

P-ONE second pathfinder mission: STRAW-b



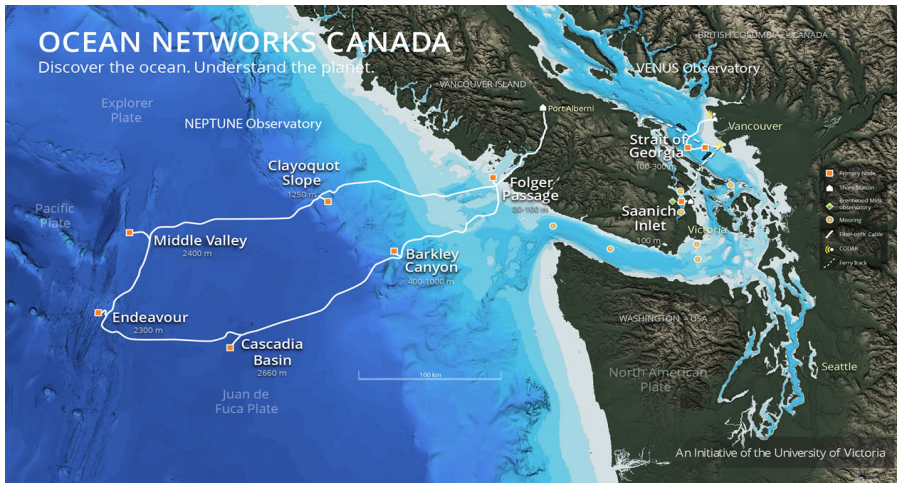
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for the P-ONE collaboration

The basic concept:

Pacific Ocean Neutrino Experiment (P-ONE) collaboration is focusing on building a new large-scale neutrino telescope in the Pacific Ocean: first pathfinder STRAW (STRing for Absorption length in Water) deployed in 2018, the second pathfinder named STRAW-b deployed in summer 2020.

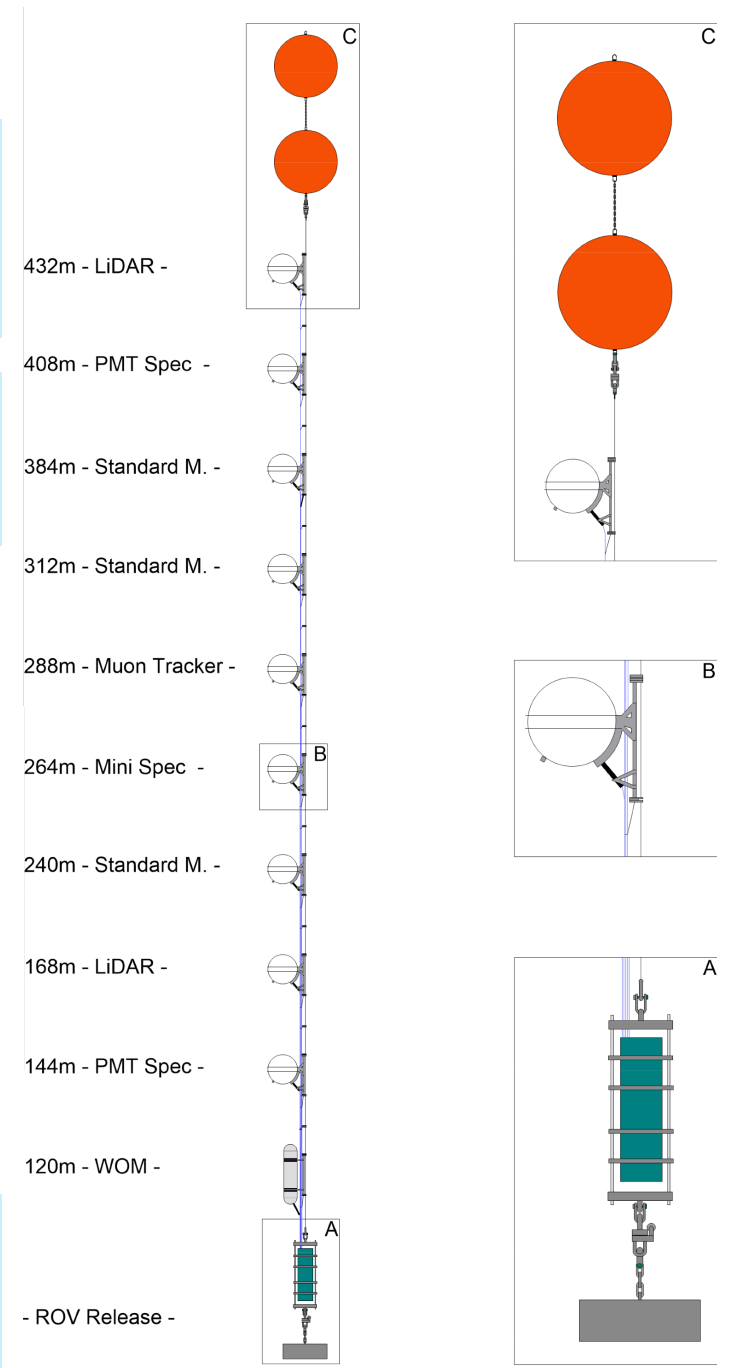
Where:

Cascadia Basin site, 2600 m depth off the shore of Vancouver Island → Ocean Networks Canada infrastructure



Scientific goal:

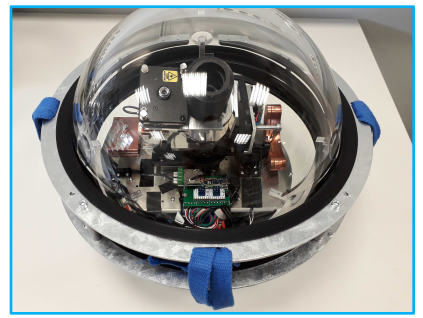
- Validate the attenuation length already measured by STRAW
- Characterise the light background spectrum (*bioluminescence* and ^{40}K)



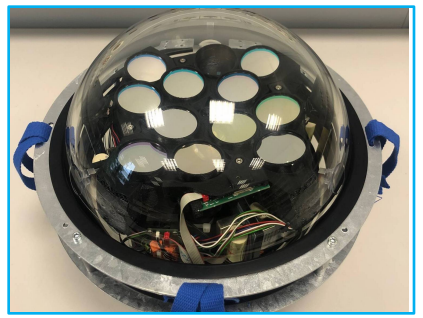
Design:
 450 m length electrical-optical cable with 10 modules:
3 Standard Modules-environmental monitoring,
7 Specialised Modules- background light analysis : 2 LiDARs, 2 PMT spectrometer modules , 1 Mini-spectrometer module, 1 Muon tracker, 1 WOM
 (Wavelength Shifting Optical Module - built by JGU Mainz)

All the modules are hosted in spherical 13" high-pressure resistant glass housings.

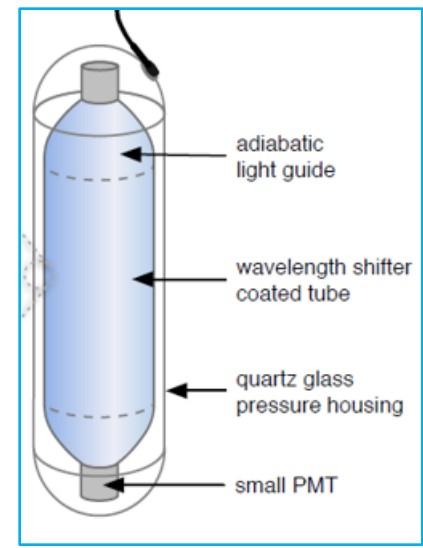
LiDAR:



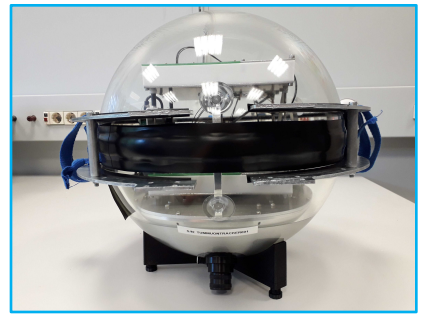
PMT spectrometer:



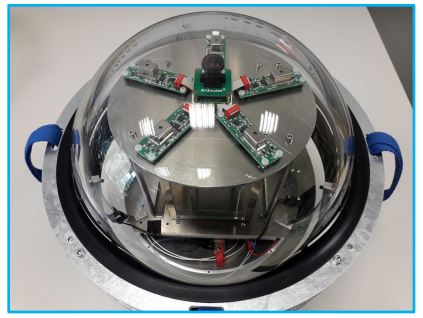
E) WOM:



Muon-Tracker:



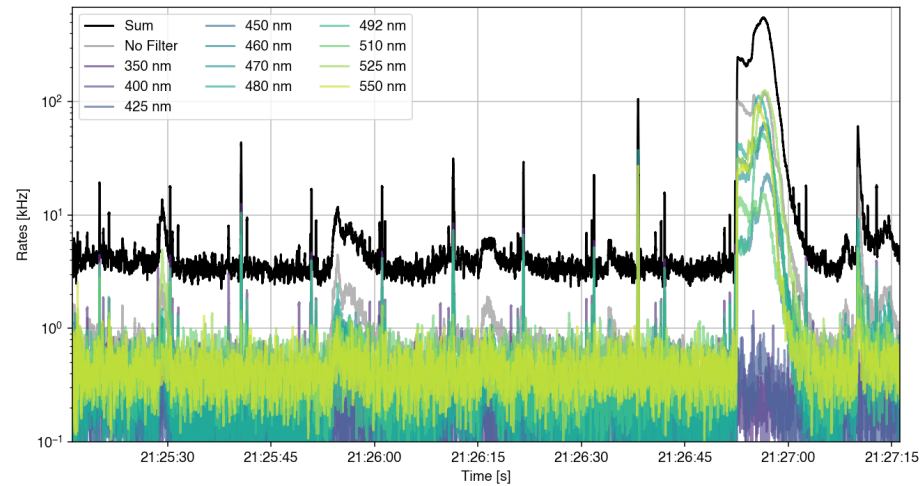
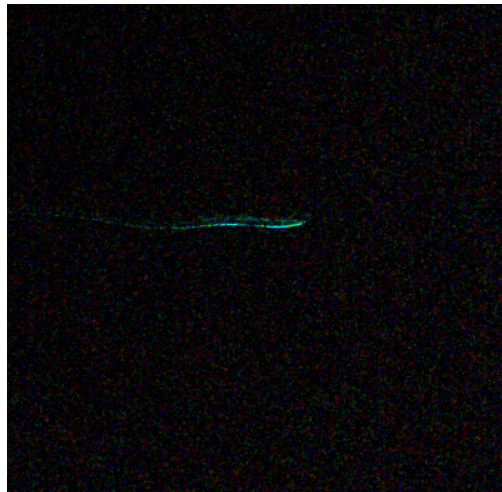
Mini-spectrometer:



Current status:

STRAW-b modules are taking data continuously for several months.

Data are publicly available ONC's database Oceans 2.0 (<https://data.oceannetworks.ca>)



Example of bioluminescence event detected simultaneously by a camera and one of the PMT-spectrometer module.

Thanks for the attention!

