



Water repellent soils all over the world

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Soil water repellency is much more wide-spread than formerly thought. It has been a topic of study for soil scientists and hydrologists in at least 21 States of the USA, in Canada, Australia, New Zealand, Mexico, Colombia, Chile, Congo, Nepal, India, Hong Kong, Taiwan, China, Ecuador, Venezuela, Brazil, Mali, Japan, Israel, Turkey, South Africa, Germany, The Netherlands, Spain, Portugal, United Kingdom, Denmark, Sweden, Finland, Poland, Slovakia, Russia, France, Italy, and Greece, during the last decades. Although water repellent soils already have been indicated at the end of the nineteenth century, they have been discovered and studied in most countries in the last decades. Water repellency is most common in sandy soils with grass cover and in nature reserves, but has also been observed in loam, heavy clay, peat, and volcanic ash soils. From 1940 to 1970 research was focused on identifying vegetation types responsible for inducing water repellency and on developing techniques to quantify the degree of water repellency. Of special interest has been the degree of wildfire on the development of soil water repellency and its consequences for soil erosion. Due to increasing concern over the threat to surface and groundwater posed by the use of agrichemicals and organic fertilizers, studies on water repellent soils have also been focused on its typical flow with runoff and the existence of preferential flow paths. Since the end of the 1950s wetting agents and clay amendments have been studied to ameliorate water repellent soils. Since 1883 more than 1200 publications related to soil water repellency have been issued in journals, reports, and theses. An exponential increase in number of publications started in 1960, resulting in an average of 40 publications per year in the last fifteen years. The presentation will focus on the occurrence and distribution, assessment, hydrological implications, amelioration, and the exponential increase of publications concerning soil water repellency.