EMISSION FACTORS OF KEY AIR POLLUTANTS ARISING FROM BIOMASS BURNING.

Amanda Hanashiro Moraes, Shakiba Talebian, Rowshon Afroz, Kerry Chen, Jason Olfert, Ran Zhao, University of Alberta, Chemistry Department,11227 Saskatchewan Dr NW, Edmonton, AB T6G 2N4, Canada. (hanashir@ualberta.ca)

Biomass burning, including wildfires and wood combustion, generates large amounts of gaseous pollutants and particulate matter (PM) that significantly impact air quality, human health, and climatVaughe change. In this context, PM arising from Canadian wildfires contains substantial elemental carbon (EC) and organic carbon (OC). EC, a major component of soot, is a primary pollutant emitted during incomplete combustion, with strong light-absorbing properties that contribute to global warming. OC can be directly emitted or formed through atmospheric reactions and can scatter radiation, exerting a negative or positive climate-forcing effect.[1] Due to variations in emission factors based on fuel type and combustion conditions, there is limited data available on emissions from Canadian biomass sources. This study aims to quantify the emission factor of key air pollutants generated by burning pertinent fuels in the Canadian boreal forest, such as mulch and peat. Controlled biomass burning experiments were performed, including gas online measurements and the collection of quartz filters. These filters were subsequently analyzed using an OC-EC analyzer. The findings provide valuable data that can be input for accurate atmospheric models and predictions of wildfire environmental impacts.

[1] Li, W., & Bai, Z. Particuology (2009). (432–437)