

## RADAR CAPABILITIES



Riverside Research is a not-for-profit organization advancing scientific research for the benefit of the US government and in the public interest. Through our company's Open Innovation Concept, we invest in multidisciplinary research and development and encourage collaboration to accelerate innovation, advance science, and deliver trusted solutions.

Riverside Research has a rich history delivering innovative solutions involving many of the GEOINT community's hardest challenges. Our unique blend of analysts, operators, scientists, and program support staff inform our research thrusts and advance the geospatial mission.

Our company operates a series of geographically-dispersed laboratories where we perform company-funded research that complements our customerfocused services and provides reach back for our customers.

## **OUR CAPABILITIES IN RADAR**

Riverside Research has established an independent team of national radar subject matter experts with unrivaled experience in the development, implementation, fielding, and assessment of radar systems and mission performance. This expertise is leveraged by various DoD entities to meet a wide range of radar acquisition and sustainment needs. Our technical support includes full lifecycle engineering services, from concept definition and specification development modeling & simulation through formal testing, independent verification and validation, deployment, sustainment, and eventual service life extension or system modernization/upgrade.

- Over 50 years of radar engineering for phased array, bi-static, over-the-horizon (OTH), and SAR applications
- Mission-planning concepts, cooperative collections, advanced image formation, ballistic missile technical collection (BMTC), missile warning, and space domain awareness (SDA)
- Lifecycle Sustainment Expertise: Cyber-Security, Facilities, Human Factors, Logistics, Operations, Performance Monitoring and Assessment, Power Systems, Safety, Training, and Technical Orders
- Acquisition Expertise: OTAs, Rapid and Agile Acquisitions, JCIDs, AoAs, Special Studies, DoD 5000, and ICD 801
- Engineering Expertise: Digital and Analog REX, Traveling Wave Tubes, Digital Beam Forming, Software Engineering, Model-based Systems Engineering, Digital Forensics, Signal Processing, Electromagnetics, AI/ML, and Tracking
- Tools: RADSim, OTB, PHAROS, ResourceSim, and RADGen



## RADAR TOOLS & PLATFORMS



Own the Technical Baseline<sup>™</sup> (OTB) is a baseline management tool that provides a full-lifecycle picture of radar sensor system logistics. It allows program offices to understand which "levers to turn" to **maximize system performance** and **reduce ownership costs**. The OTB tool uses big data analytics to continually update sparing, costs, reliability metrics, and technical baseline forecasts. This strategy maintains the currency of sustainment data and reduces the frequency of in-depth sustainment analysis. The OTB tool suite is built on an open source, commodity platform with a data-processing pipeline that ingests data from a multitude of sources. This platform allows it to be primarily vendor agnostic and ingest data across varying standards and databases.





PHAROS is a custom, radar-agnostic tool that can run interactively or as a background process to support all phases of post-mission data analysis. PHAROS enables radar engineers, data analysts, and system maintainers to conduct **rapid**, **quantitative evaluation of sensor performance and mission success**. Our engineers have successfully used PHAROS to review data artifacts and perform deep dive analysis of system performance and mission sequence to **identify and investigate any anomalies and recommend innovative solutions**. In addition, PHAROS facilitates trend analysis of key performance parameters to identify and avert issues before they lead to degraded operation.



## **RADS**im

RADSim is a custom modeling and simulation tool that models algorithms and stimulates a radar's functional elements without specialized system/ mission hardware or software. RADSim uses a graphical programming language to **rapidly build and assess prototypes** and **perform "what if" trials and algorithm trade studies**. Our team has developed a library of radar algorithm modules that the user can drag and drop into a model. After an algorithm is modeled in RADSim, it provides a unique capability to **test and evaluate the algorithm's performance against simulated or live mission data**. In addition to generic functional elements, the tool simulates the functional capabilities of the high-fidelity instrumentation sensors.

