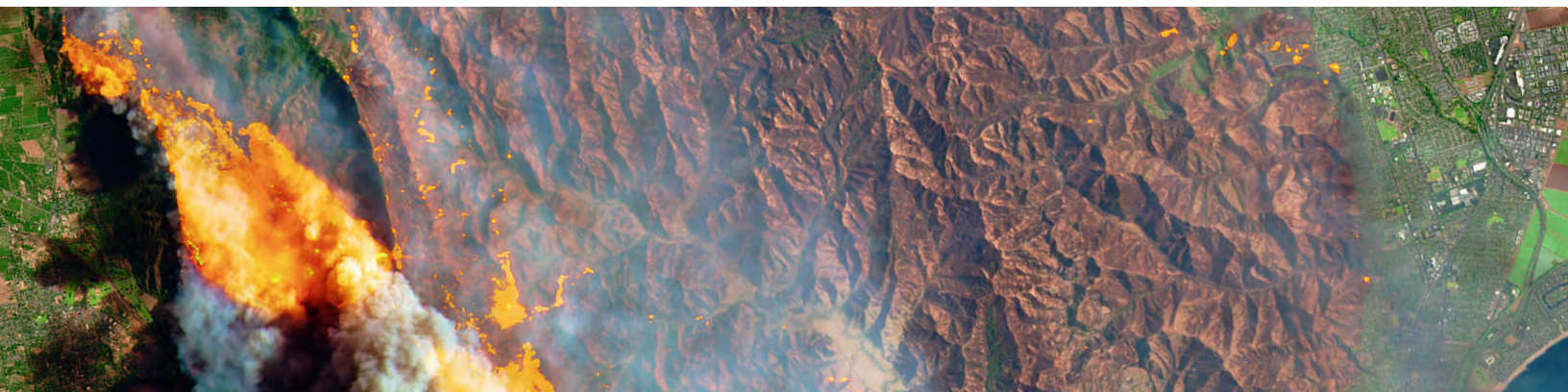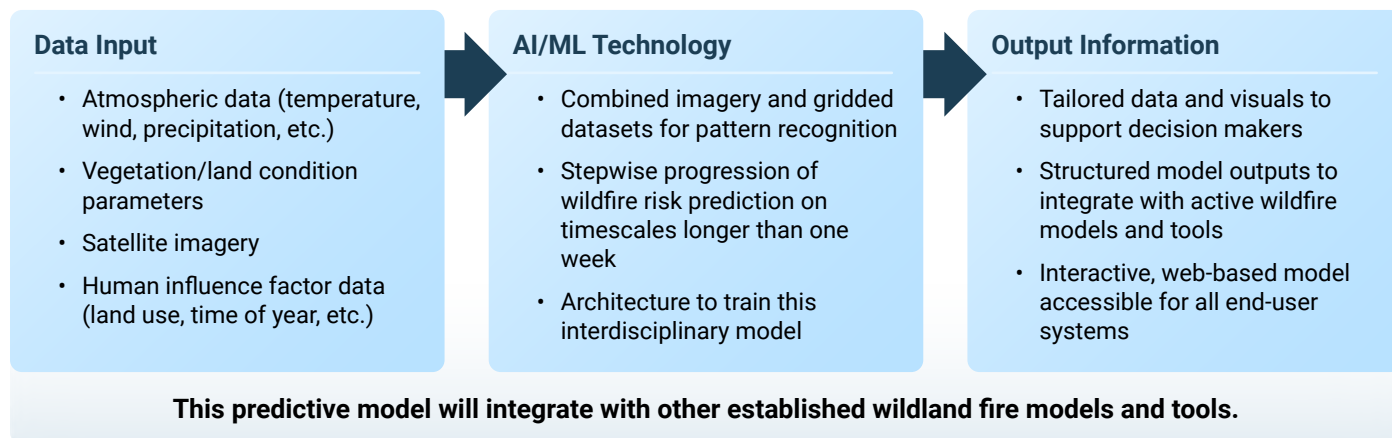# Wildfire Predictive Modeling

THE CHALLENGE

Extreme weather events have worsened globally and pose a serious threat to natural and human systems. Early warning systems and interagency collaboration are necessary for rapidly deploying resources to mitigate loss to life and property during extreme weather events.

THE SOLUTION

Artificial intelligence (AI) and machine learning (ML) have the potential to accelerate mitigation strategies and lower the cost of traditional, computationally expensive methods of weather and climate modeling. At Noblis, our AI/ML and data science capabilities complement our wildland fire interagency coordination expertise. We integrate data, agencies and end users to develop comprehensive solutions that protect lives and preserve natural resources.

Enhanced Monitoring for Better Emergency Response (EMBER)

Wildfire predictive modeling has not maintained pace with technological advancements. With a team of data and atmospheric science scientists, Noblis is developing EMBER, a wildfire activity predictive model tailored to end-user needs for decision making on timescales longer than one week. The chart below outlines the general structure of the model.

Data Input

- Atmospheric data (temperature, wind, precipitation, etc.)
- Vegetation/land condition parameters
- Satellite imagery
- Human influence factor data (land use, time of year, etc.)

AI/ML Technology

- Combined imagery and gridded datasets for pattern recognition
- Stepwise progression of wildfire risk prediction on timescales longer than one week
- Architecture to train this interdisciplinary model

Output Information

- Tailored data and visuals to support decision makers
- Structured model outputs to integrate with active wildfire models and tools
- Interactive, web-based model accessible for all end-user systems

This predictive model will integrate with other established wildland fire models and tools.

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For the best of reasons

About Environmental Science at Noblis

Noblis stands at the forefront of sustainable and resilient planning and policy making for the federal infrastructure. We combine proven science, technology and business processes with robust domain expertise and tools to ensure crosscutting, holistic solutions. Our experts design and conduct rigorous technical assessments and evaluations in a comprehensive policy, regulatory and technical framework. Our programs are strategically planned, evaluated and implemented using lessons learned to ensure implementable solutions.

Collaborate with Noblis

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ABOUT NOBLIS

Noblis is a nonprofit science and technology organization delivering innovative solutions to the federal government that enrich lives and make our nation safer. As a nonprofit organization, we work objectively for the public good and invest in breakthrough solutions to deliver lasting impact on our customers' missions with a strategic focus in the areas of health, space, national security and critical infrastructure. Our domain experts advance technologies such as artificial intelligence and advanced analytics, applied and environmental sciences, modeling and simulation, cybersecurity, autonomous systems and systems engineering.

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