INITIATIVE ON
Extreme Weather and Climate
COLUMBIA UNIVERSITY

Data-Driven Fire Modeling

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Providing accurate predictions of the spread of wildland fires has long been a goal of the fire research community. Whether used as a planning tool prior to prescribed burning or as an operational tool to predict the growth of current or potential uncontrolled wildfires, the accuracy of wildland fire spread models and their ability to provide useful information in a timely manner are of paramount importance. Despite the development of a plethora of fire models, their use has been relatively limited operationally. Some of this stems from the fact that most fire models today are simplified versions of reality that are not physically based. Available data to initialize and parametrize these models, such as fuels, topography, weather, *etc.*, are also subject to large uncertainties and limited resolution. A new approach to this problem, "data-driven modeling" is of growing interest. This technique couples existing models and real-time observations of the fire front, with the objective of reducing the uncertainties in model fidelity and input data by using real-time observations of wildland fires. A collaborative effort between CERFACS in France, the University of Maryland, and the NSF-funded WIFIRE effort at UCSD has led to the development of a prototype wildfire spread simulator, EnKF/FIREFLY, which has been evaluated against both prescribed and real-scale fires. A review of ongoing efforts, including technical barriers and milestones that need to be overcome in order to make data-driven wildfire spread models operational will be presented.