



חוברת תקצירים

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**כנס החברה הגיאולוגית הישראלית
והאגודה הישראלית למשאבי מים**

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Abstracts

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האגודה הישראלית
למשאבי מים



A terrestrial brine-seepage analogue for Martian slope streaks near Salar de Pedernales in the Chilean Atacama desert

אנאלוג במדבר אטאקמה בצ'ילה להווצרות פסי מדרונות על מאדים כתוצאה מנביעה של תמלחות

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Martian slope streaks are elongated down-slope, low-albedo surface features that currently form within sub-annual time scales in the high-albedo (dusty) regions of equatorial Mars. These km-scale streaks, which can persist up to several decades on the Martian surface, present one of the most enigmatic and dynamic suites of active surface features on present-day Mars. Two categories of explanations remain in debate regarding their nature: 1) Dry formation models, in which surface darkening is associated with mass wasting processes, such as dust avalanches; and 2) Wet formation models, in which surface darkening is associated with transient wetting of the surface by either seepage of sub-surface brines or deliquescence of atmospheric moisture. Here, we report recently discovered dark slope streaks that occur in the high Atacama Desert of Chile and display a close geomorphic resemblance to the Martian streaks. Field examination of the Atacama slope streaks revealed that they formed through down-slope seepage of a groundwater brine sourced from the Salar de Pedernales located 500 m away. Chemical and mineralogical analyses demonstrate that salts deposited from the Pedernales brines combined with detrital input from soils/dust are responsible for surface darkening in the Atacama case. Field-based spectral measurements in the 0.4-2.5 micron wavelength range and high-resolution topography derived from drone imagery compare between the spectral and textural characteristics of the Martian and Atacama streaks. Our study of these unique terrestrial streak analogs supports the wet formation hypothesis as a viable hypothesis for some of Martian slope streaks.