

Axient Capability Highlight: Operational Risk & Containment Analyzer (ORCA)

What is SENTRY™ ORCA?

Axient's SENTRY™ Operational Risk & Containment Analyzer (ORCA) is a risk & hazard assessment tool suite designed to support high fidelity analysis and visualization of hazard areas for land populations, vessels at sea, and aircraft in flight resulting from debris generated by normal and malfunction flight of launch vehicles, hypersonic and uninhabited aerial system testing, and reentering spacecraft.

Premier Tool for Launch & Reentry Spaceflight Safety Risk Analysis

User and Performance Features

- Addition of multithreading and optimization enhancements to estimate pi, drag impacts, estimated casualties, and target exclusion
- Significant increase in processing speed over legacy JARSS MP/Sentry MP tool suite
- New, intuitive UI with database-centric design
- Enables team collaboration from centralized databases with version history/change logs

Technical Features

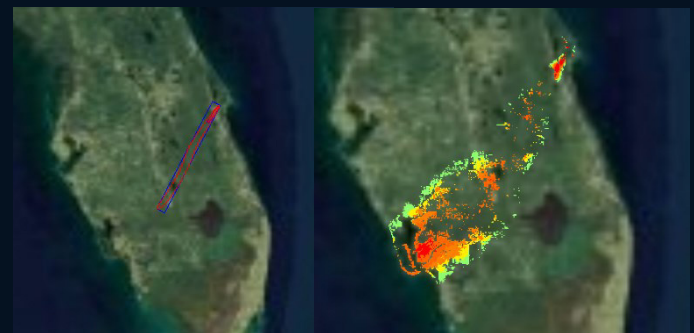
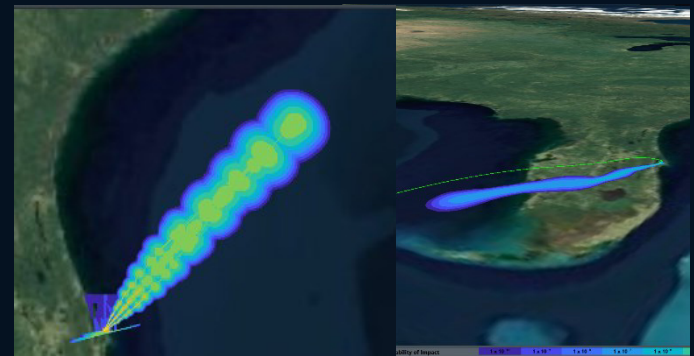
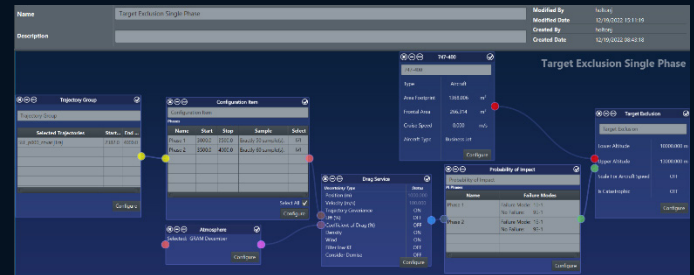
- Aerothermal demise: evaluated during impact calculation, using actual mission state vectors and atmosphere models
- Target exclusion: impact calculation can stop at exact lower and upper bands, instead of interpolating between 1 km intervals
- D, 3D, and Columbus view plotting
- MS Excel export reporting

Future Technical Features

- 6DoF trajectory analysis (turn and breakup modeling): meets high-fidelity modeling in line with FAA Part 450
- Sheltered estimated casualties with an enhanced and updated population sheltering model
- Vehicle manager that provides means to input vehicle parameters for use in 6DoF trajectory tools
- Integration of probability of failure manager

Complies with:

- CFR 450 • SSCMAN 91-710 • NPR 8715.5
- NPR 8739.8 • NPR 7150.2b



Sentry™ ORCA builds upon and extends Axient's proven legacy of developing industry-leading Spaceflight Safety Risk Analysis tools to provide the necessary analytical fidelity and an improved user experience.