



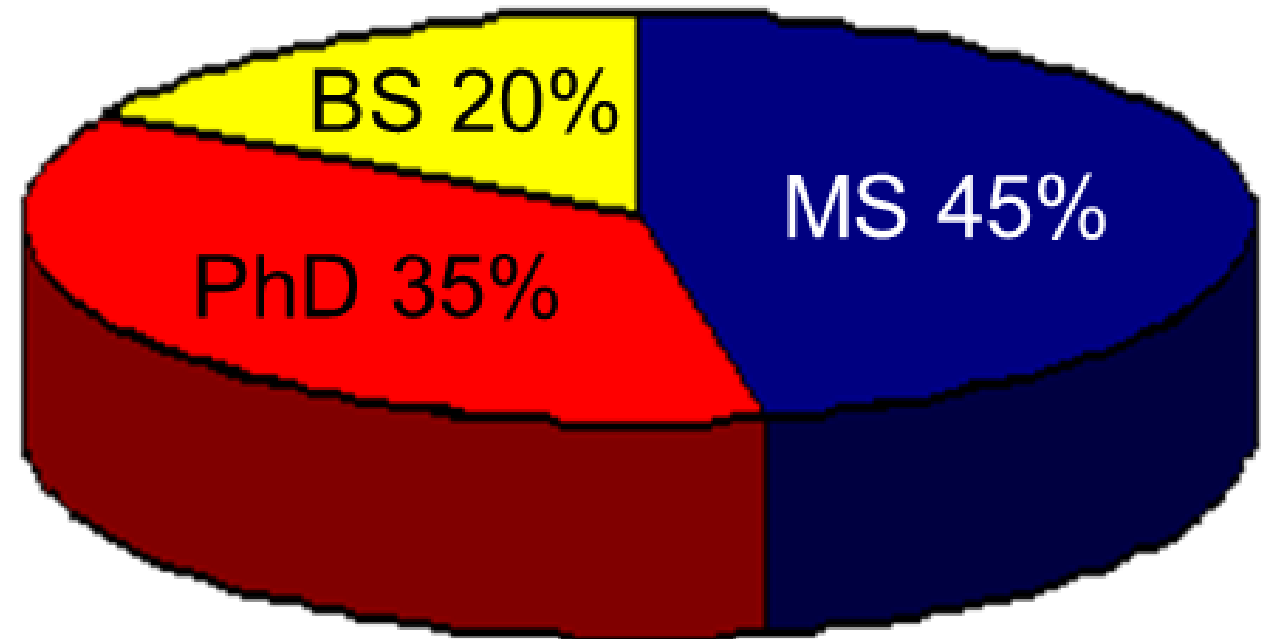
MZA Associates Corporation



**A world leader in the modeling, analysis, and testing of directed energy and imaging systems.**

**Modeling, analysis, & demonstration**

- Beam control and imaging systems
- Solid state and gas laser resonator systems
- Adaptive optics design and implementation
- Atmospheric and aero-optical effects
- DE engagement analysis
- Weapons system military utility
- Target signatures and vulnerability
- Laser communications
- LADAR applications

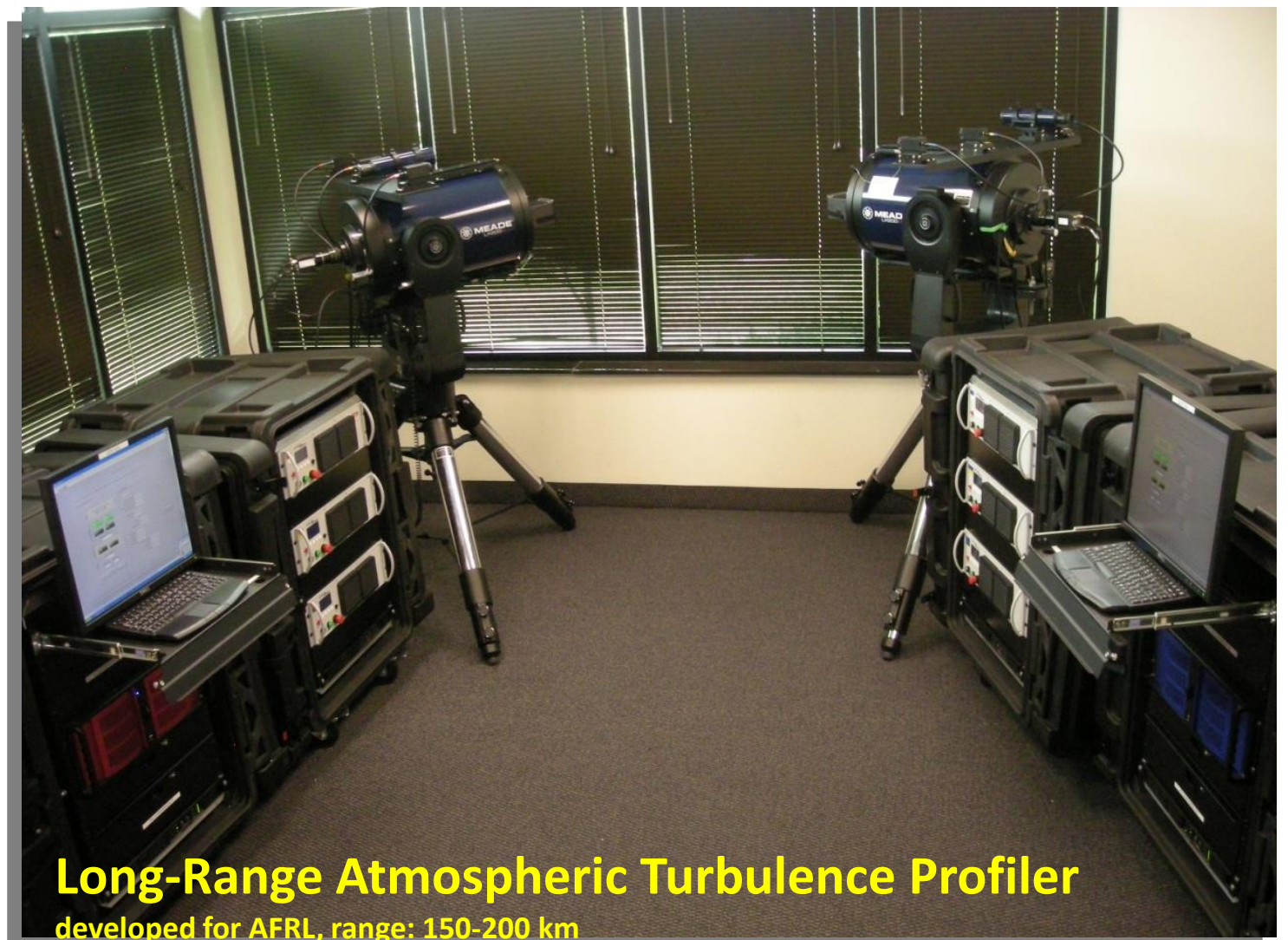
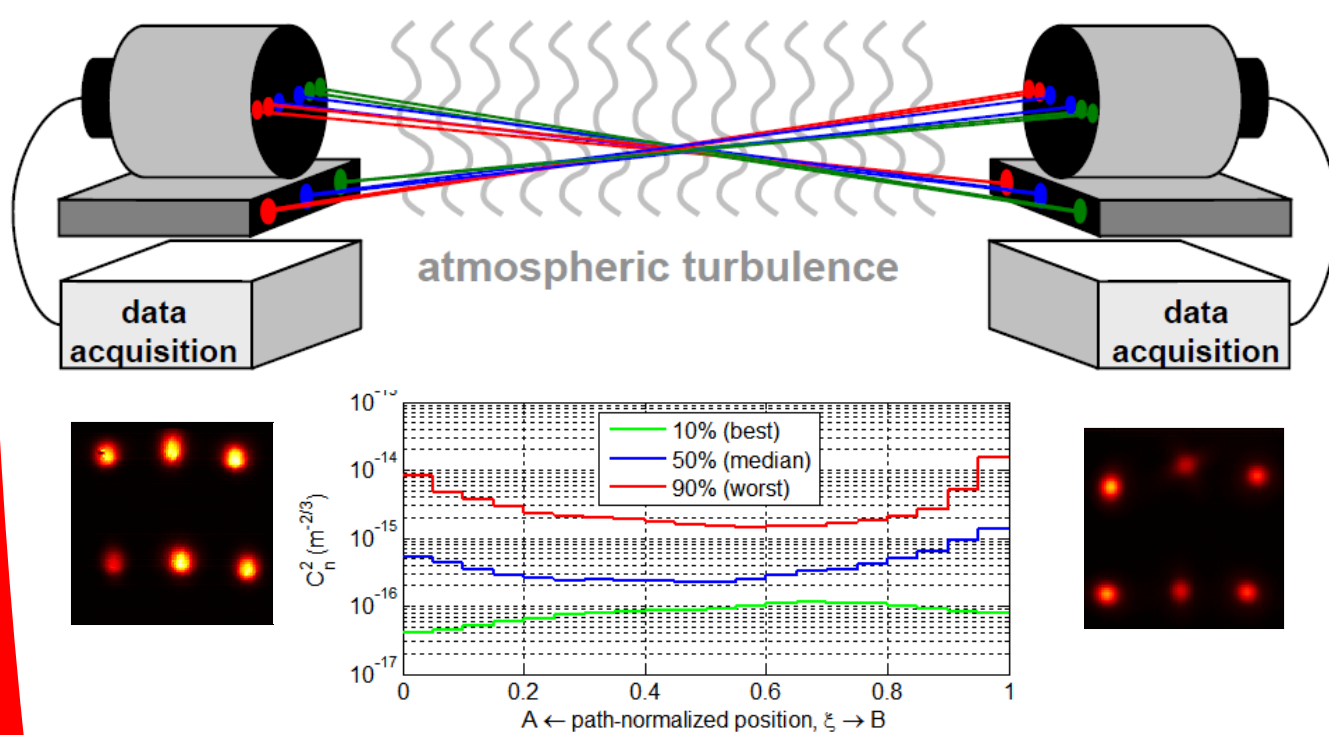


>50 employees

**MZA's modeling and analysis software has been used on nearly every DE program of the past decade.**



**MZA develops sophisticated optical instrumentation systems to conduct and characterize atmospheric propagation experiments.**



*Othela*

**MZA has also developed complete lightweight compact beam directors which provide on-gimbal line-of-sight stabilization and wavefront control for tactical HEL applications.**



# SHaRE Development Environment



**Engagement Visualization**

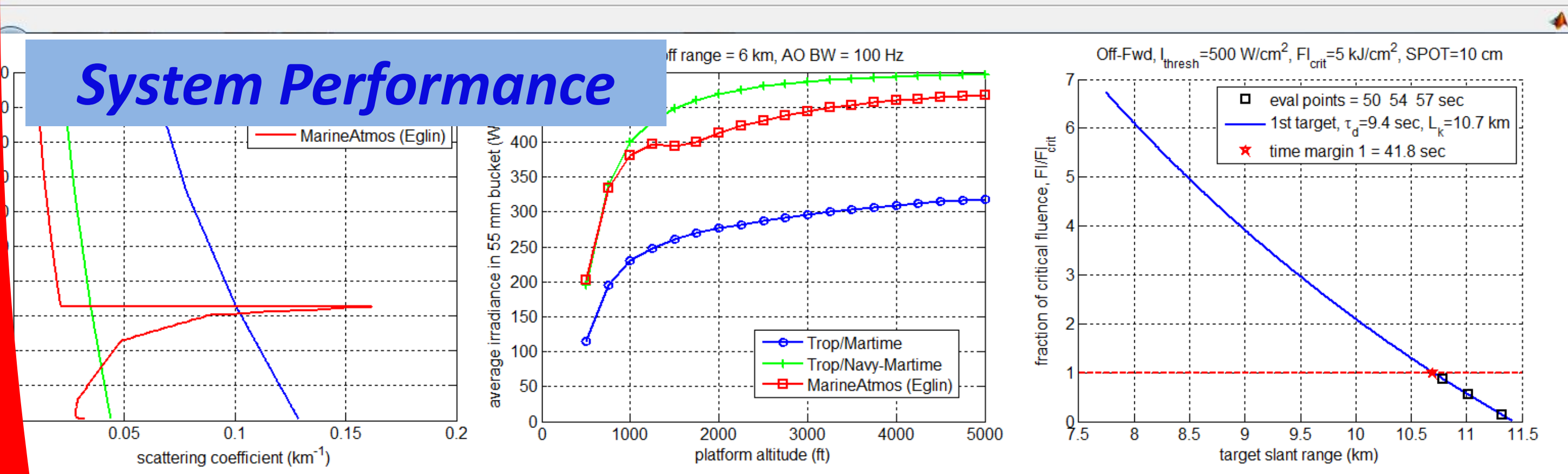
**Workspace Management**

**Active Help**

**SHaRE  
MATLAB**

```

1 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
2 % Script for evaluating maritime laser performance with variable platform
3 % altitude and several different atmospheric models.
4 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
5 % AUTHOR: Matthew R. Whiteley, Ph.D.
6 % (c) 2010 MZA Associates Corporation, Dayton, Ohio
7 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
8 close all; clear variables;
9 SetupMaritimeLaser; % Idealized system parameters
10
11 EvalMethod = 'FAST';
12 F = LinkConfig(EvalMethod);
13 % F.ATM_Turbulence = 'NONE';
14 % F.ATM_ThermalBlooming = 'NONE';
    
```



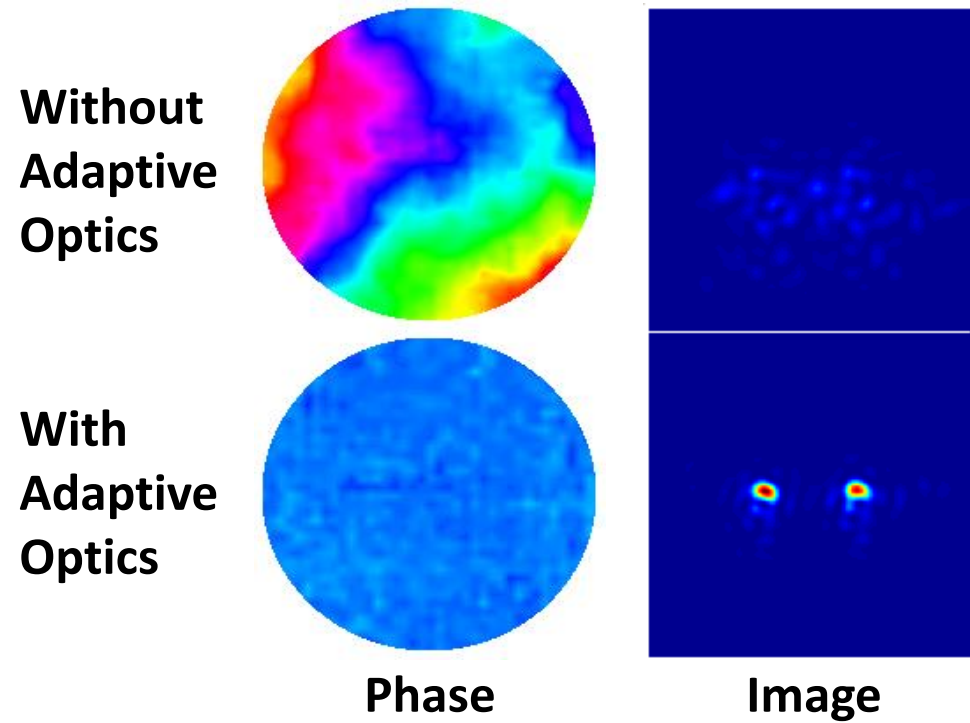
- ✓ SHaRE enables comprehensive system analysis for ground-based, aircraft, and maritime laser systems in direct engagement or with relay mirrors
- ✓ SHaRE extends MATLAB capability with visualization and graphical interface





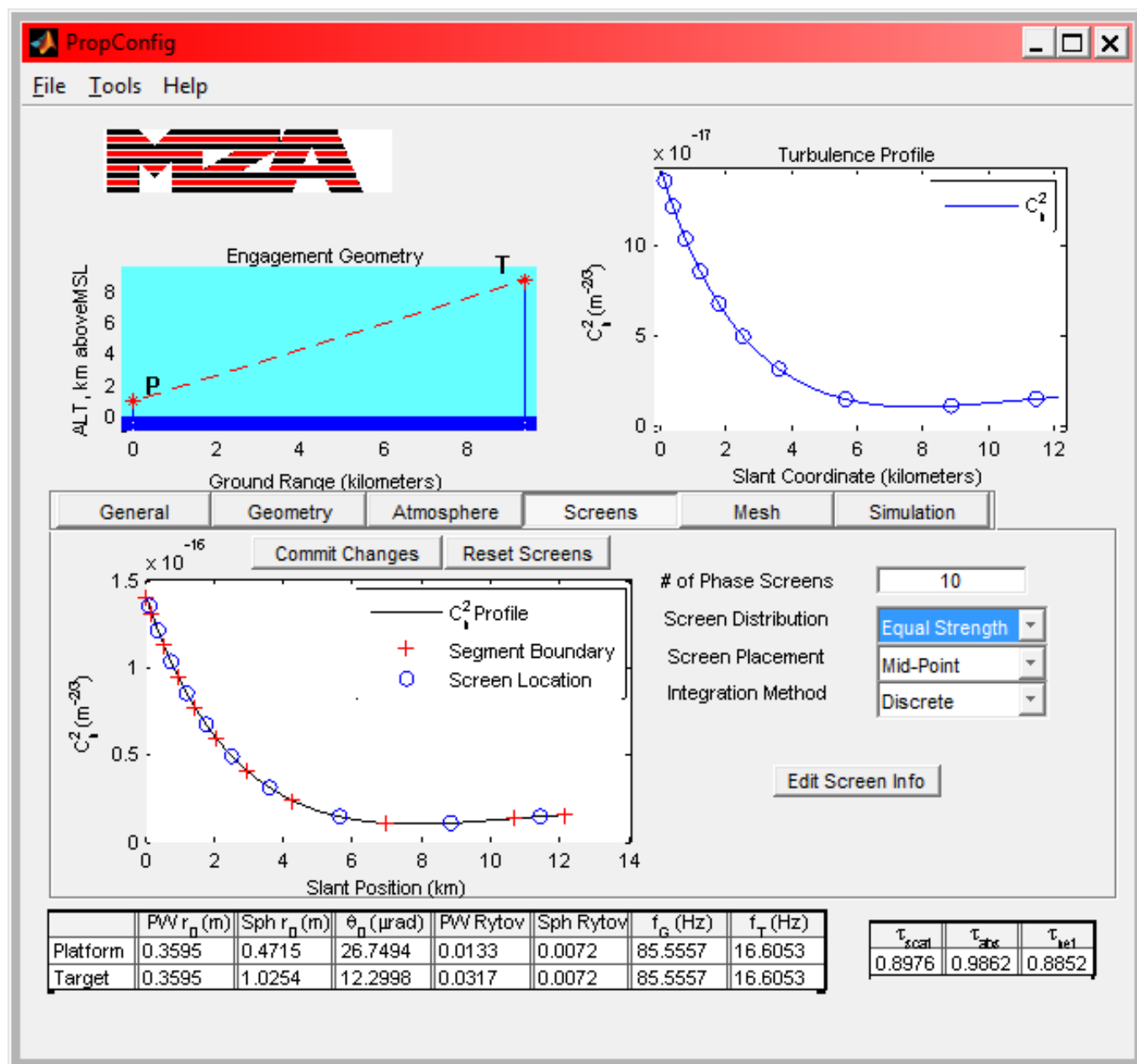
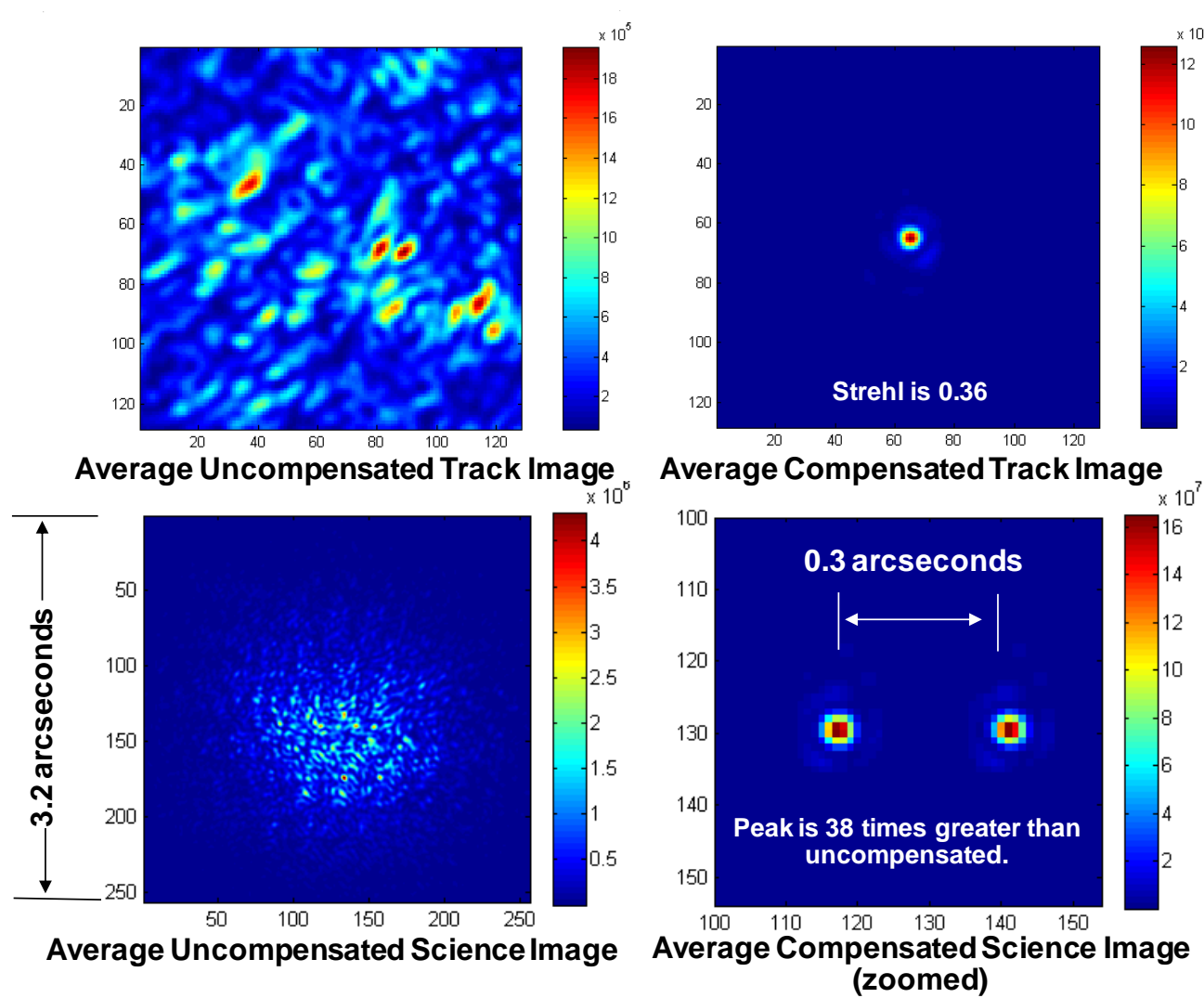
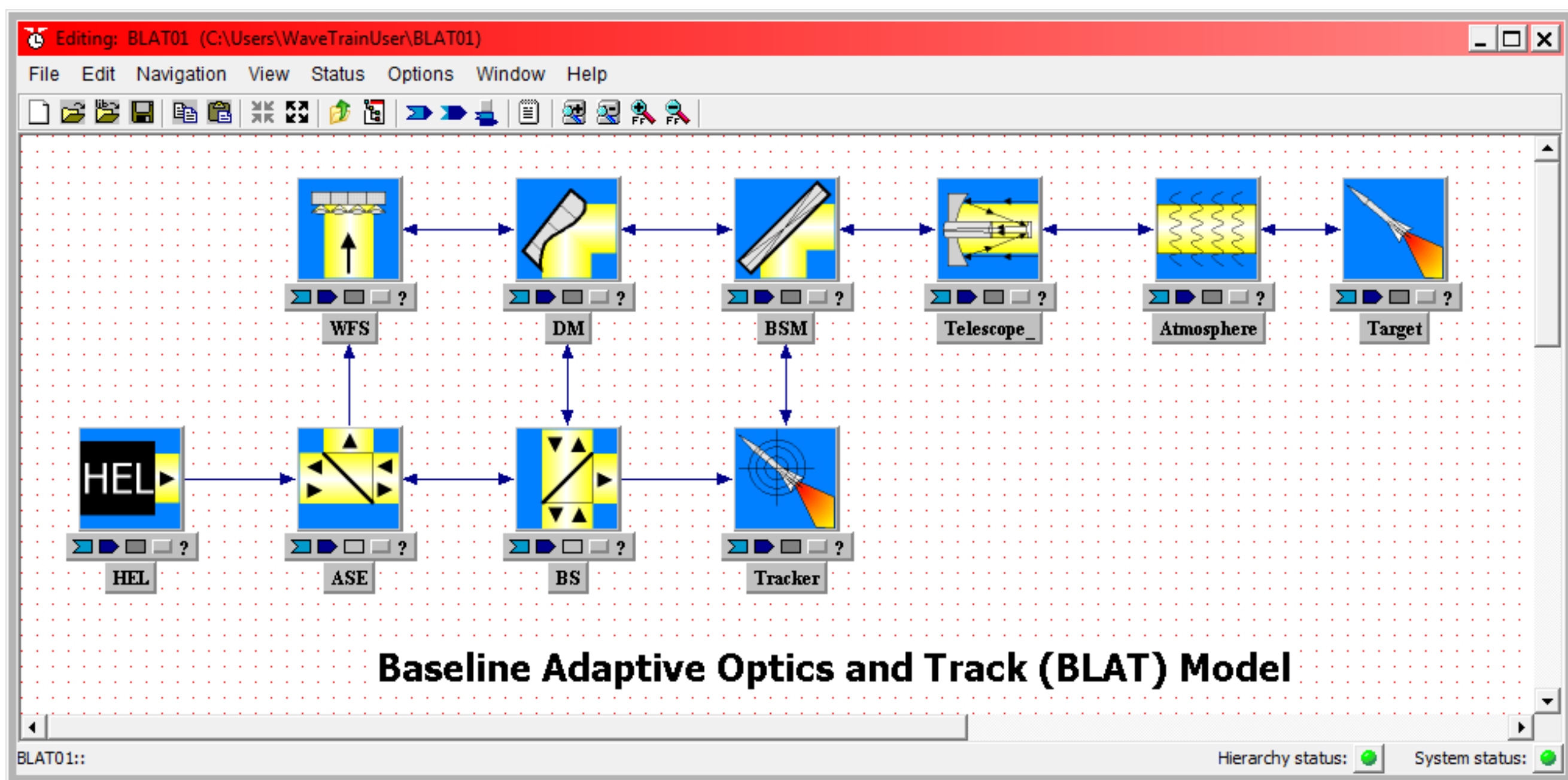
# WaveTrain

wave optics made easier



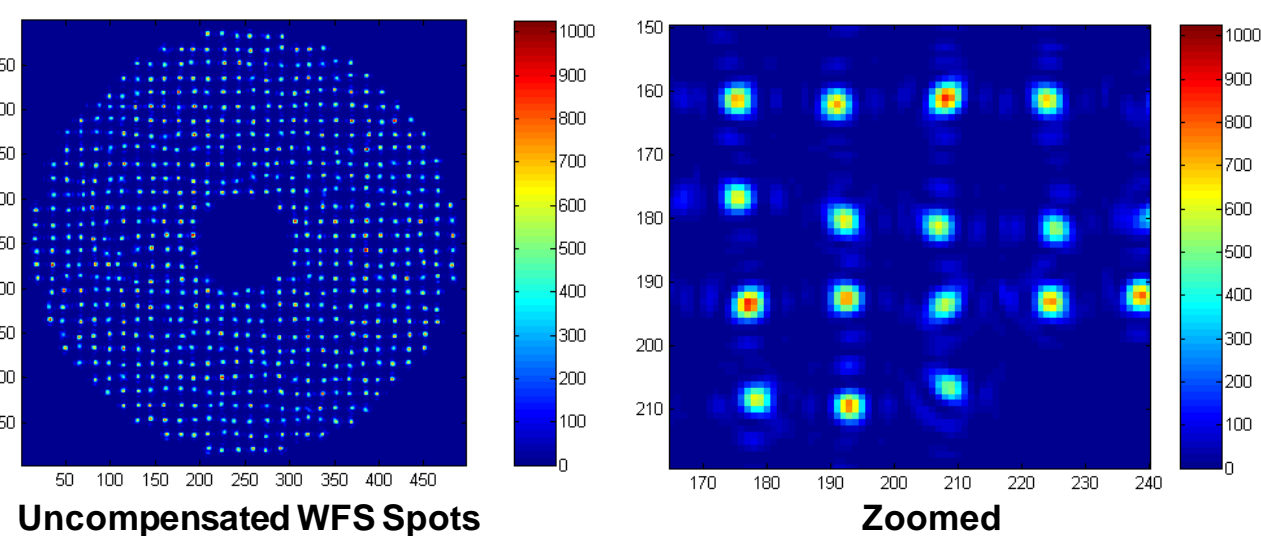
## The Challenge of Wave Optics Simulation

Wave optics simulation is a crucial technology for the design and development for advanced optical systems. Until MZA made WaveTrain available, such analysis was the sole province of a handful of specialists because the available codes were extraordinarily complicated, difficult to use, and they often required supercomputing resources.



## The Solution is WaveTrain

WaveTrain puts the power of wave optics simulation on your laptop, desktop, cluster, or supercomputer. WaveTrain provides an intuitive connect-the-blocks programming environment in which you can assemble beam lines, control loops, and complete system models, including closed-loop adaptive optics (AO) systems. Users can extend WaveTrain capabilities by writing new C++, Fortran, Matlab m-file, and now, C# modules.



MZA Associates Corporation



**MZA Associates Corporation**

**Albuquerque, New Mexico Facility**

2021 Girard Blvd. SE, Suite 150

Albuquerque, NM 87106

(505) 245-9970

Robert.Praus@mza.com

**Dayton, Ohio Facility**

1360 Technology Ct., Suite 200

Dayton, OH 45430

(937) 684-4100

Matthew.Whiteley@mza.com

**WaveTrain**

wave optics made easier