Wildfire Smoke – Forecasting Tools and Information

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Wildfire smoke is the most visible part of a wildfire with far-reaching consequences in terms of health, visibility and socio-economics impacts. Health impacts can include cardiorespiratory symptoms and even mortality and the costs associated with these health impacts can exceed fire-fighting costs. Furthermore, as wildfire seasons get longer and more intense and smoke impacts not only rural communities but large metropolitan areas, the need for information about smoke is mounting. The public wants to know; How do I protect myself? When is the smoke going to clear? Is the air safe enough for my kids to play outside? Do we cancel the Ironman? Answers to these questions rely on science that informs tactical decisions and impacts to public health. The Wildland Fire Air Quality Response Program (WFAQRP) has been developed to help meet these needs, working within the wildfire incident command structure providing smoke monitoring, smoke modeling and consistent messaging about smoke to health and air quality agencies and ultimately the public. This talk will profile the flow of tools and information used by the WFAQRP and Air Resource Advisors (ARAs) deployed as part of the program with Incident Management Teams and Geographic Area Coordination Centers. Many of these tools are accessible online and include smoke forecasting runs of the BlueSky smoke modeling framework (30+ runs per day), and the smoke monitoring tool that pulls together real-time particulate matter observational data from permanent monitors and temporary monitors deployed specifically for wildfires. Remotely sensed data are relied upon heavily to initialize the BlueSky daily smoke forecasting runs, and the system then links together ground-based data of fuels and fuel consumption & emissions to calculate fire emissions of not just PM2.5 but hundreds of trace gas species and aerosol. All of these readily accessible tools and information will be discussed along with how a user can do their own smoke modeling and forecasting with the BlueSky Playground tool.