



Extreme Forest Fire Activity in Western Russia in 2010: Fire Danger Conditions, Fire Behavior and Smoke Transport

Brian Stocks (1), Mike Fromm (2), Johann Goldammer (3), Richard Carr (4), and Anatoly Sukhinin (5)

(1) B.J. Stocks Wildfire Investigations Ltd., Sault Ste. Marie, ON, Canada. , (2) Naval Research Laboratory, Washington, DC, United States. , (3) Global Fire Monitoring Center, Freiburg, Germany. , (4) Canadian Forest Service, Edmonton, AB, Canada. , (5) Sukachev Insitute for Forest, Krasnoyarsk, Russian Federation.

Widespread forest and peatland fires in western Russia during the summer of 2010 burned over hundreds of thousands of hectares, destroying croplands, forests and peatlands, burning hundreds of homes, and directly causing the death of more than 50 people. Unprecedented drought conditions, combined with an extended heat wave, resulted in extreme fire danger conditions and explosive fire behavior in a region of Russia not noted for large fires. Several fires exhibited pyroconvection, injecting smoke directly into the upper troposphere and lower stratosphere, while deep-burning fires created major regional smoke problems. This smoke persisted in the heavily-populated areas around Moscow, exposing millions to high levels of ozone and particulate matter, and creating both immediate and longer-term health risks.

This presentation will explore the drought conditions leading to the catastrophic fire behavior experienced in western Russia, and analyze fire behavior in terms of fuel consumption, smoke production, fire intensity levels, and pyroconvection. Impacts of regional and long-range smoke transport will also be discussed.