

# A CASE STUDY: RIVERSIDE RESEARCH BUILDS AUTOMATED COLLECTION PLANNING TOOL FOR SPACE-BASED SENSOR MISSION PLANNING DESIGN, OPTIMIZATION AND OPERATIONS

Solution | **ISR**

## Challenge:

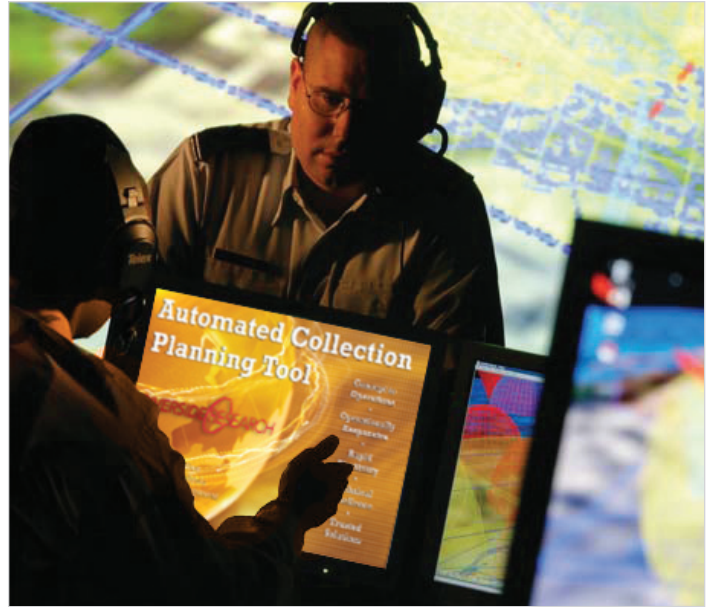
Develop a planning and analysis environment based on a user-defined collection strategy to perform hyper-realistic satellite/sensor modeling, target modeling, collection visualization, strategic collection forecasting and daily collection planning for complex satellites with numerous constraints.

## Solution:

Riverside Research applied AGI software capabilities to model and display sensors; analyze terrain impact and field of view; perform intervisibility calculations; determine vehicle position; and compute acquisition times with the Automated Collection Planning Tool (ACPT) using STK Engine software.

## Results:

ACPT builds dynamic collection planning schedules in 15 minutes or less. It is currently used in TACSAT-3 and Multispectral Thermal Imager operations.



**S**atellite collection planning is a difficult task, one that is made even harder when you are taking various complex and often poorly understood constraints into account. AGI business partner Riverside Research has created ACPT to ease this burden for its government, commercial, civil and education customers. Riverside Research embedded AGI's analysis and 3-D visualization capabilities into the ACPT via AGI's STK Engine software. The ACPT is a low-cost, low-risk customizable solution that develops dynamic collection plans in less than 15 minutes. It is currently automating TACSAT-3 collection planning for the Air Force Space Command and assists the National Geospatial-Intelligence Agency (NGA) with daily/weekly collection plans for the Multispectral Thermal Imager.

Key ACPT benefits include:

- Utilizes AGI's trusted physics engine
- Models real sensor parameters down to the pixel
- Employs typical collection requirement factors including viewing geometry, illumination geometry, prioritization, periodicity and temporal constraints
- Accounts for system constraints including host power limitations, exclusion zones, data link accesses and transfers, sensor cycle time and on-board storage

- Incorporates NGA GIS data (terrain data for calculating obscuration, 5-meter imagery and various maps and overlays for user situational awareness)
- Includes Air Force historic global cloudfreeness data and can accept live weather feeds (especially important for electro-optical system assessment)

ACPT supports space-based, sensor mission planning from cradle-to-grave and can be rapidly tailored to customer specifications. Users will experience increased confidence, productivity and satisfaction through:

- Automation
- Ease-of-use
- 3D visual confirmation
- Minimized redundancy
- Maximized satellite capability
- Requirements fully addressed
- Full accountability

Contact Riverside Research's MAD Lab (Modeling & Application Development Laboratory) team at [madlab@rri-usa.org](mailto:madlab@rri-usa.org) or **703.908.2143** today to learn more.



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