Wildfire
ANALYST

technosylva

tools for more informed decision making

Wildfire ANALYST

Wildfire Analyst™ ("WFA") is a desktop software application that provides real time analysis of wildfire spread and behavior, as well as, evacuation and impact analysis during an incident. Simulation results are in real time, providing the capabilities to adjust simulations with observed data and proposed suppression activities.

Wildfire Analyst™ is a component of the Technosylva Incident Management software suite designed to directly support multi-agency wildfire incident management. The software suite provides seamless integration of data – mobile, desktop, enterprise and web, to provide comprehensive situational awareness to the fire chief, incident command team and local agency stakeholders.

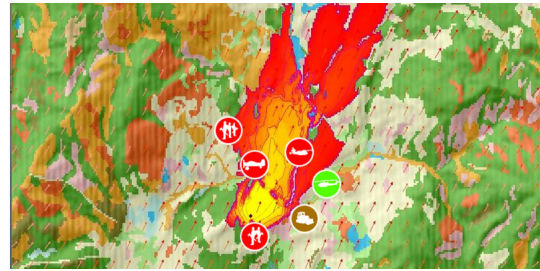# *"the ultimate tool for analyzing wildfire growth and behavior "*

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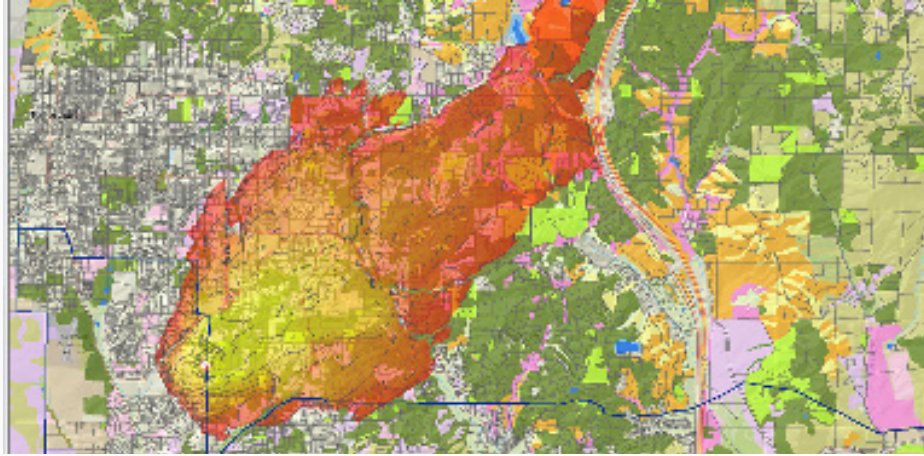**A powerful tool for all users** •

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Supporting real-time operations•

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Application and success cases •

Wildfire Analyst™ simulation outputs are used to analyze potential impacts on people, structures, critical facilities and other key assets. This can include parcel/assessor data, Census data, and corporate asset data.

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Real Time Tools.
Real Time Information.

Wildfire Analyst™ has been designed using the latest Esri technology to provide fire professionals real time capabilities to support prevention, mitigation, and response and suppression activities during active wildfire incidents.

Seamless Data Integration

Contemporary fire behavior and spread software tools require a high degree of specialization, training, and effort in the preparation and conversion of GIS data. This is the main limitation in their use as real time fire spread simulators. Wildfire Analyst™ was designed specifically to address these requirements, providing capabilities to a range of users, with minimal knowledge of GIS data required. This greatly increases the usability of the tool allowing users to concentrate on interpreting simulation outputs, not focusing on data conversion requirements. WFA utilizes GIS data in native ArcGIS format requiring minimal interaction by the end user. Users can build predefined scenarios of the key data inputs while accommodating for changing conditions based on real world observations.
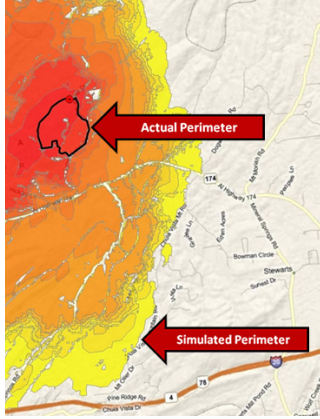
Performance When It's Needed

Wildfire Analyst™ was designed to be used with a laptop or tablet in the incident command center or directly on scene, and will obtain results within 120 seconds from starting a simulation! The ability to generate results quickly affords use of the software in real time, allowing for constant adjustment based on field observations and decisions by the incident team. WFA is a powerful tool in the arsenal of the incident team, providing updated simulations quickly, and repeatedly as changing conditions dictate. A key advantage of WFA is the ability to generate updated simulations and outputs throughout the incident duration. No other software can provide these capabilities to support real time decision making.

Compare actual fire perimeters with WFA simulations to evaluate agency suppression effectiveness.

WFA has been specifically designed to address operational requirements for initial attack, response and suppression

WFA has been developed over the past several years using a combination of ESRI™ SDKs and advanced computing toolkits.

Wildfire Analyst improves our capabilities to react to fire

— Spanish Military Emergency Unit

Seamless integration
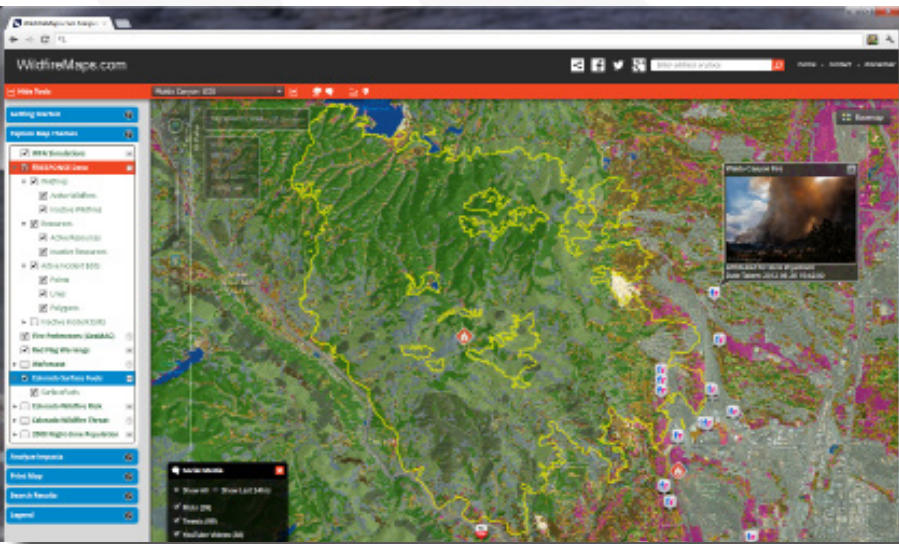
Wildfire COP viewer - Situational awareness for the Incident Commander, EOC, Fire Chief and the public.

Wildfire Analyst™ has been engineered for use during operational incidents providing seamless integration with the Technosylva fiRESPONSE enterprise incident management system, and Technosylva web and mobile based situational awareness applications. Wildfire COP is a web based viewer that provides situational awareness of all incidents to a range of stakeholders, including the incident command team, fire managers and the public.

fiRESPONSE provides a comprehensive, enterprise platform for managing all aspects of incident operations. It ensures that information about an incident, equipment, resources, and personnel, are being tracked in real time, no matter how many incidents are active. WFA provides individual incident analysis capabilities to aid the on-scene Incident Command Team with operational decision making - where is the fire going?, where to assign resources?, who is at immediate risk?, where do we evacuate? Critical questions that dictate informed decision making.

Different Simulation Options & Outputs

Wildfire Analyst™ was specifically designed to provide results in both ArcMap and in Google Earth's 3D viewing environments with a range of map outputs including:

- Hourly time of arrival and fire perimeters
- Fire behavior outputs, such as rate of spread, flame length and fireline intensity
- High definition wind field generation, including WindNinja integration
- Critical fire paths (minimal travel time)
- Suppression capacity
- Campbell Prediction System - Alignment of Forces
- Reverse time simulations
- Evacuation time simulations
- Probabilistic mode

WFA has seamless integration of outputs with ArcGIS Server provides a mechanism to quickly share results as map services for web deployed mapping applications, such as fiRESPONSE and the Wildfire COP™. WFA simulation outputs are readily available for use with the fiRESPONSE Incident Mapping tool.
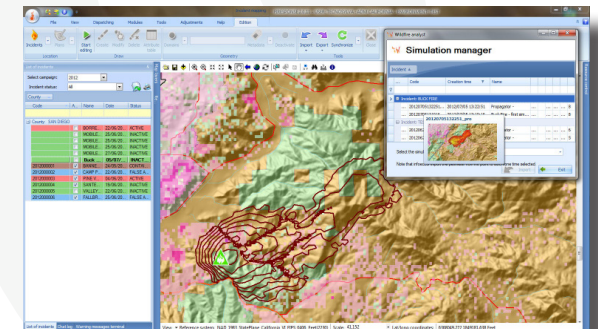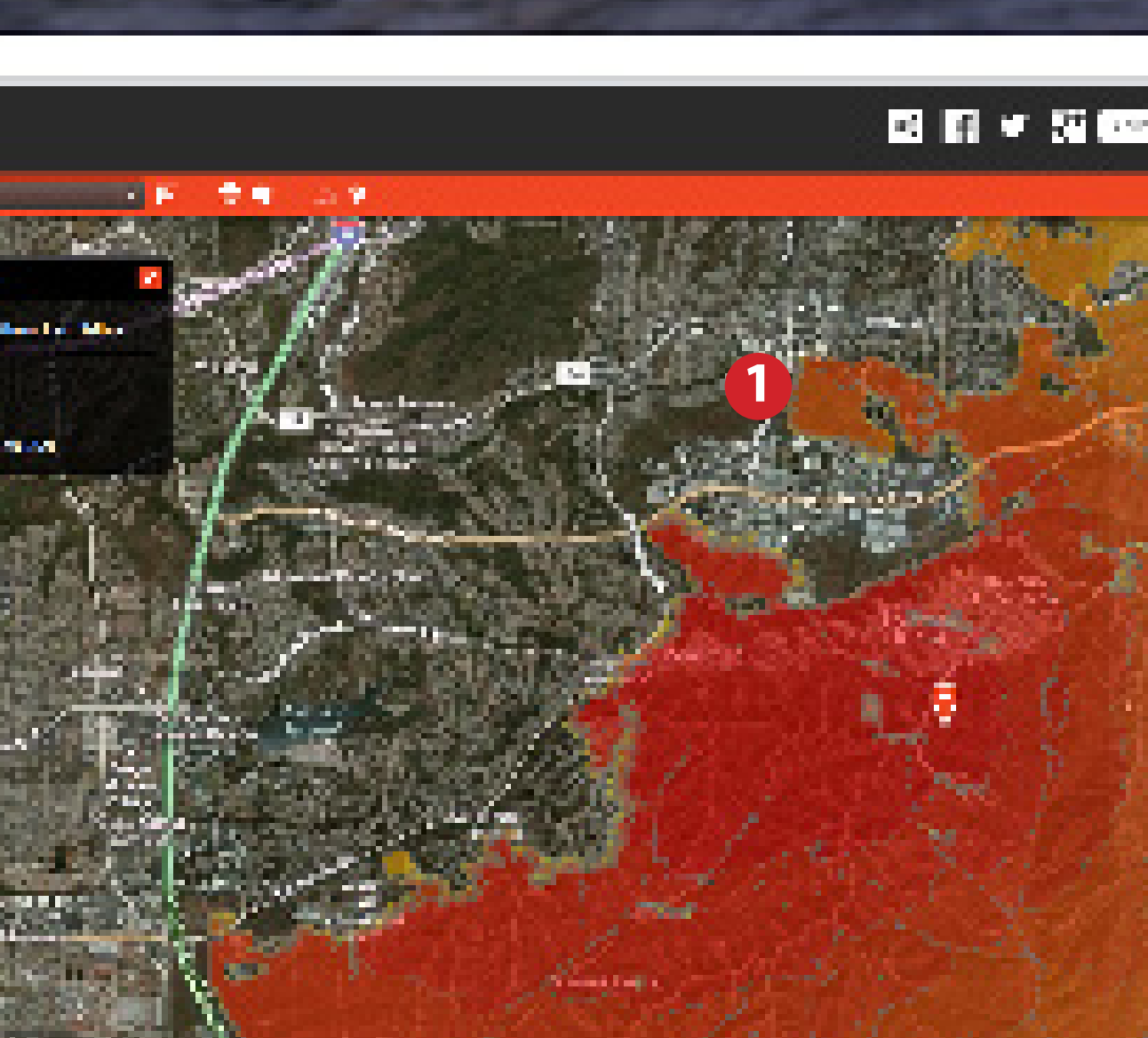
① Fire Perimeters & Time of Arrival

Hourly fire perimeters and a time of arrival surface are powerful information to aid the Incident Command Team in assessing where the fire will spread, where resources should be positioned, and who is at immediate risk. Different simulation modes are available to tailor outputs to meet operational needs of the incident.

② Fire Behavior & Impact Analysis Reports

With each simulation, detailed reports are automatically generated that summarize the potential fire behavior and spread conditions. This includes standard Behave Plus tables, charts and summaries providing critical information for the FBAN and Incident Commander. The reporting tool can be easily customized to generate reports to meet
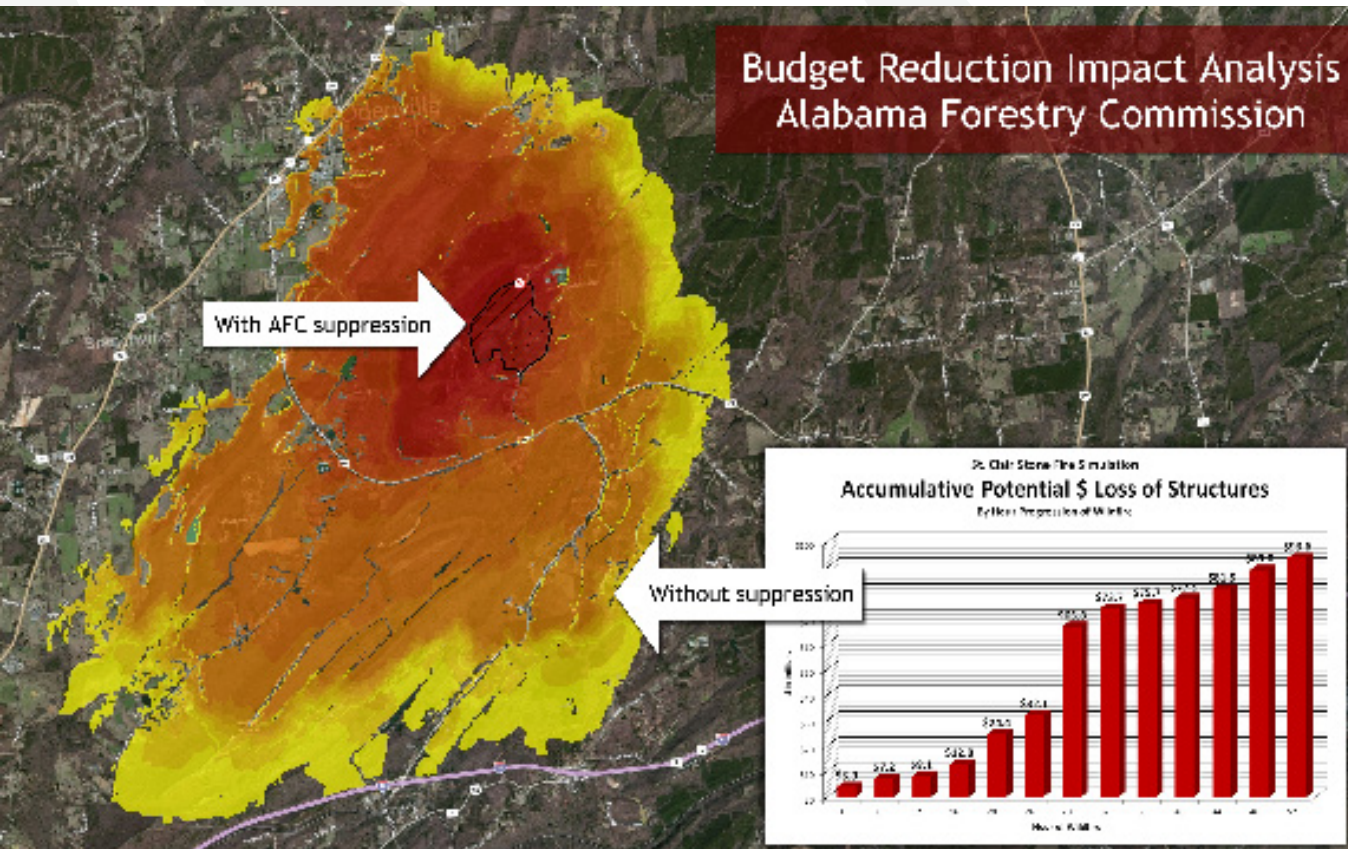
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A 6 hour Time of Arrival simulation example generated using the Wildfire Analyst web subscription service available from WildfireMaps.com.

Success stories

W ildfire Analyst™ provides comprehensive situational awareness to the fire chief, incident command team, emergency operation center and local agency stakeholders.

Simulation conducted to reflect possible impacts of reduced staffing on suppression capabilities for the Alabama Forestry Commission

Originally developed under the R+D European project, WFA has been used by numerous agencies across several countries in Europe, including the Spanish Military Emergency Unit. In North America, WFA is being applied by several state fire management agencies, to support operational FBAN on-scene requirements, prescribed fire planning, budget resource planning analysis, and FEMA FMAG submissions.

Distinguishing capabilities

- Available as an ESRI ArcGIS extension or standalone application. Versions supported from 9.3 to 10.1. Also available as a web subscription service on WildfireMaps.com (BurnEngine).

- Seamlessly integrated with fiRESPONSE (enterprise incident management DSS integrating the ICS structure) and the ArcGIS Server™ based Wildfire COP™ (situational awareness environment).

- Simulation processing is fast! Results are obtained within 120 seconds!

- Uses High Definition Wind fields, including WindNinja integration, with active and forecasted weather sources.

- Real time weather integration with RAWS

and NWS weather sources including forecast data. Integration with local customer weather stations is also supported.

- Incorporates the effects of firebreaks and operational firelines.

- Accommodates the definition of several ignition points/lines, firebreaks and fuel models as conditions change. Making adjustments for new spots or ignitions and re-simulating is quick and easy.

- Automatic adjustment of fire front final speed for each fuel type based on real observations.

- Key input maps and parameters (fuels, moisture, wind, etc.) can be edited and modified in real time to account for observed conditions compared to GIS

data sources.

- Supports use of 1982 FBPS and 2005 FBPS (Scott & Burgan) fuel model sets including the ability to accommodate custom fuels definitions and phenological effects on fuels.

- Accommodates the preprocessing of input datasets and weather scenarios, with custom parameterization as point-and-click scenarios when limited connectivity is available to on-line data sources. This ensures WFA can always provide outputs even if communication outages occur.

- Custom weather scenarios can be defined to reflect seasonal situations, such as Desert Santa Ana Winds.

- Processing is done in native ArcGIS format, however a range of different output formats are supported - Shapefile, ASCII, GRID ASCII, Google Earth KML -to facilitate sharing results with others who may not have GIS systems.

- Simple basic and advanced interfaces to support field staff or experienced FBAN users, and direct production of predefined map and reports to support development of Incident Action Plans.

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contact us today for a demonstration

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