Geophysical Research Abstracts Vol. 20, EGU2018-10304, 2018 EGU General Assembly 2018 © Author(s) 2018. CC Attribution 4.0 license.



## **Quantifying the Effect of Soil Water Repellency on Fire-Affected Soils**

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Infiltration into soils exhibiting some degree of water repellency has important implications in post-fire runoff and erosion. We developed a physically-based model to quantify the effect of water repellency on the sorptivity infiltration parameter. Experimentally, we used a dry silica sand and treated it to achieve various known degrees of water repellency. The model was verified using data gathered from multiple upward infiltration (wicking) experiments. The model allowed us to explore the effect of initial soil moisture conditions on infiltration into water-repellent soils, and the physical interpretation of common field repellency measures. These results provide a fundamental step in the physically-based understanding of how water infiltrates into a less than perfectly wettable porous media.