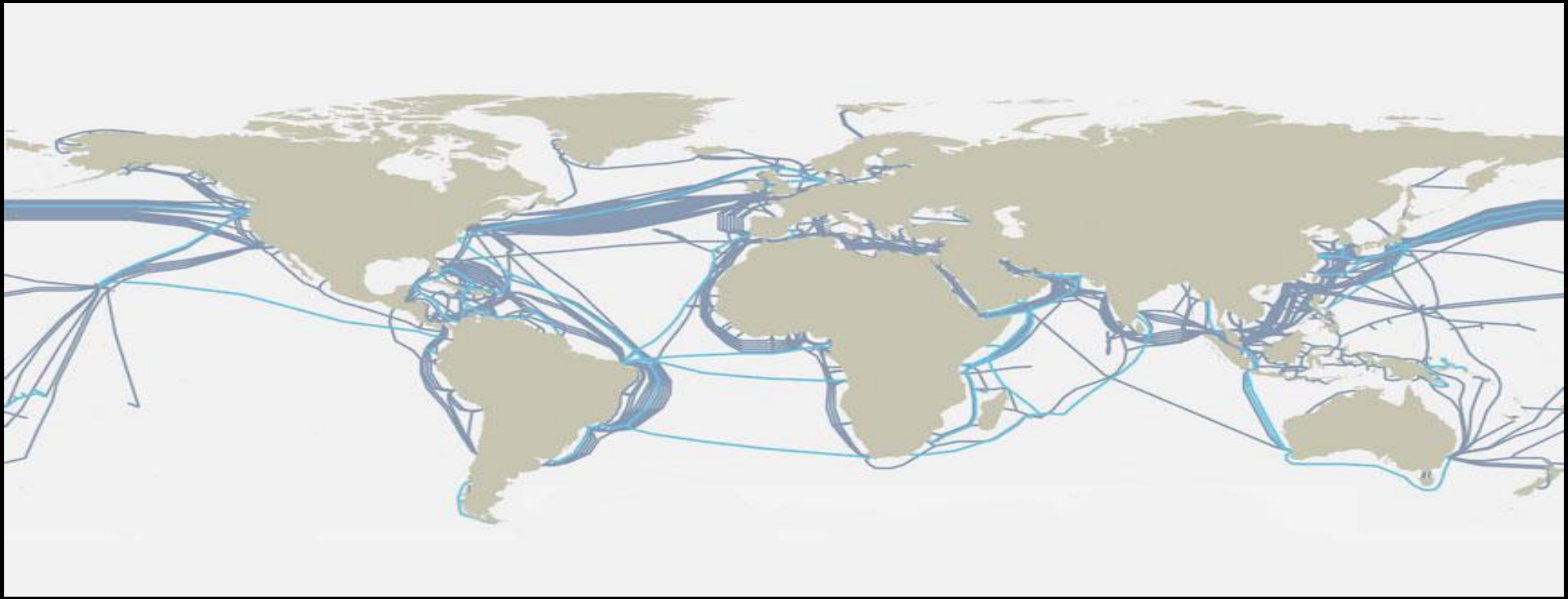
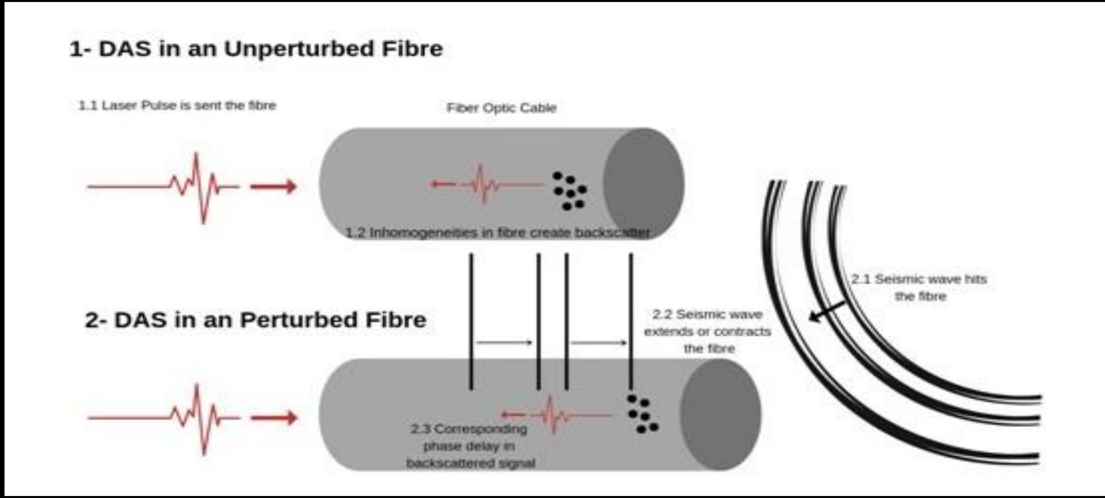
T3.1-O10

Using the existing telecommunication optical fiber cables as underwater seismic events detectors

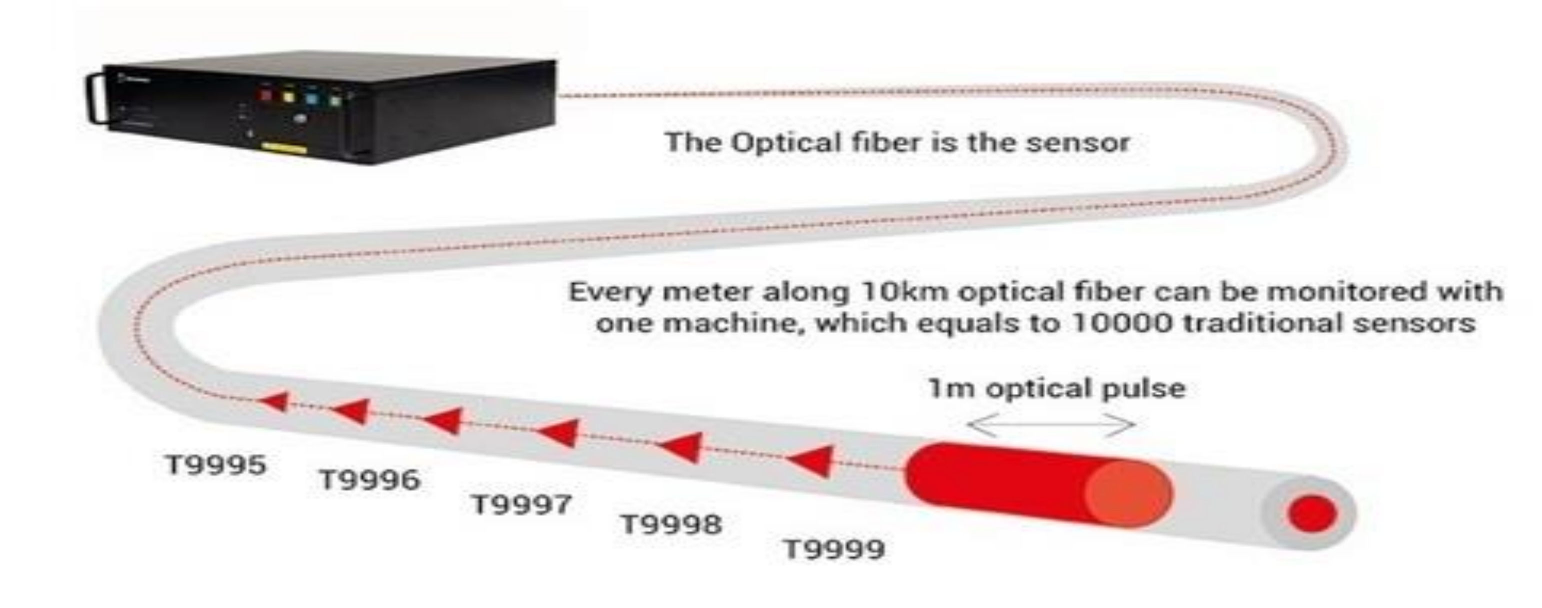
THE EXISTING EXTENSIVE SUBMARINE OPTICAL FIBER NETWORK



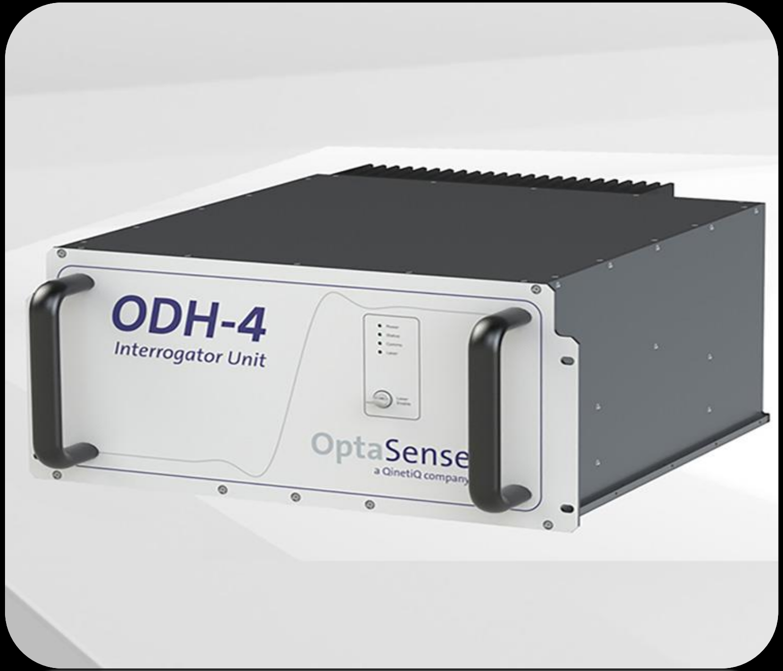
DISTRIBUTED ACOUSTIC/VIBRATION SENSING (DAS/DVS) TECHNOLOGY



THE DAS INTERROGATION UNITS

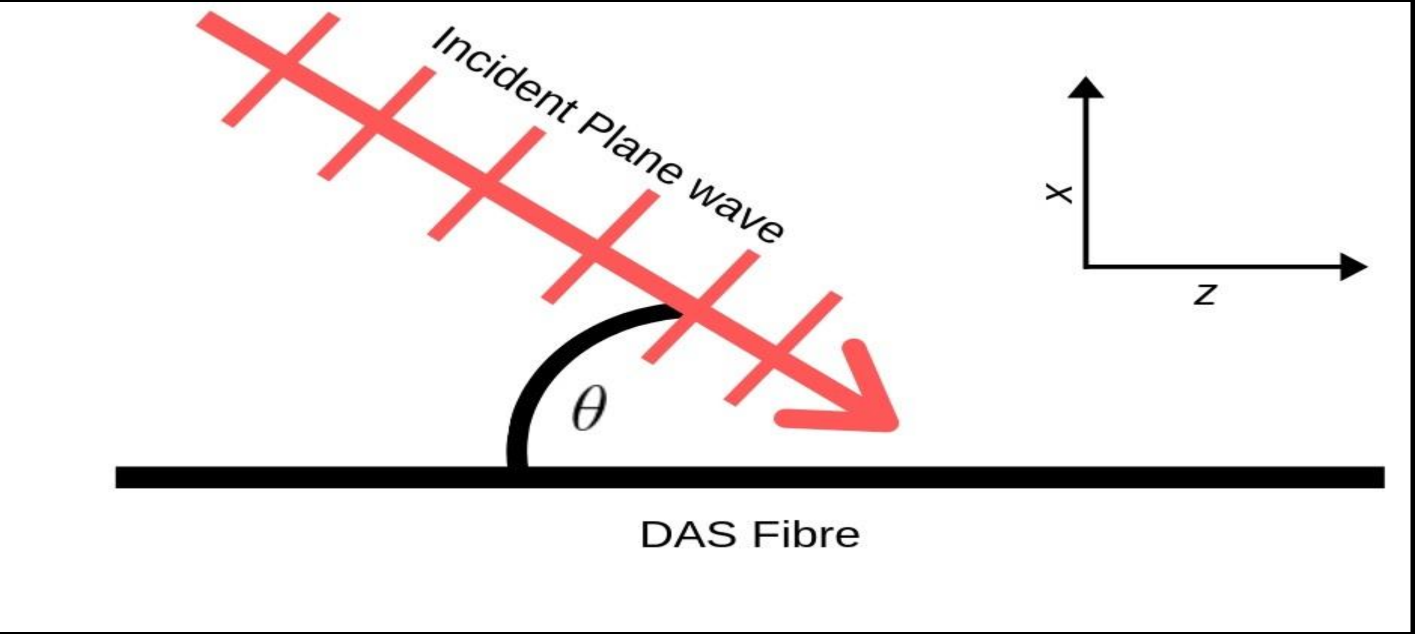


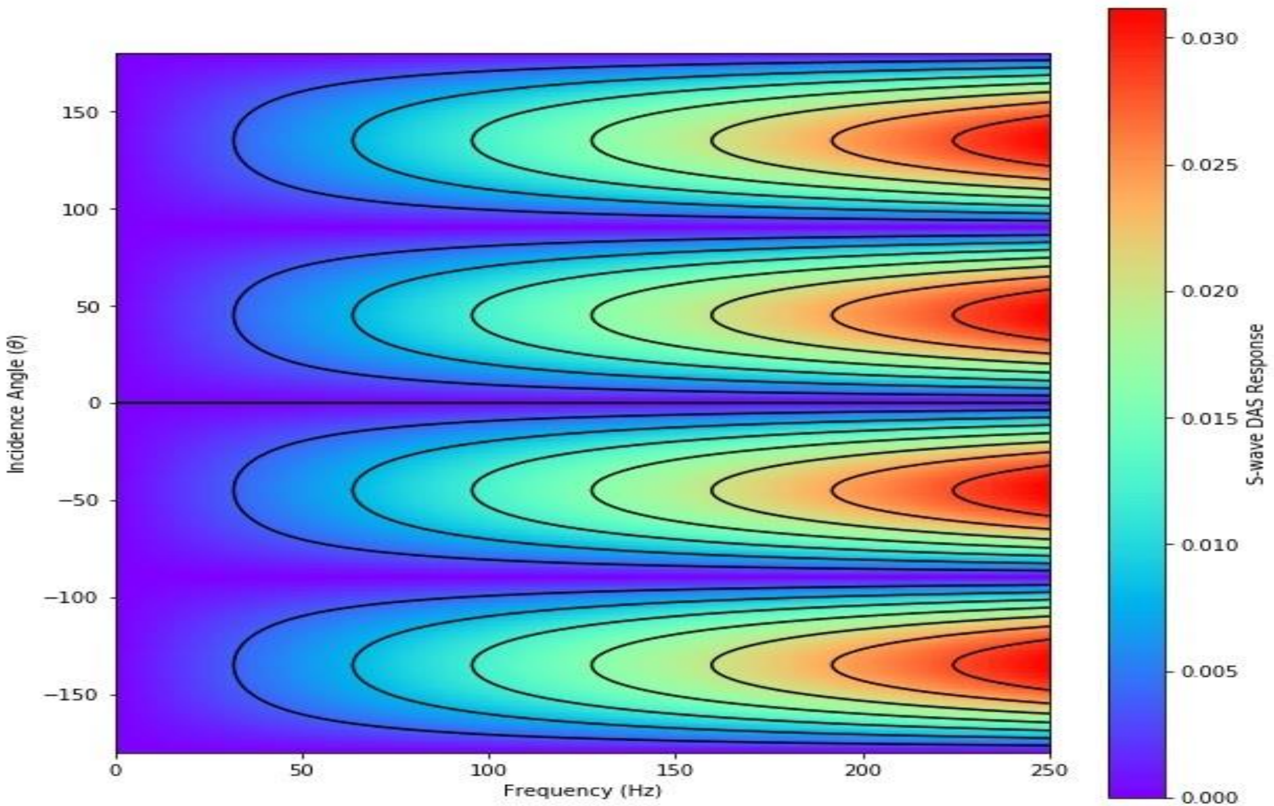
THE ODH-4 INTERROGATION UNIT



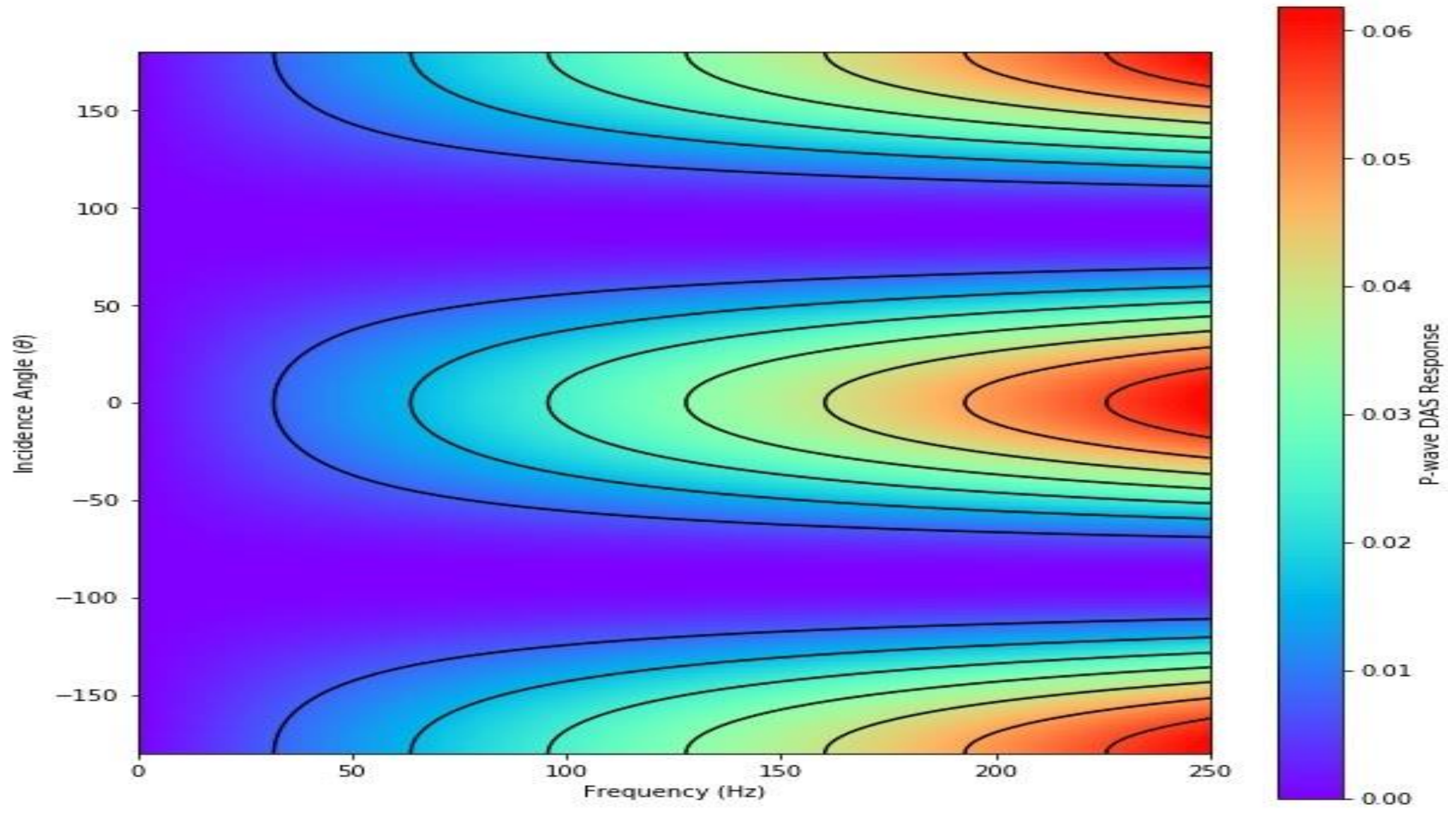
- Multiply laser interrogation (single – mode or multi - mode);
- Vibration noise mitigation;
- Wavelength diversity processing;
- Quiet coherent lasers;
- Real – time delivery of quantative phase or intensity measurements;
- Enhanced 6 db sensivity improvement;
- GPS time synchronization;
- Flat frequency responce including down to DC (0 Hz);

THE INCIDENT WAVE HITS THE FIBRE AT AN ANGLE





150
100
50
0
−50
−100
−150
Incidence Angle (θ)
0
50
100
150
200
250
Frequency (Hz)
0.030
0.025
0.020
0.015
0.010
0.005
0.000
S-wave DAS Response



Incidence Angle (θ)
Frequency (Hz)
P-wave DAS Response
150
100
50
0
−50
−100
−150
0
50
100
150
200
250
0.06
0.05
0.04
0.03
0.02
0.01
0.00

THANK YOU!