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Measuring the absorption length of the deep Pacific Ocean: Results from STRAW, a pathfinder mission for the proposed P-ONE neutrino telescope

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In the search for astrophysical neutrinos, neutrino telescopes instrument large volumes of clear natural water. Photomultiplier tubes placed along mooring lines detect the Cherenkov light of secondary particles produced in neutrino interactions, and allow us to search for possible neutrino sources in the sky. The P-ONE experiment proposes a new neutrino telescope off the shore of British Columbia.

To overcome the challenges of a deep-sea installation, we have developed prototype mooring lines in collaboration with Ocean Networks Canada, an initiative of the University of Victoria, which provides the infrastructure for many Oceanographic instruments. The STRAW and STRAW-b mooring lines, deployed in 2018 and 2020, provide continuous monitoring of optical water properties at a new possible detector site in the Pacific.

We present the measurements of the attenuation length, one of the defining properties of the site, based on data taken by the STRAW experiment.

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