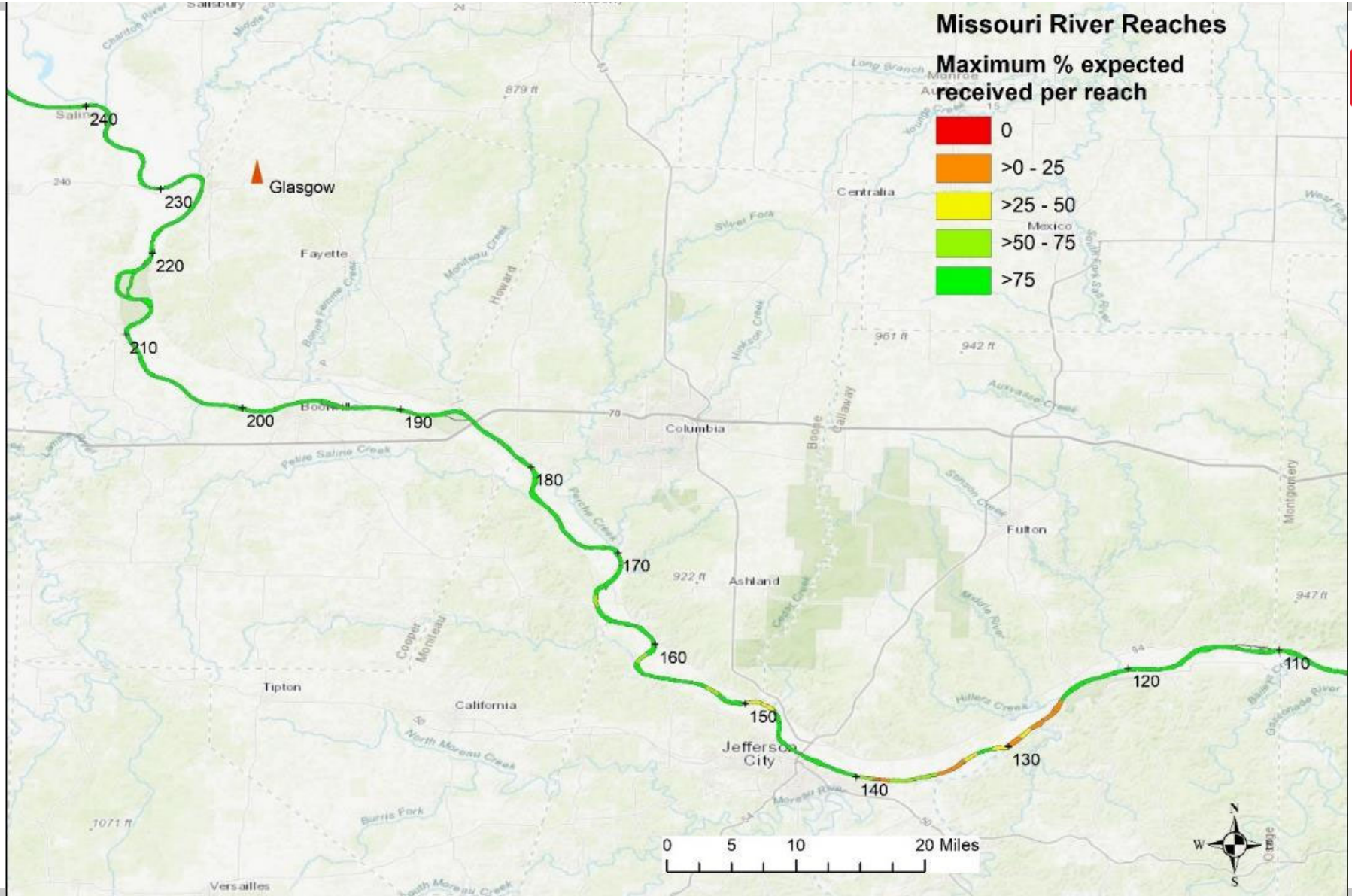
- Initial deployment was lock-centric – support LOMA real-time operation
- More reliance on AIS data – historical analysis
 - Travel time analysis (Patty DiJoseph)
 - Density maps (Dan McBride - MVR)
 - AISAP (coming up next)
- Need for better coverage info
 - Identify and fill gaps
 - Monitor system performance
 - Metadata for historical analysis
- Different ways to define and measure “coverage”
- 2 methodologies:
 - Count of position reports received per reach
 - Predicted reception vs Actual reception





Count of AIS Position Reports Received at Mel Price, Pere Marquette, Lexington, Glasgow, and Gasconade Sites, by eHydro National Channel Framework Reach, April and August 2020







Thank you for your attention!

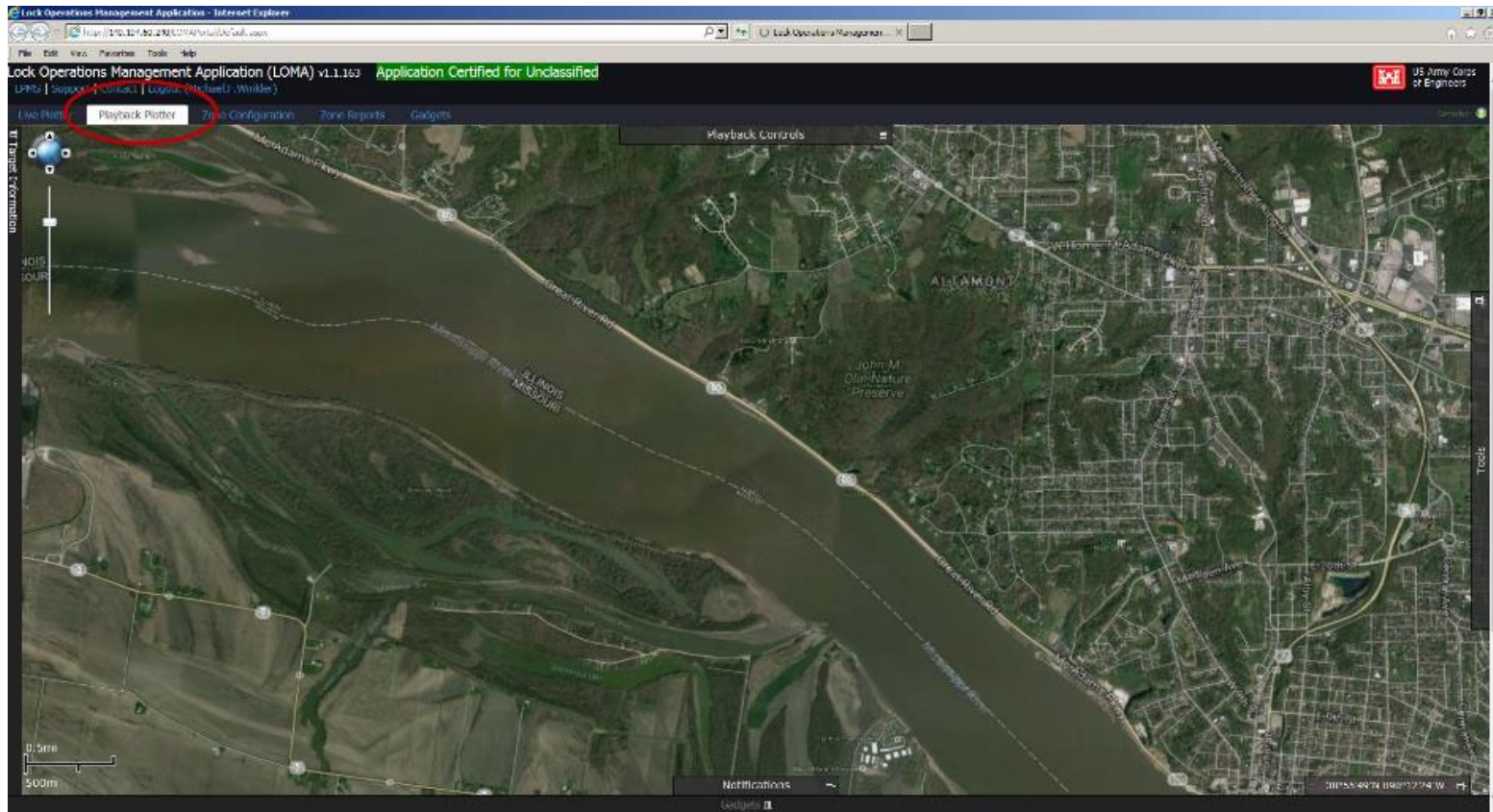


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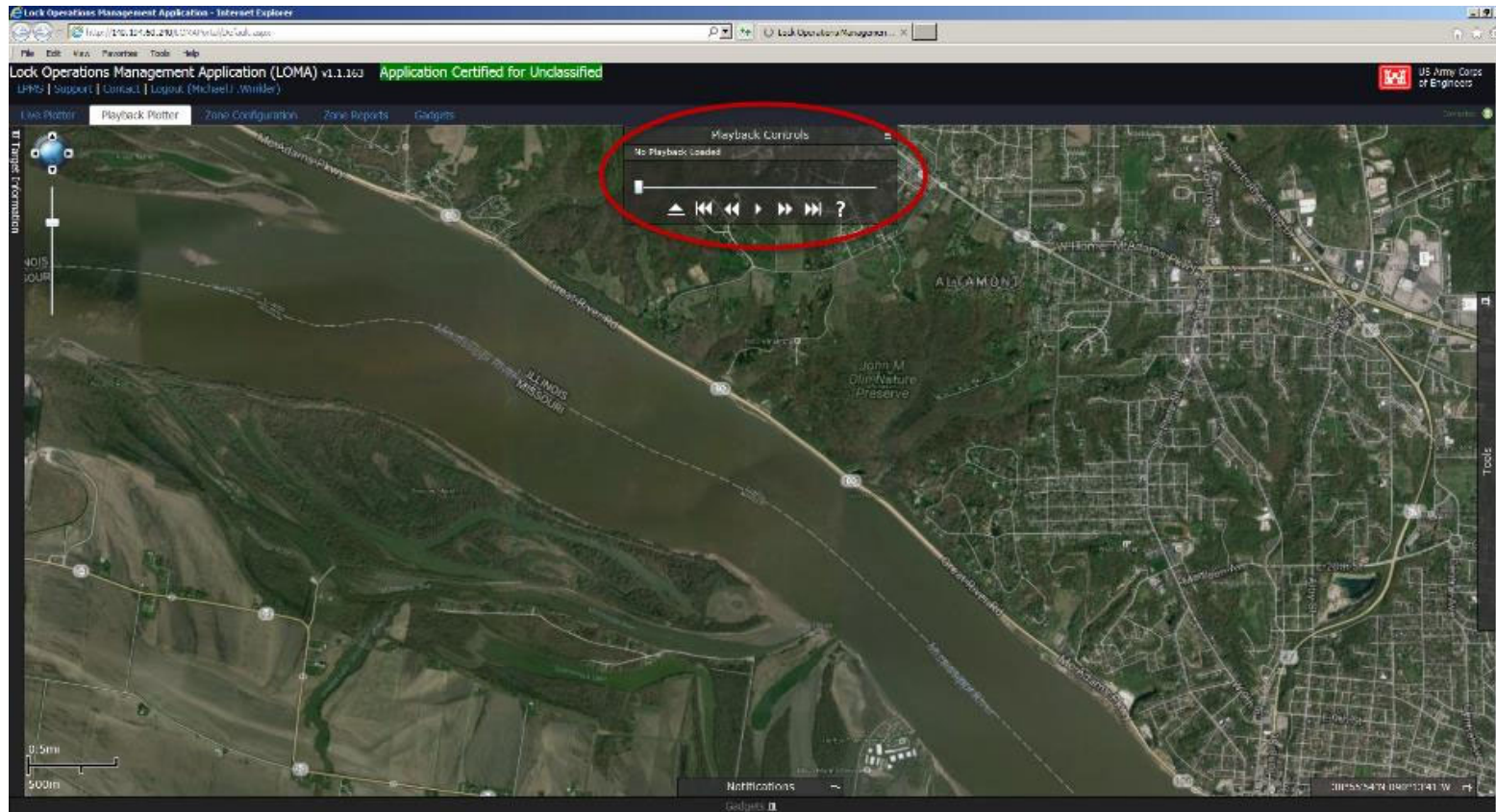


LOMA PLAYBACK PLOTTER





LOMA PLAYBACK CONTROLS





LOMA PLAYBACK QUERY



The screenshot shows the Lock Operations Management Application (LOMA) v1.1.163 interface. The main window displays a satellite map of a region with a river and surrounding land. A 'Playback Controls' dialog box is open, featuring a progress bar and navigation buttons. A red circle highlights the 'Start Date/Time' and 'End Date/Time' fields, which are set to 8/3/2016 11:15 AM. A text box above these fields reads 'Select Date and Time: (Max 24hrs)'. Below the date fields, there are sections for 'Geographic Region' with 'Top Left' and 'Bottom Right' coordinates (Latitude and Longitude) and a 'Filter' button. At the bottom of the dialog are 'Search', 'Play', and 'Close' buttons. The browser's address bar shows the URL 'http://129.291.60.240/LOMA/v1.1.163/LOMA.asp'. The top navigation bar includes 'Live Plotter', 'Playback Plotter', 'Zone Configuration', 'Zone Reports', and 'Gadgets'. The top right corner shows 'US Army Corps of Engineers' and a 'Logout' button.



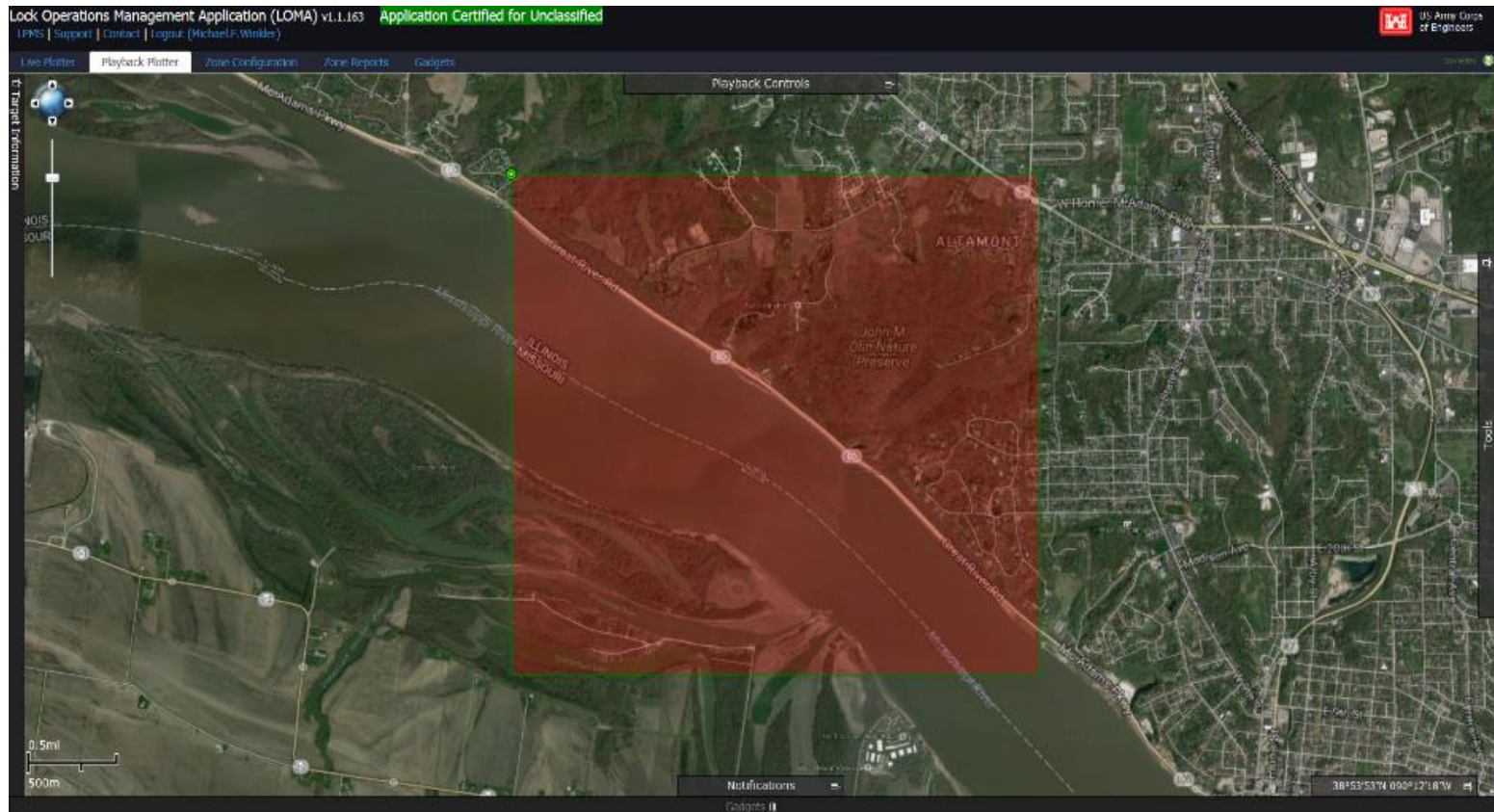
LOMA PLAYBACK QUERY



The screenshot displays the Lock Operations Management Application (LOMA) v1.1.163 interface. The main window shows a satellite map of a region with a playback control overlay. A dialog box titled "Pick a Region" is open, allowing users to define a geographical area for playback. The dialog includes fields for Start Date/Time (8/3/2016 11:15 AM), End Date/Time (8/3/2016 11:15 AM), and Geographical Region. The region is defined by Top Left and Bottom Right coordinates, each with Latitude and Longitude inputs. A "Pick" button is highlighted with a red circle. The interface also features a "Playback Controls" panel with a "No Playback Loaded" message and a "Pick a Region" button. The top navigation bar includes "Live Plotter", "Playback Plotter", "Zone Configuration", "Zone Reports", and "Gadgets". The bottom of the screen shows "Notifications" and "Gadgets" options.



LOMA PLAYBACK QUERY



Playback: Grounding – Upper Mississippi River

