



U.S. ARMY
RDECOM

Tools for EO/IR Sensing System Performance Analysis



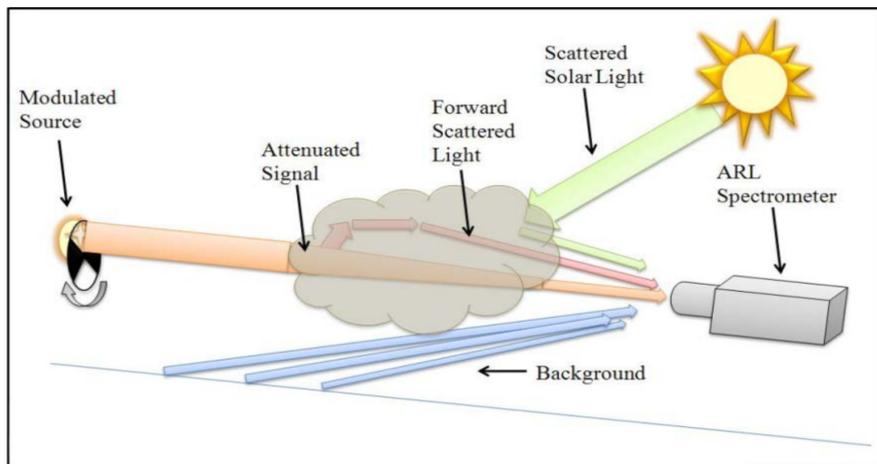
open
campus

S&T Campaign: Analysis & Assessment

Dr. Joseph Montoya, (575) 678-5551
joseph.montoya.civ@mail.mil

Objective

- To develop improved signature analysis capabilities, new modeling & simulation methods, or novel device design/concepts leading to new electro-optical sensing systems and increasing performance of existing systems.
- To develop physics based characterization of the signature energy that is available at operational ranges, while accounting for the extensive variations caused by atmospheric conditions.



Spectral Transmission

Challenges

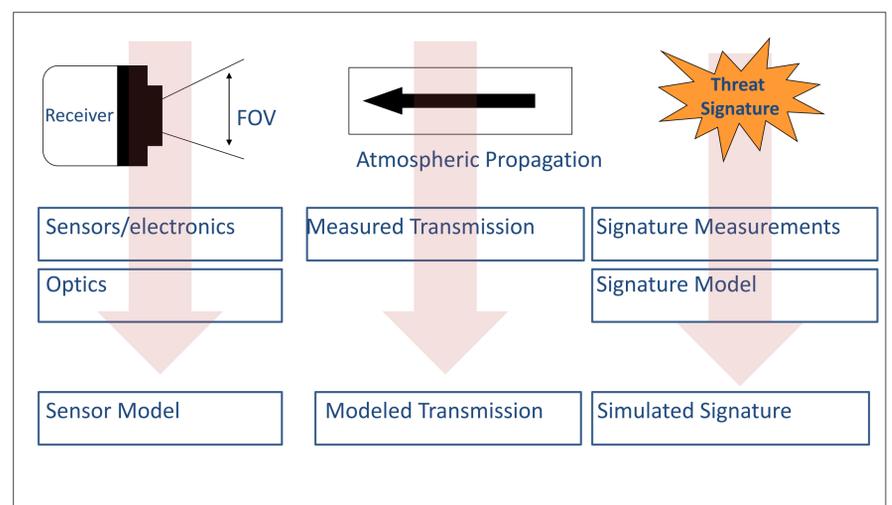
- Advanced optical system design requires accurate signatures of targets. Very little measured signature data exists.
- Countering the evolving battlefield threats will require the continued evaluation of sensing performance. As new targets develop, tools for analysis need to evolve as well.
- Significant effort remains to improve sensing system designs, performance and utility.
- Spectral effects of attenuation through the atmosphere and battlefield obscurants are constantly changing.



Signature measurement

ARL Facilities and Capabilities Available to Support Collaborative Research

- Radiometric imagers, radiometers and spectrometers, including data acquisition systems.
- Signature database and query tools to access database.
- Infrastructure and field equipment for live fire signatures acquisition.
- Scientists and engineers with expertise in signature measurement, sensor system performance analysis, and hostile fire indication processes.
- Scientists and engineers with expertise in spectral atmospheric transmission and attenuation effects from obscurants.



Tools used for performance assessments

Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- Expertise in physics based modeling and simulation of electro-optical signatures from Ultraviolet to Long Wave Infrared.
- Expertise in physics based modeling and simulation of the effects of atmospheric transmission on electro-optical signatures.
- Expertise in designing hostile fire systems, threat warning systems, and command/control process.