

**The Life of Permafrost: A History of Frozen Earth in Russian and Soviet
Science**
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Permafrost appears in contemporary discussions about climate change as a natural object whose thawing threatens to accelerate global warming. Concerned commentators have referred to it as a “climate time bomb” and “Arctic methane monster.” Where did the concept of permafrost come from, and how did it become a focus of scientific study and popular fascination? My project, *The Life of Permafrost: A History of Frozen Earth in Russian and Soviet Science*, aims to tell this story.

The Life of Permafrost is an intellectual history of permafrost that places the phenomenon of frozen earth in the political, social, and material contexts of Russian and Soviet science. Following Lorraine Daston's framework of writing “biographies of scientific objects,” I treat permafrost not as a given but as an idea that emerged and evolved as scientists and engineers interacted with the landscape of northern Eurasia from the mid-nineteenth to mid-twentieth centuries. My overarching argument is that what we know as “permafrost” today is neither a straightforward physical geographical reality nor a stable scientific concept. Rather, from origins in the quotidian existence of frozen earth, something called permafrost acquired life as people named, defined, and studied it. The essence of frozen earth changed as actors approached it with shifting agendas, from natural history and geography in the nineteenth century, to civil engineering and geology in the twentieth, to climatology in the twenty-first. These varied motivations contributed to the difficulty of pinning down the core feature of permafrost, whether it was ice or earth, soil or rock, temperature or matter, a substance or a process. By historicizing permafrost—by examining it as a historical object discovered in a past world whose meaning has developed over time—my project shows that it has been a contested and elusive entity.

To fully understand the life of permafrost, it is necessary to examine the local and national contexts in which it was born and circulated. My project puts permafrost science “in its place,” as David Livingstone says. I argue that the Russian Empire and its successor, the USSR, contributed profoundly to shaping global ideas about frozen earth. Few people are aware that the scientific term “permafrost” is a loan translation of the Russian expression *vechnaia merzlota*. Although what we now call permafrost can also be found in Alaska and northern Canada, it was in Russia that sustained systematic study of the phenomenon first began. In the interests of empire building and socialist industrialization, the state supported expeditions to map, measure, and experiment with frozen earth. Using the lens of permafrost, I view the environmental history of northern Eurasia as one of adaptation. In the hope of ensuring the longevity of their constructions, Soviet scientists and engineers aimed to maintain, rather than degrade, frozen earth. They accommodated frozen earth by necessity, often without a particular commitment to preserving nature—indeed, sometimes with the aspiration to conquer it.

Finally, my project explores the importance of political change, social norms, and cultural values to scientific research. What made permafrost science Soviet was not only government influence on its priorities and organization. Broader elements of Soviet intellectual life also mattered. Especially significant were philosophical currents among the pre-revolutionary Russian intelligentsia, Bolshevik ambitions of educating the masses, and the ideology of Marxism-Leninism. All of these left their mark on the terms and concepts of permafrost science, including “permafrost” itself.