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**CONTROL ID:** 1208203**TITLE:** Catastrophic Fires in the Russian Federation**PRESENTATION TYPE:** Assigned by Committee (Oral or Poster)**CURRENT SECTION/FOCUS GROUP:** Global Environmental Change (GC)**CURRENT SESSION:** GC16. Regional Climate Impacts 7. Environmental, Socio-economic and Climatic Changes in Northern Eurasia and their Feedbacks to the Global Earth System: The Role of Remote Sensing and Integrative Studies**AUTHORS (FIRST NAME, LAST NAME):** Anatoly Ivanovich Sukhinin<sup>1</sup>, Amber Jeanine Soja<sup>2</sup>, Douglas J. McRae<sup>3</sup>, Donald R. Cahoon<sup>5</sup>, Brian James Stocks<sup>4</sup>, Olga A. Dubrovskaya<sup>1</sup>, Jin Ji-Zhong<sup>3</sup>, Mike Flannigan<sup>9</sup>, Bill DeGroot<sup>3</sup>, David Westberg<sup>6</sup>, Paul W Stackhouse<sup>8</sup>, Susan G Conard<sup>7</sup>, Wei M Hao<sup>7</sup>**INSTITUTIONS (ALL):** 1. Physics, Sukachev Institute of Forest, Krasnojarsk, Russian Federation.

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**Title of Team:****SPONSOR NAME:** Amber Soja**ABSTRACT BODY:** Impacts of climate change on the severity of wildfires and the implications for carbon emissions in the boreal zone are globally significant because Russia contains two-thirds of the world's boreal forest and peat lands. Wildfires in Russia burn from 2 to 20 million ha annually, depending on burning conditions, yet quantification of trends in fire patterns is hampered by the lack of accurate historic fire data. Official Russian wildfire records greatly underestimate burned areas. However, satellite data for Russia have become easily available for assessing area burned since 1980, and we are in the process of analyzing these data to map historic burned area and fire patterns.

Catastrophic fire refers to large, uncontrollable fires that are associated with extreme weather conditions. In Russia, major catastrophic fire events are associated with stable anticyclonic systems, which lead to severe drought that supports extreme fire behavior. These forest fires result in large areas burned and high consumption of vegetation and organic soil horizons. Additionally, thick smoke can reduce visibility, which often paralyzes suppression efforts. In recent years, there have been several large and often economically devastating fire complexes across Russia (European Russia, Tyva, Sakha, Chita and the Far East). We present evidence of the association of these large fires with very high or extreme fire weather danger. We assert that these large fire systems have increased in severity in response to current changes in weather and climate, and we argue that catastrophic fires are likely to increase in the future, as climate warms in the northern hemisphere upper latitudes of Russia.

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**INDEX TERMS:** [0315] ATMOSPHERIC COMPOSITION AND STRUCTURE / Biosphere/atmosphere

interactions, [0428] BIOGEOSCIENCES / Carbon cycling, [1632] GLOBAL CHANGE / Land cover change, [1640] GLOBAL CHANGE / Remote sensing.

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