Chesapeake Bay Roost Newsletter

September, 2025

This Issue:

- Chesapeake Bay chapter representation at June MCPA Hammercon event
- BLT Completed Fantastic Technical Talk on SAR processing using Versal FPGA Hardware
- Growing EMSO Islands

Upcoming Events

Mark your calendars for upcoming events:

Oct 14, 11:30AM: Topic: Electromagnetic Spectrum Operations System Design with MATLAB and Simulink by MathWorks

Johns Hopkins University APL
11100 Johns Hopkins Rd, Laurel, MD
Kossiakoff Center KC1/2

Remote & In Person with Lunch. RSVP here:
https://www.mathworks.com/company/events/seminars/electromagnetic-spectrum-operations-system-design-with-matlab-and-simulink-4959382.html

October 2: Chesapeake Bay Roost Fall Social

TBD: AMD/Avnet Lunch & Learn

Thanks to Our Chapter Sponsors!

Our chapter provides scholarships to local youth and chapter events for EW professionals. These activities quickly exceed what the chapter can achieve simply on AOC national chapter funds. We are truly thankful for Axillon Aerospace (previously Parker Meggitt), Annapolis Micro Systems, and Keysight Technologies for contributing financially in support of these endeavors. Please consider working with them for your product needs.

https://www.axillonbaltimore.com/
Previously Meggitt Baltimore, Inc.
3310 Carlins Park Drive, Baltimore, MD 21215

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www.keysight.com
1900 Garden of the Gods Road, Colorado Springs, CO

We are seeking financial sponsorship to support our club activities and scholarship benefits we provide to the community. Please contact the board at AOC.ChesapeakeBay@gmail.com for reasonable rates.

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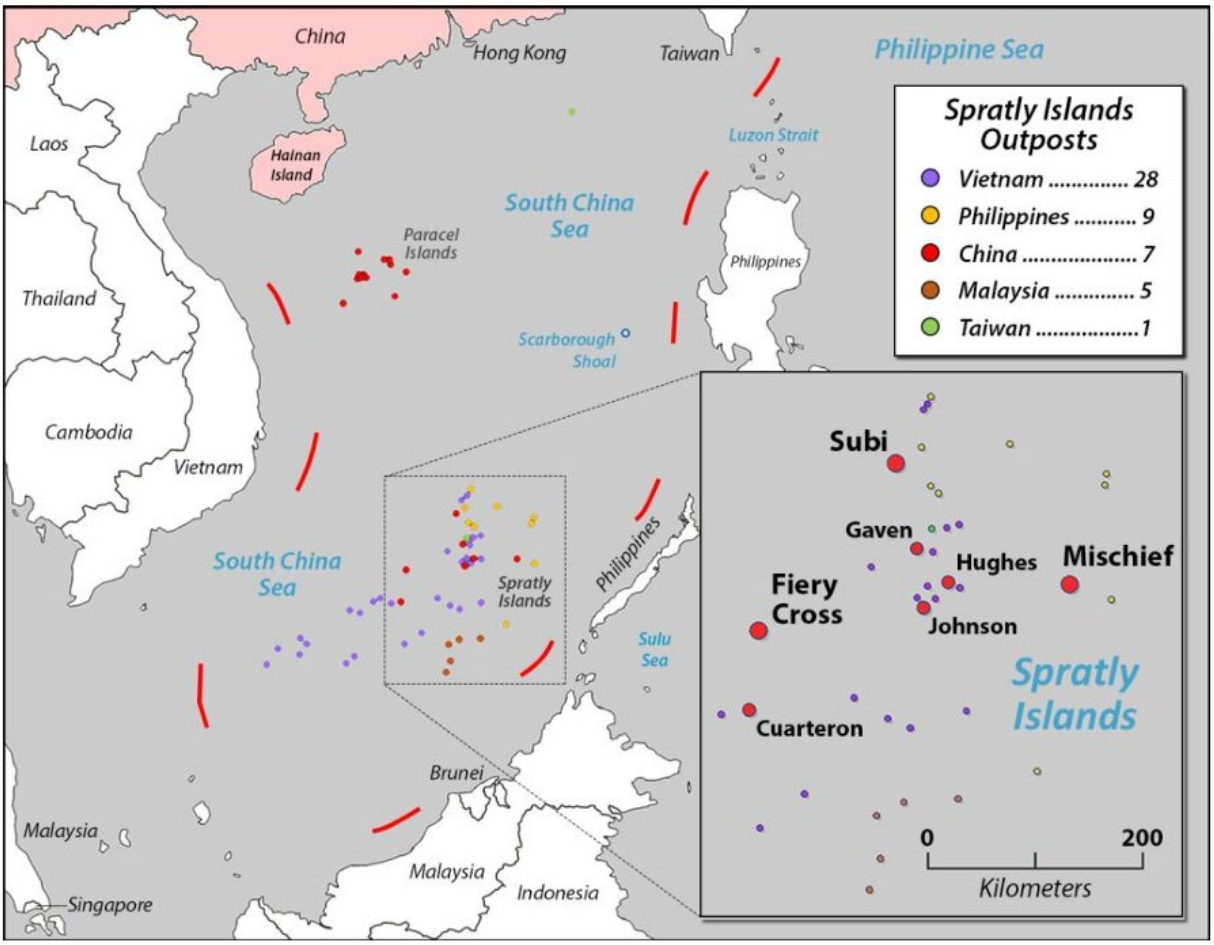
Note: The content of articles is taken directly from open source, unclassified materials cited below each article for the purposes of stimulating relevant EW discussions between chapter members.

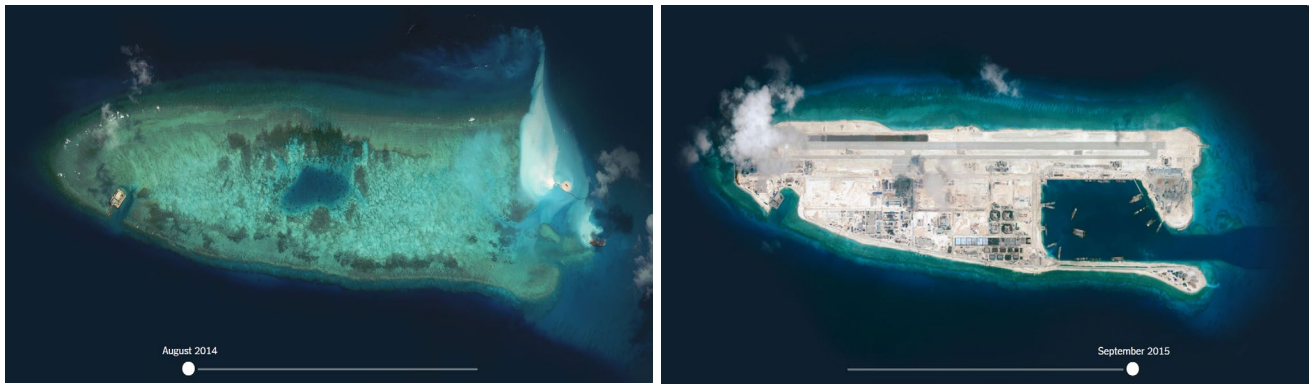
Creating Islands for Electromagnetic Spectrum Operation Dominance

Optimizing the placement of where the electromagnetic spectrum can be used/monitored is a key aspect of electromagnetic dominance. China has been in the headlines with its building frenzy in the South China Sea. They have built more than 90 military outposts. These Chinese-claimed island reefs are spread over 700 nautical miles and help secure real estate in contested regions.[1]



Chinese Outposts from (3)

Many of these outposts had no land to build on, and had to be created. China used a strategy of turning submerged reefs or plain rocks into islands that can support installations. In about a year, satellite photos reveal the extent of these efforts of creating operational bases from small reefs. Fiery Cross Reef became an island from the seafloor in less than a year, formed by pumping sand from the seafloor over 2014-2015.



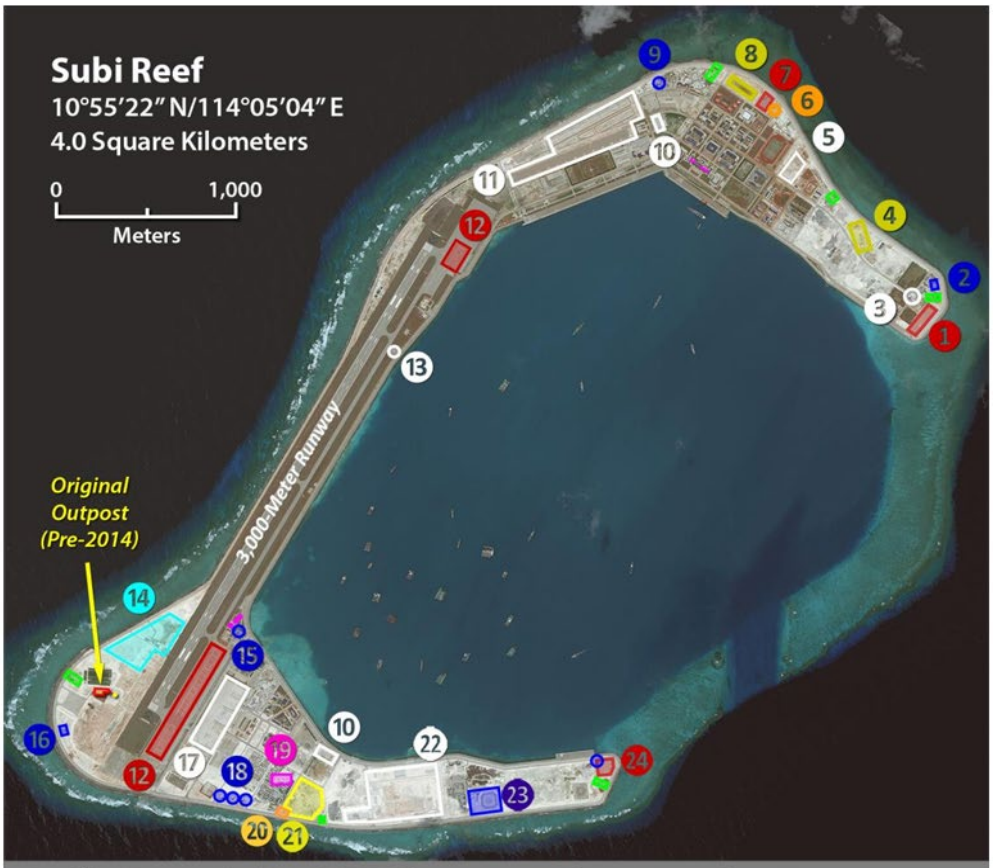
The building of Fiery Cross Reef From (2)

The islands have become quite filled with equipment, a majority that enable control and manipulation of the RF spectrum. Fiery Cross Reef was finished by outfitting with an advanced compliment of radar, communications, and Electronic Surveillance gear as shown in the figure below. The gear includes a North and South ES (Electronic Surveillance) array, HF (High Frequency) antenna arrays, and Satellite dishes.[3]

(Image © 2020 Maxar/DigitalGlobe, Inc.)

Fiery Cross Reef from (3)

Subi Reef contains a similar compliment of installations, with additions of LF/VLF (Low Frequency/Very Low Frequency) installations.



(Image © 2020 Maxar/DigitalGlobe, Inc.)
Subi Reef from (3)

Mischief Reef is one that was actually taken back by China warships by force from the Philippines after the USA left in 1992. It now includes a 3km runway.

Mischief Reef from (3)

1. https://www.forbes.com/sites/katharinabuchholz/2024/11/14/building-frenzy-in-the-south-china-seawho-is-fortifying-islands/
2. https://www.nytimes.com/interactive/2015/07/30/world/asia/what-china-has-been-building-in-the-south-china-sea.html
3. https://www.jhuapl.edu/sites/default/files/2022-12/EWandSIGINT.pdf

July Technical Talk a Success: RF Signal Processing Using AMD AI Engines - Accelerated SAR Processing Maximizing Versal Silicon Resources and Power, BLT Inc

On July 24 Elie Rosen, the Technical Director of BLT, Inc. (https://bltinc.com/) gave a detailed talk describing the unique advantages of state-of-the-art processing and methods that take advantage of AMD's latest Versal silicon FPGA line up. Synthetic Aperture Radar (SAR) systems demand exceptional performance, and that means making the most of silicon. This talk by BLT explored how AMD Versal AI Engines can be leveraged to accelerate SAR processing and maximize RF signal processing performance. BLT explained how power and resource utilization can be optimized while taking full advantage of Versal's heterogeneous architecture. This unlocks greater efficiency and capability. Twenty-five on-site attendees enjoyed pizza during the talk while seventeen attendees benefitted from the talk by joining remotely via Zoom link.

Elie Rosen of BLT, Inc. discussed the AMD Versal silicon compute architecture and how to use it during his technical talk July 24

BLT
EXCELLENCE BY DESIGN

Hammercon and Chesapeake Bay Roost

AOC partnered with MCPA (Military Cyber Professionals Association, https://www.milcyber.org/) for their Hammercon event held at Johns Hopkins University Applied Physics Lab to bring awareness to Electromagnetic Spectrum Operations and the complementary nature of cyber operations. Our roost developed a crow spectrogram demonstration using a pair of Analog Devices ADALM-Pluto SDRs that served as a conversation ice breaker for attendees that stopped by the AOC booth

Booth discussions centered around the relevance of electronic warfare to conference attendees and the community at large, education opportunities within AOC, and AOC's presence across the country and the world. The Chesapeake Bay Roost was accompanied by a national AOC director COL Kevin Finch, who gave an afternoon overview presentation of the AOC's mission, activities, and why Hammercon attendees should consider joining.

Advertise Your Company Here!

Did you know as of 03/09/24 this Chesapeake Bay Roost has over 447 current members in its database?

Our membership represents major EW centers in this area, including:

- Axillon Aerospace (formerly Parker Meggitt)
- BAE Systems
- Boeing
- Booz Allen Hamilton
- CACI
- CEA Technologies
- Johns Hopkins Applied Physics Laboratory
- Multiple branches of the Department of Defense
- Northrop Grumman Corporation
- Rohde & Schwarz
- Raytheon
- Textron Systems
- WGS Systems
- And many others!

We are seeking sponsorship to support our club activities and scholarship benefits we provide the community.

Space is available here to target your advertisement/ announcements to our select membership!

Please contact the board at AOC.ChesapeakeBay@gmail.com for reasonable rates

Advertise Your Company Here!

Upcoming Technical Talks

Oct 14, 11:30AM:

Topic: Electromagnetic Spectrum Operations System Design with MATLAB and Simulink

Abstract:
This seminar provides an overview of the MathWorks tool coverage for the design and modeling of the EMSO systems. The focus will be placed on covering the capabilities of the MathWorks tools for the design and modeling of the key components of an EMSO system, including the following:

- Antenna
- Antenna array and radiation pattern design
- Passive sensors such as Radar warning receivers and RF emitters
- Channels and RF propagation
- RF system design and modeling

Examples using MATLAB and/or Simulink for the design and modeling of the above components/systems will be demonstrated.

Johns Hopkins University APL 11100 Johns Hopkins Rd, Laurel, MD Kossiakoff Center KC1/2

RSVP for remote and in-person(lunch provided)
https://www.mathworks.com/company/events/seminars/electromagnetic-spectrum-operations-system-design-with-matlab-and-simulink-4959382.html

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AOC Events

October 28-29
Cyber Electromagnetic Activity (CEMA)
Belcamp, Maryland

Dec 9-11
Annual AOC International Symposium & Convention
National Harbor, MD