

>> **SYNTHESIZE** MOUNTAINS OF KNOWLEDGE <<

Submitted Abstract

ID IMC22-FSAbstr- 182

First Author First Name Last Name	Amanda Diane Troxell
Submitting Author First Name Last Name	Amanda Diane Troxell
Correspondence	amanda.troxell@uibk.ac.at
Co-Authors >> E-Mails will be not listed	Mayr, Stefan
Organisations	University of Innsbruck, Austria
Country	Austria
Region	Western Europe
Title	Trees In Mountain Cities: Salt Stress Due To Winter Services.
Keywords	Urban Ecology, City Trees, Winter Road Maintenance, Salt Stress, Sodium Chloride
Type	List Of Focus Session
Focus Session ID	16

Abstract

Since the mid-20th century salt use due to services that enable mobility, like winter road maintenance, has increased substantially in cold temperate regions of the world. The impacts of salinization in mountain cities is especially relevant due to topographical features that necessitates intense winter services to maintain ice-free pavements and roads. Sodium chloride is the most abundant, common and effective salt application used to depress the freezing point of water on slick surfaces. Although winter services increase public safety, they adversely impact nearby soil quality. When trees are growing near streets, they are also exposed to a higher concentration of salt, and visible symptoms of tree stress (e.g. browning of leaves and crown dieback) are often observed in trees growing alongside salted roadways and in cities. Salt has become a major stress for city trees due to a high amount of impervious pavement that is often treated with salt during winter months. Besides higher salt exposure, urban trees often face more stressors than trees in forest stands or next to roads because of pollution, soil compaction and limited root space. Healthy urban trees provide a multitude of benefits (e.g. air quality improvement, minimizing effects of the urban heat island, and contributing to the biogeochemical and hydrological cycles) and thus it is vital that we understand how trees cope with salt stress. This poster summarizes the effects of winter salt application in soil and trees, as well as strategies to improve urban conditions for healthy tree growth and survival. Through a literature review, we compiled the most common types of road salts used and how they change carbon and water relations in trees at the tissue and organism level.