

2024 USACE GOES DCS User Report

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2024 DCS Technical Working Group Meeting

NOS Tides and Currents Center

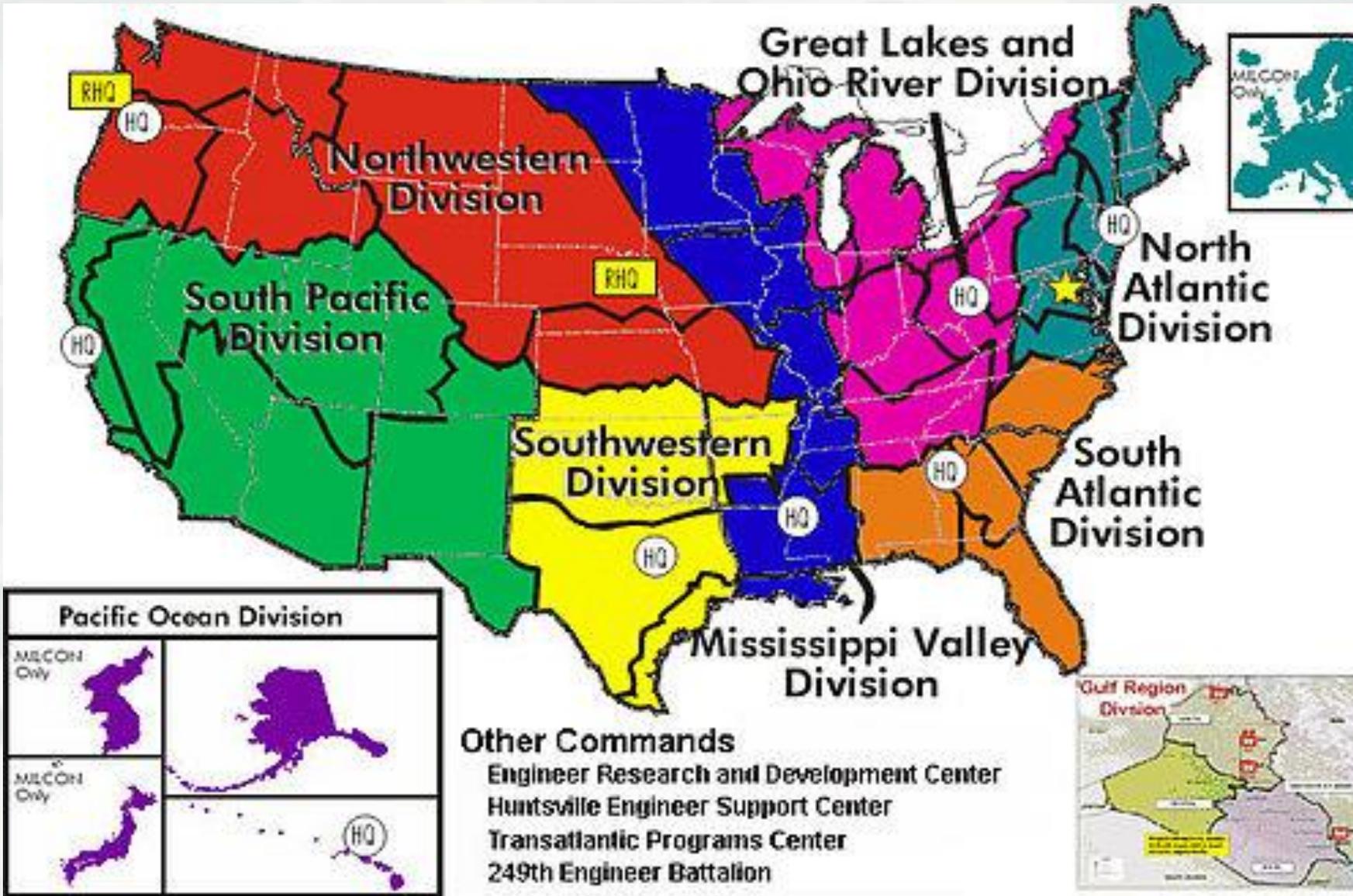
Chesapeake, VA



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257 USACE Navigation Projects
 \$250B/yr Benefit
 12,000 miles of navigable channel
 50% oil imports
 67% of US consumer goods

400 USACE Reservoir Projects
 132 multi-use water resource projects
 Avg. \$90B/yr flood damage reduction
 75 hydro-electric plants
 24% of US hydro-power generation
 9M ac/ft of water storage
 Recreation, water supply, fish, etc.
 4B gal/day used from USACE projects



2024 USACE Summary

- 3,126 GOES Id's (up from 2,936 in 2019)
- 2,726 active platforms across 18 channels (up from 2,527 in 2019)
- Water Management and Water Quality
 - ▶ 12k miles of commercial inland waterways
 - ▶ 200 navigation dams
 - ▶ 926 coastal, 400+ water supply, flood control, and levee safety projects
 - 25% of nations hydro-power capacity, 326.9 million acre-feet of lake water supply storage
 - \$162B flood damages prevented; 13:1 return on investment
 - ▶ Great Lakes and Harbors water quality monitoring
 - ▶ Daily operational decision support, emergency response, modeling, and flood control
 - ▶ \$2 trillion economic impact
- 15-minute Assignments?
 - ▶ Some platforms transmit on random channel while exceeding observation threshold
 - ▶ Looking forward to more frequent self-timed assignments



2024 USACE Summary

- DCP Commanding
 - ▶ Roughly 500 *platforms* identified for immediate implementation
 - ▶ Security
 - ▶ Upgrade existing platforms
 - ▶ More information on development; demonstrations
 - ▶ Timeline for hardware availability (2025?)
- USACE DRGS Modernization
 - ▶ All sites installed and running
 - ▶ Recent Microcom DAMS-NT software upgrade runs as background process
 - ▶ Huntington-Ingalls (formerly Alion) provides ongoing support and spectrum monitoring



USACE DRGS Modernization

- Contract awarded in 2018
- Objective: assure future viability of USACE DRGS network
 - ▶ Spectrum analysis shows interfering signals detected at USACE sites
 - ▶ Separate from NOAA SPRES contract scope of work
 - All USACE sites have been visited and received final reports
- Replacement of all USACE DRGS systems
 - ▶ Rock Island, IL – GOES East and West
 - ▶ St. Louis, MO – GOES East
 - ▶ Vicksburg, MS – GOES East
 - ▶ Columbia, MS – GOES East
 - ▶ Cincinnati, OH – GOES East
 - ▶ Omaha, NE –GOES West
 - ▶ Sacramento, CA – West



USACE DRGS Modernization (cont'd)

- Site surveys
 - Radio frequency interference analysis by Huntington-Ingalls (Alion)
 - Provided recommendations for mitigation, physical security, etc.
Site/System upgrades
 - ▶ Some sites 30+ years old
 - ▶ Implemented site recommendations for all USACE DRGS
 - New Microcom DRGS systems – based on the Rock Island design
 - Dish, cabling, interference mitigation, DRGS cages, DAMS-NT controllers/software, etc.
- Web/Cloud-based Achelous Interference Monitoring
 - ▶ Alerts, and maintains record of incidents of interference



Achelous Spectrum Interference Dashboard

The dashboard displays interference data for eight locations. Each location's data is presented in a table with three rows: Interference Duration Last 24hrs, End Time of Last Interference, and New Interference Events.

Location	Coordinates	Interference Duration Last 24hrs	End Time of Last Interference	New Interference Events
St. Louis	38.590101, -90.208925	N/A	19 Dec 2022 04:28:37 GMT	925
Vicksburg	32.325086, -90.893084	N/A	19 Dec 2022 04:25:47 GMT	124
Columbus	34.6204, -100.554332	N/A	02 Aug 2023 18:03:26 GMT	985
Rock Island E	41.516065, -90.564473	N/A	16 Feb 2023 16:39:48 GMT	10
Sacramento	38.597241, -121.54286	N/A	19 Dec 2022 04:21:28 GMT	239
Omaha	41.348619, -95.960078	N/A	13 Jan 2023 20:20:18 GMT	0
Rock Island W	41.517841, -90.562679	N/A	03 Apr 2023 17:01:05 GMT	815
Cincinnati	39.102546, -84.579605	N/A	19 Dec 2022 04:16:12 GMT	1550



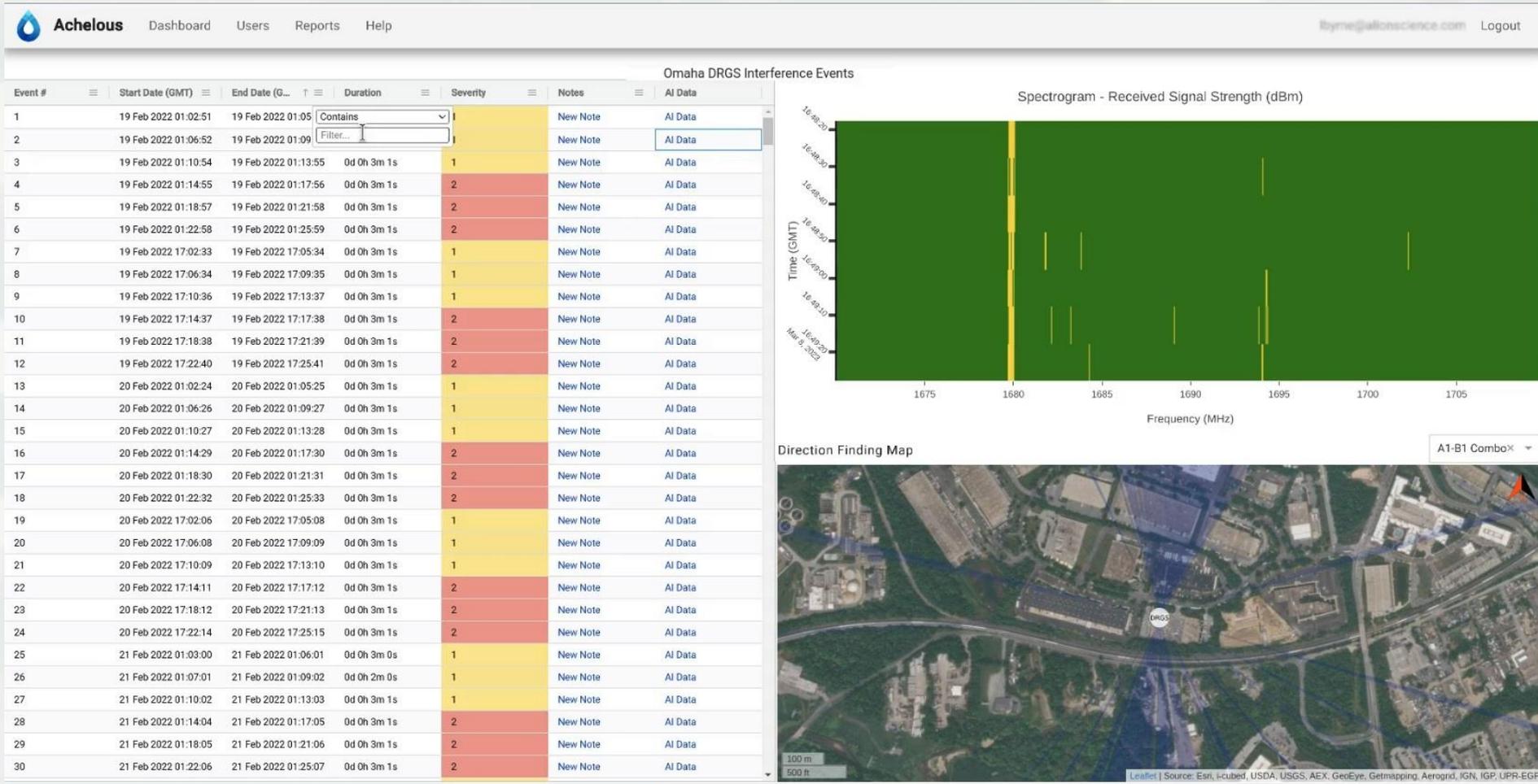
Achelous Spectrum Interference Report

Achelous Spectrum Interference Report interface showing a 'Monthly Interference Report' for December 2022. The report includes a 'Generate PDF' button and a table of data for five locations: St. Louis, Vicksburg, Columbus, Rock Island E, and Sacramento. Each location entry shows the duration of yellow and red events, the frequency range (1670 - 1710 MHz), the uptime percentage, and the number of yellow and red events.

Location	Duration of yellow events	Duration of red events	Frequency	Uptime	Yellow events	Red events
St. Louis (38.590101), (-90.208925)	0 hours 0 minutes and 0 seconds	0 hours 1 minutes and 0 seconds	1670 - 1710 MHz	89.78%	0	1
Vicksburg (32.325086), (-90.893084)	0 hours 0 minutes and 0 seconds	0 hours 0 minutes and 40 seconds	1670 - 1710 MHz	38.17%	0	1
Columbus (34.6204), (-100.554332)	0 hours 0 minutes and 0 seconds	0 hours 0 minutes and 0 seconds	1670 - 1710 MHz	0.00%	0	0
Rock Island E (41.516065), (-90.564473)	0 hours 0 minutes and 0 seconds	0 hours 0 minutes and 50 seconds	1670 - 1710 MHz	89.11%	0	1
Sacramento (38.597241), (-121.54286)	0 hours 0 minutes and 0 seconds					



Achelous Site Interference Report



This report displays the results of intentional interference during a system test and verification

Spectrum at all sites is relatively void of disruptive interference



End.



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