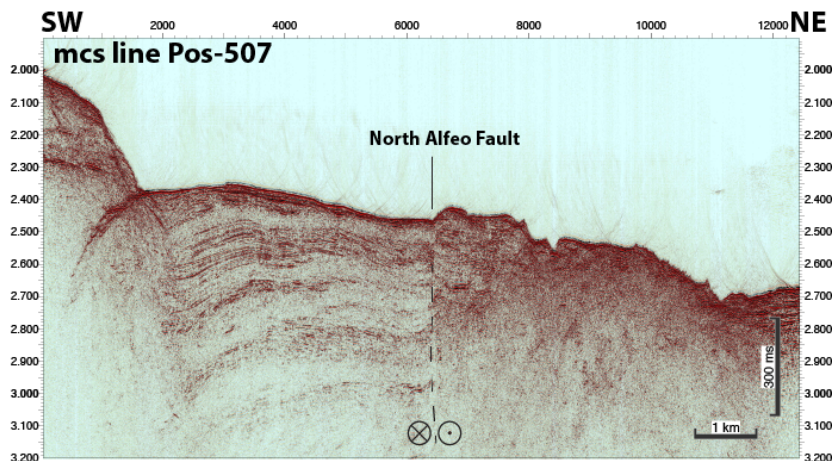
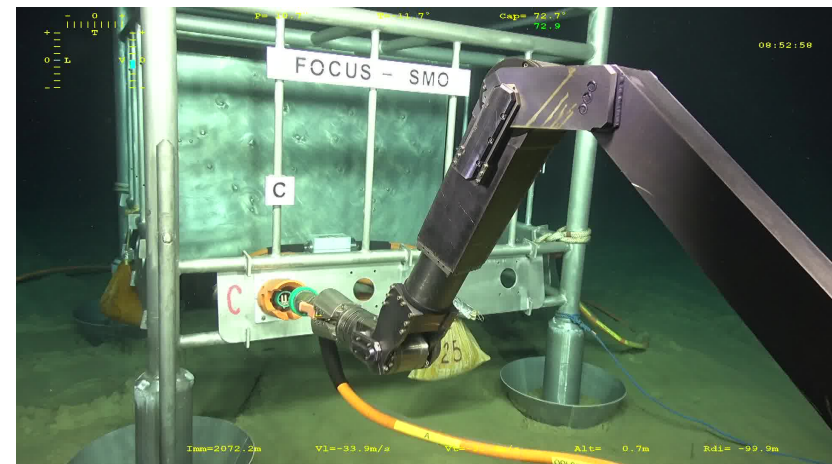
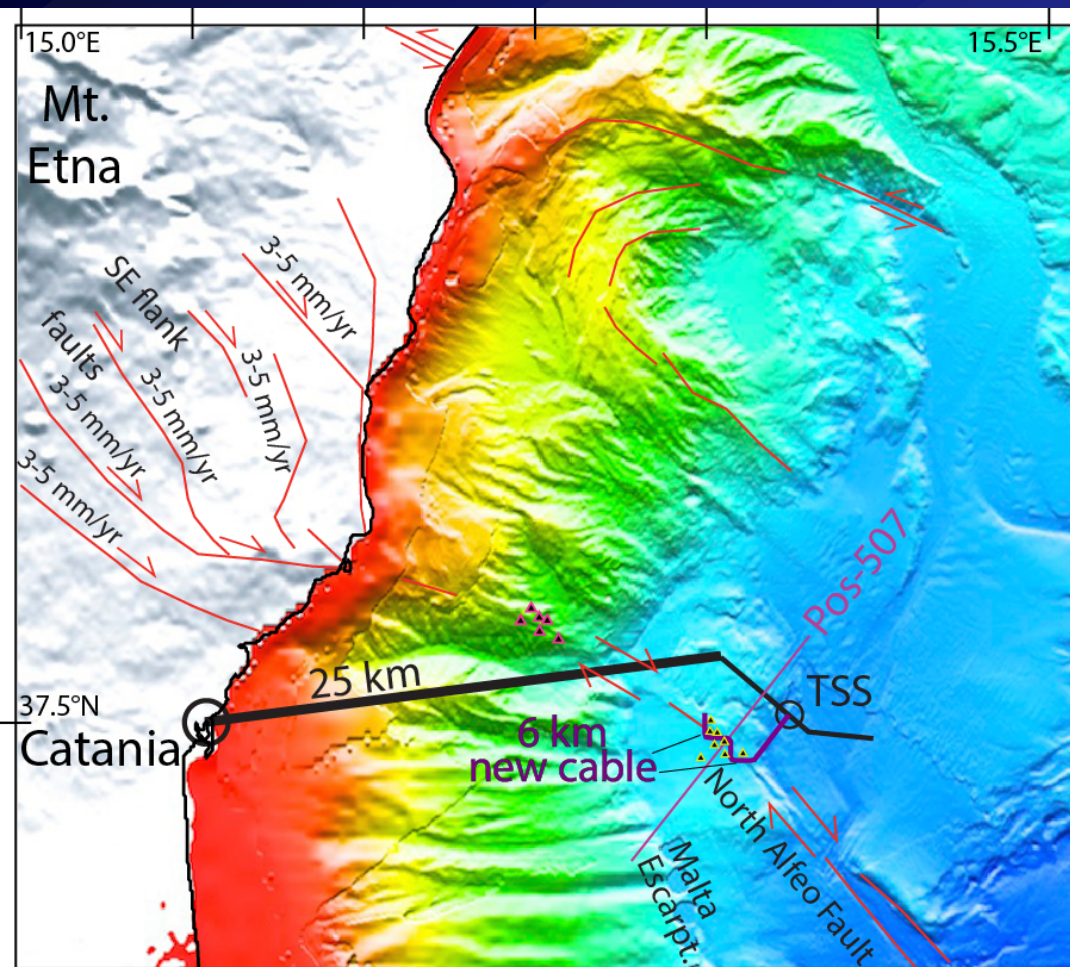


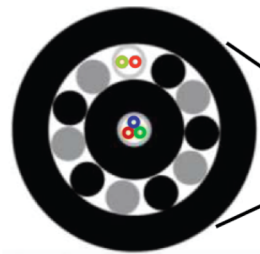
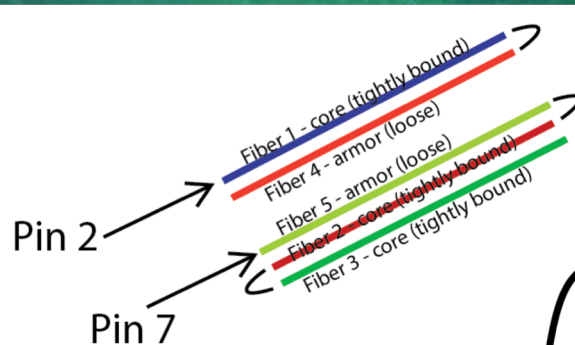
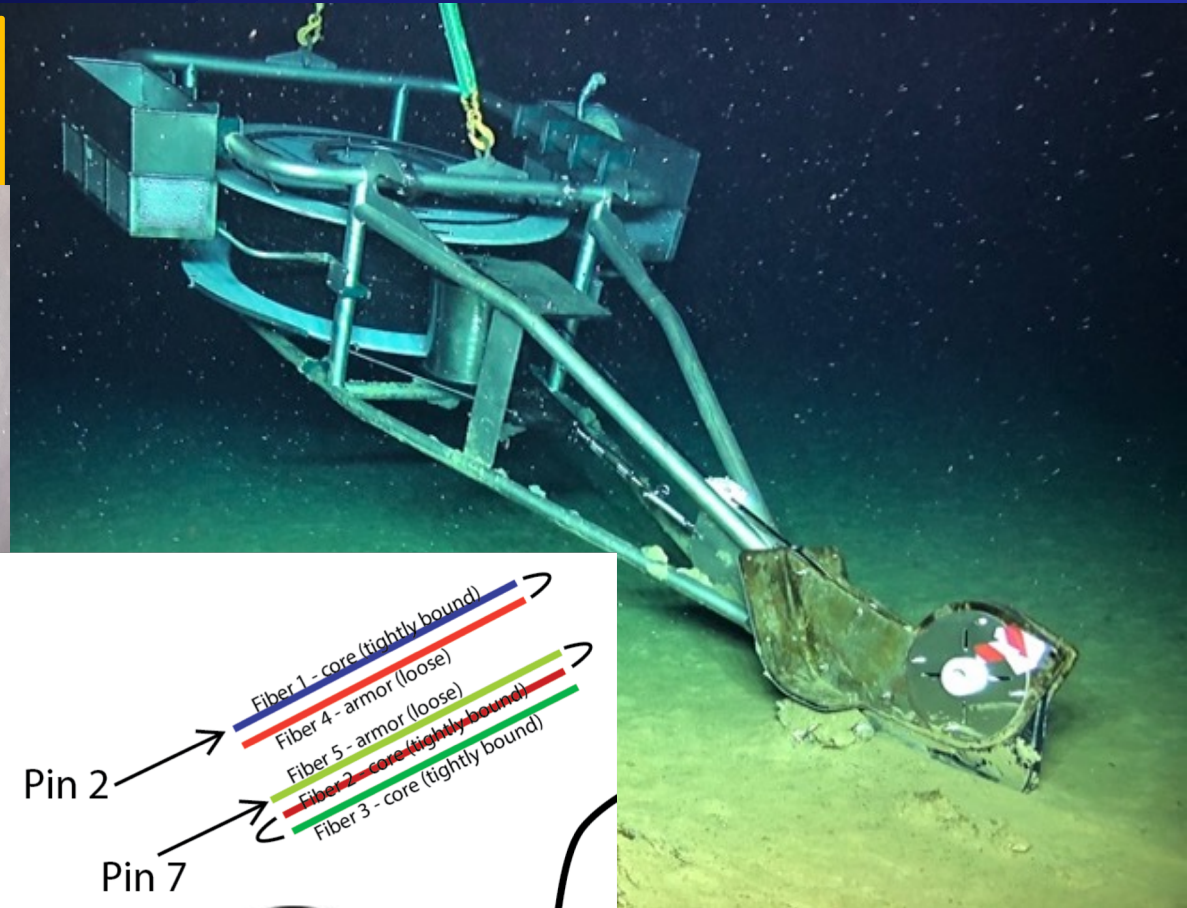
Monitoring a submarine strike-slip fault using a fiber optic strain cable

M-A Gutscher and the FOCUS Team
(EGU, 24 May, 2022, Vienna, and *virtually everywhere...*)



Deep-sea plow for cable laying (6 km of 9mm diameter fiber-optic cable)

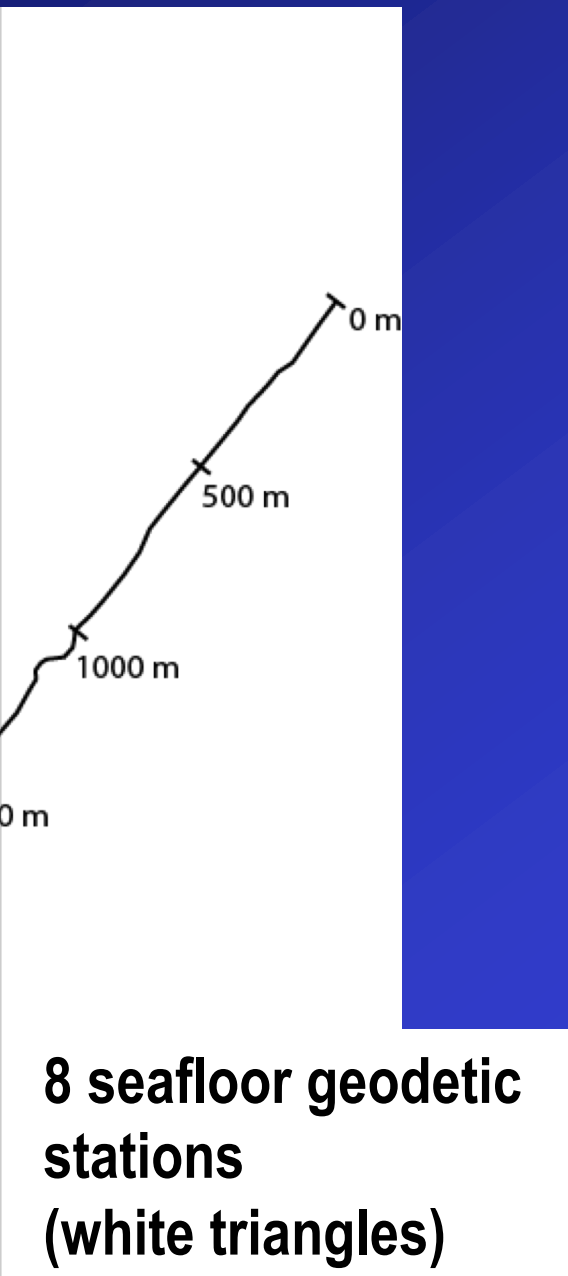
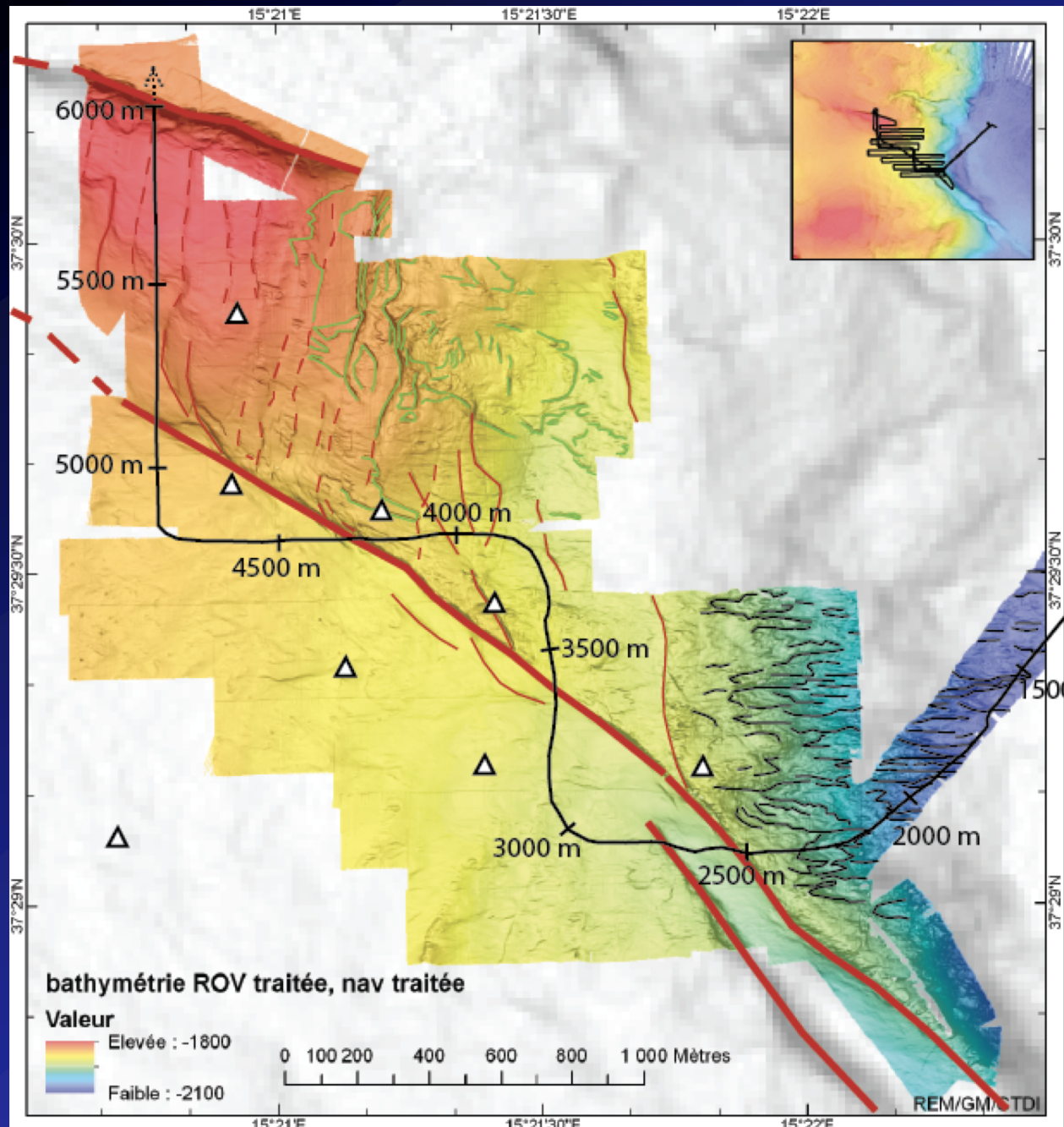
Plow track - well buried cable
(note small fish at right)



Rugged relief (scarp / cliff) →
unburied cable (span)



6km long fiber optic cable, Elongation observed at 1st fault crossing 2.5 km

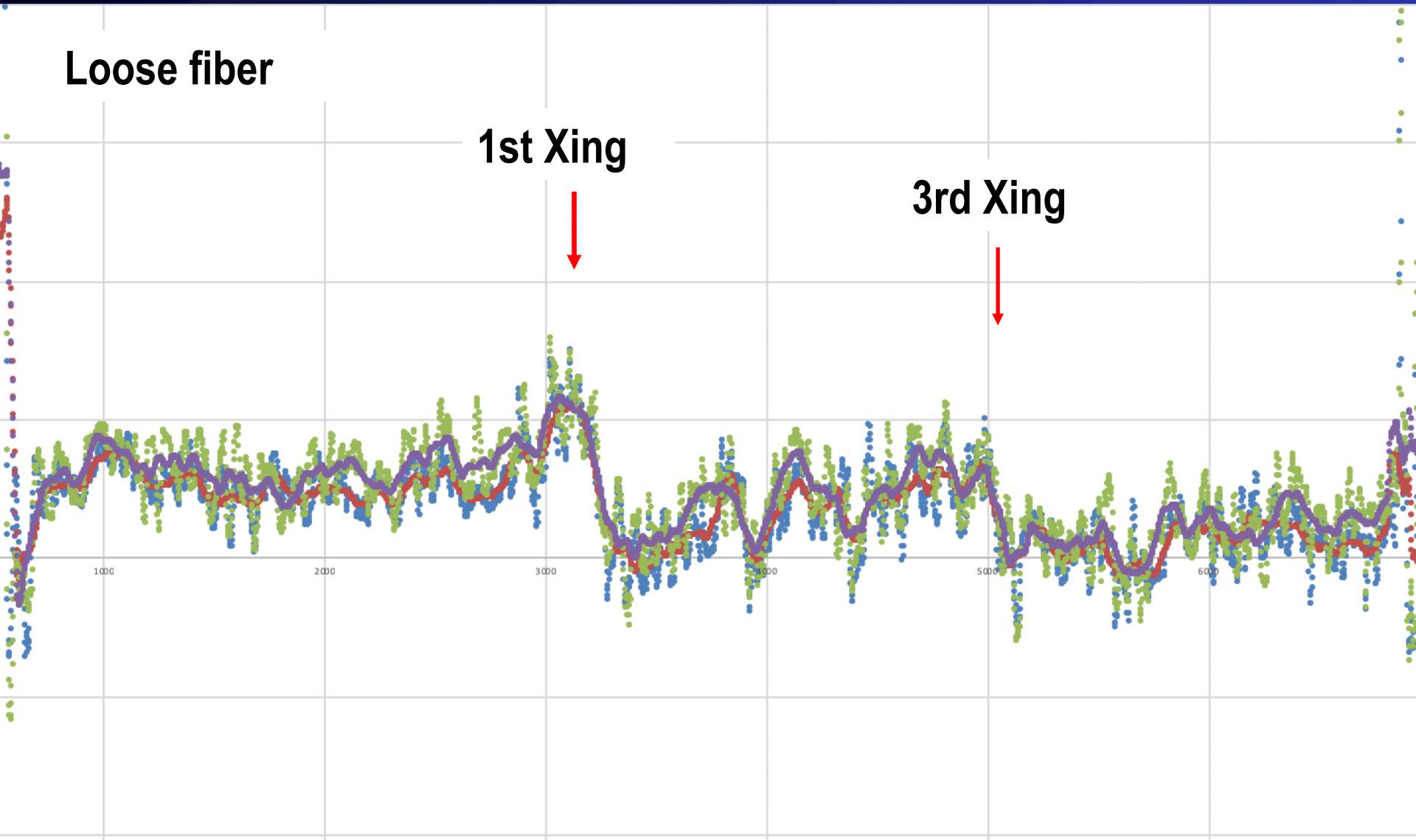


BOTDR observations (strain): 28 June 2021 (blue dots and red curve - 100 m sliding avg.) and 28 July 2021 (green dots and purple curve)

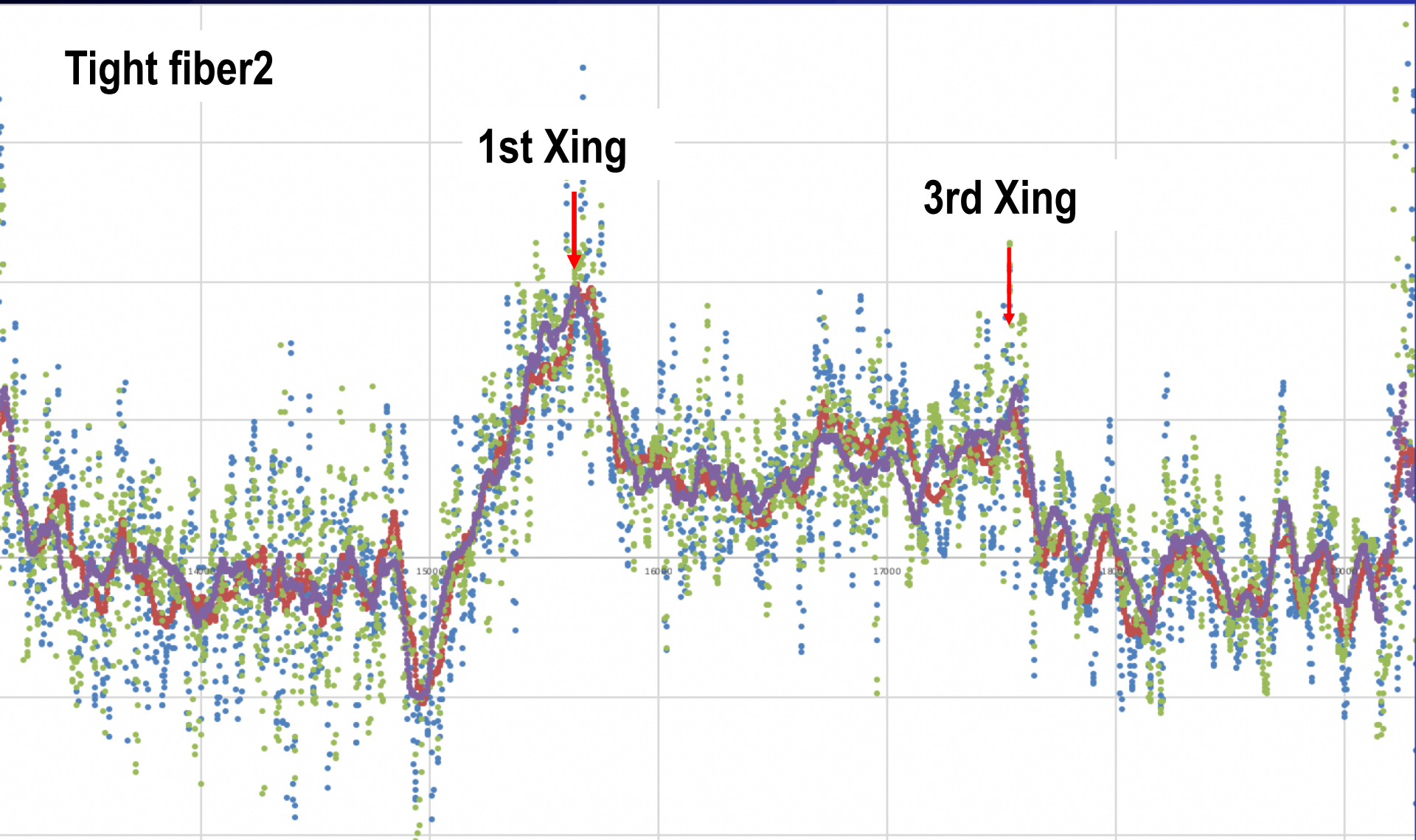
Loose fiber

1st Xing

3rd Xing



BOTDR observations (strain): 28 June 2021 (blue dots and red curve - 100 m sliding avg.) and 28 July 2021 (green dots and purple curve)



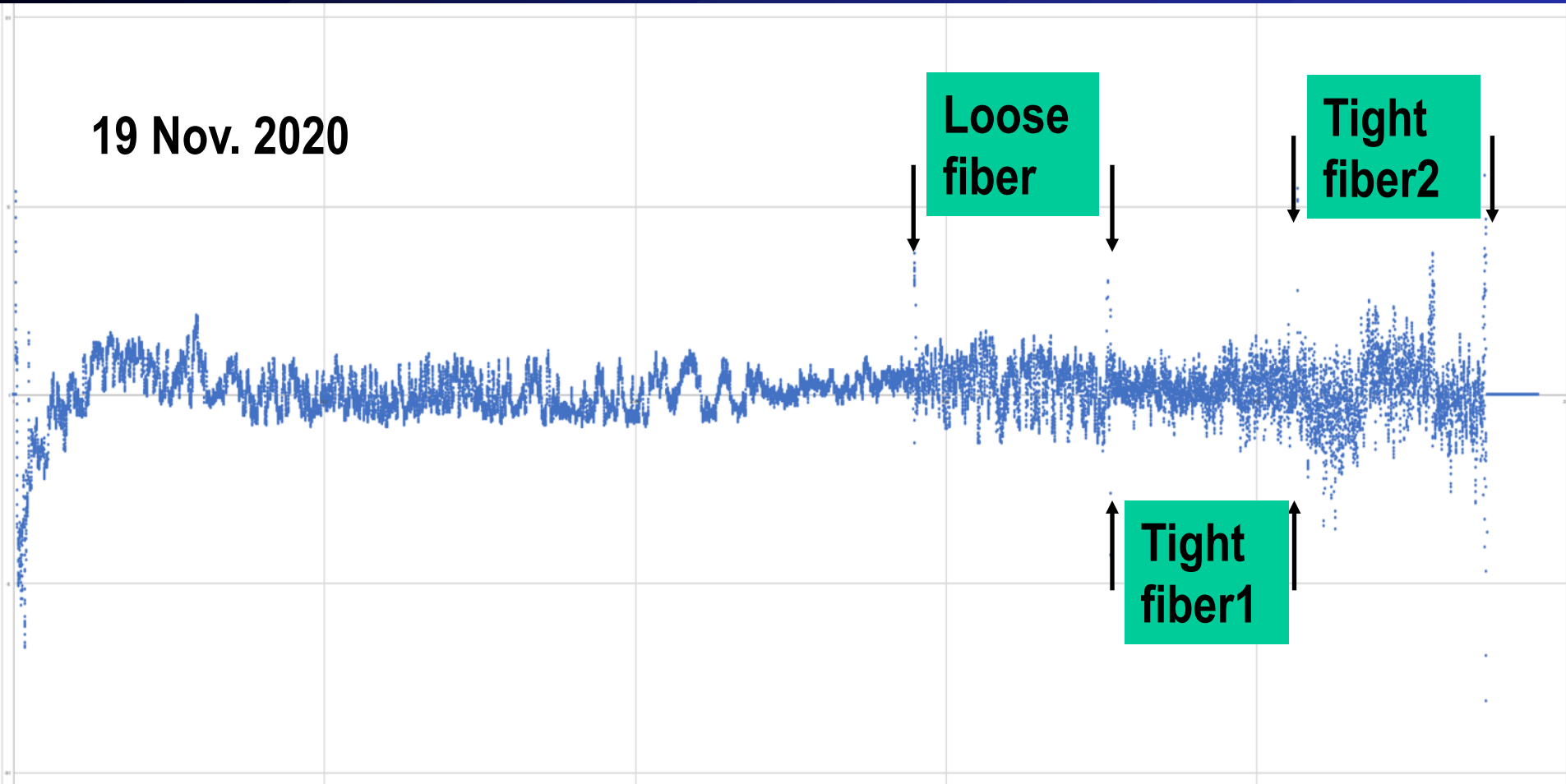
BOTDR observations (strain): 19-21 Nov. 2020 (wrt 28 Oct. baseline)
full 48 km length (29 km + 6.2 km + 6.2 km + 6.2 km)

19 Nov. 2020

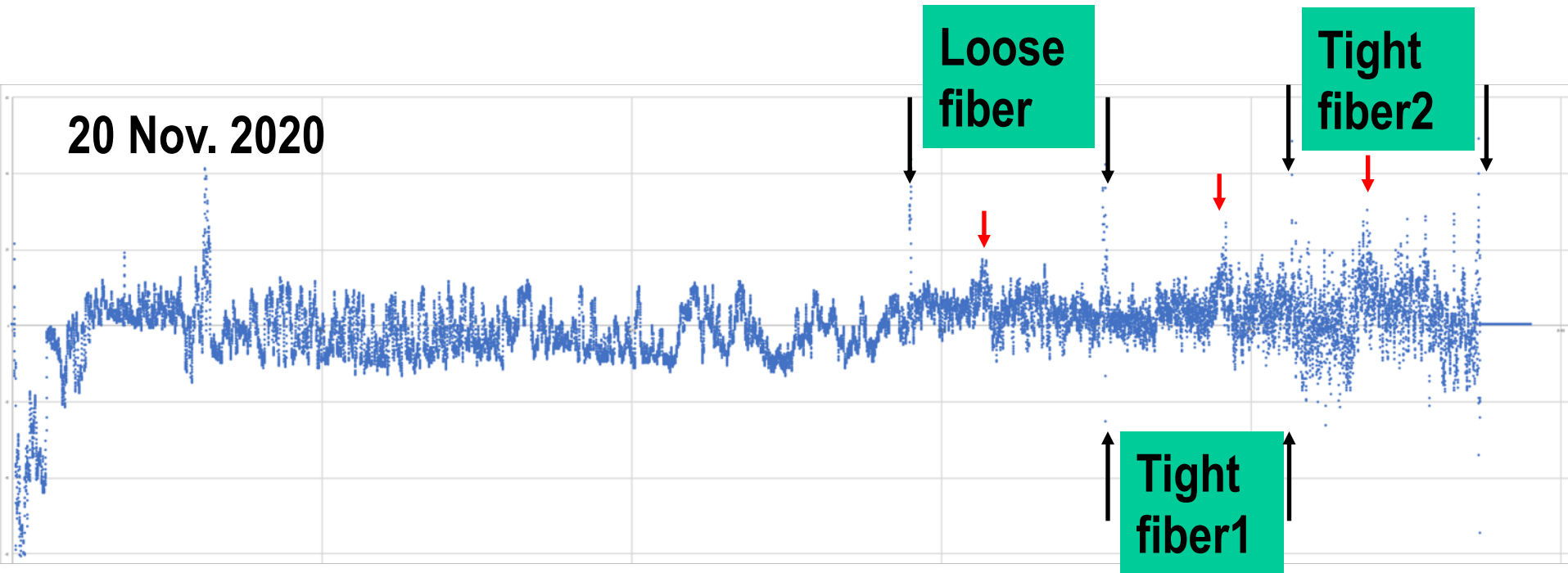
Loose
fiber

Tight
fiber2

Tight
fiber1



**BOTDR observations (strain): 19-21 Nov. 2020 (wrt 28 Oct. baseline)
full 48 km length (29 km + 6.2 km + 6.2 km + 6.2 km)**



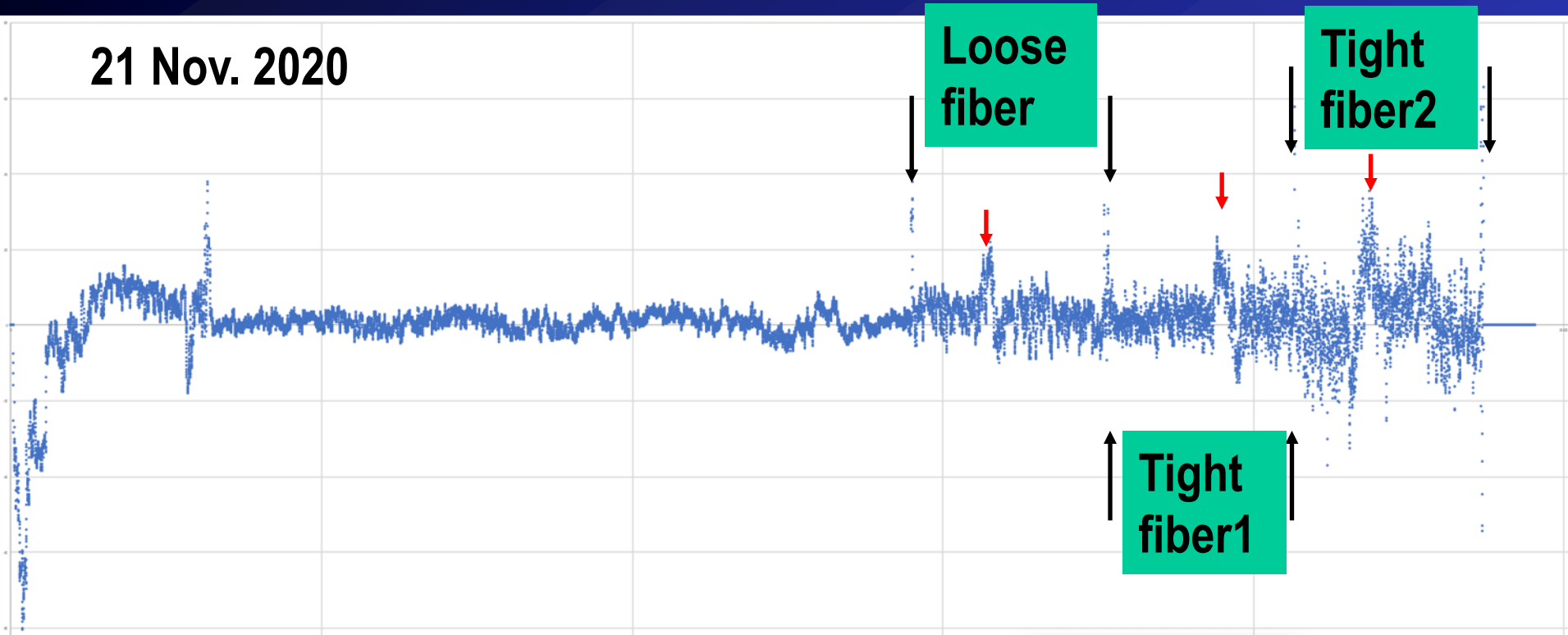
BOTDR observations (strain): 19-21 Nov. 2020 (wrt 28 Oct. baseline)
full 48 km length (29 km + 6.2 km + 6.2 km + 6.2 km)

21 Nov. 2020

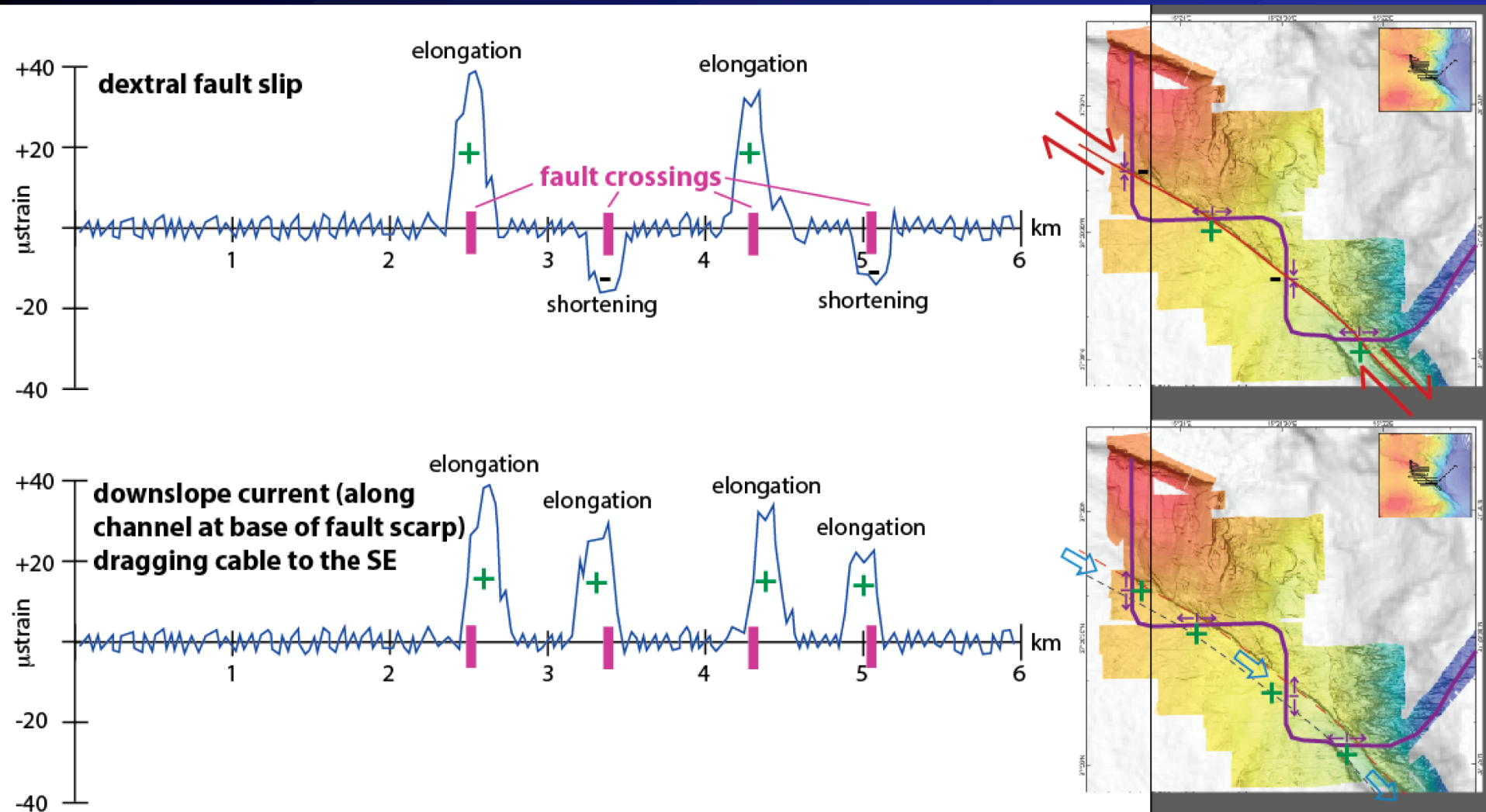
Loose
fiber

Tight
fiber2

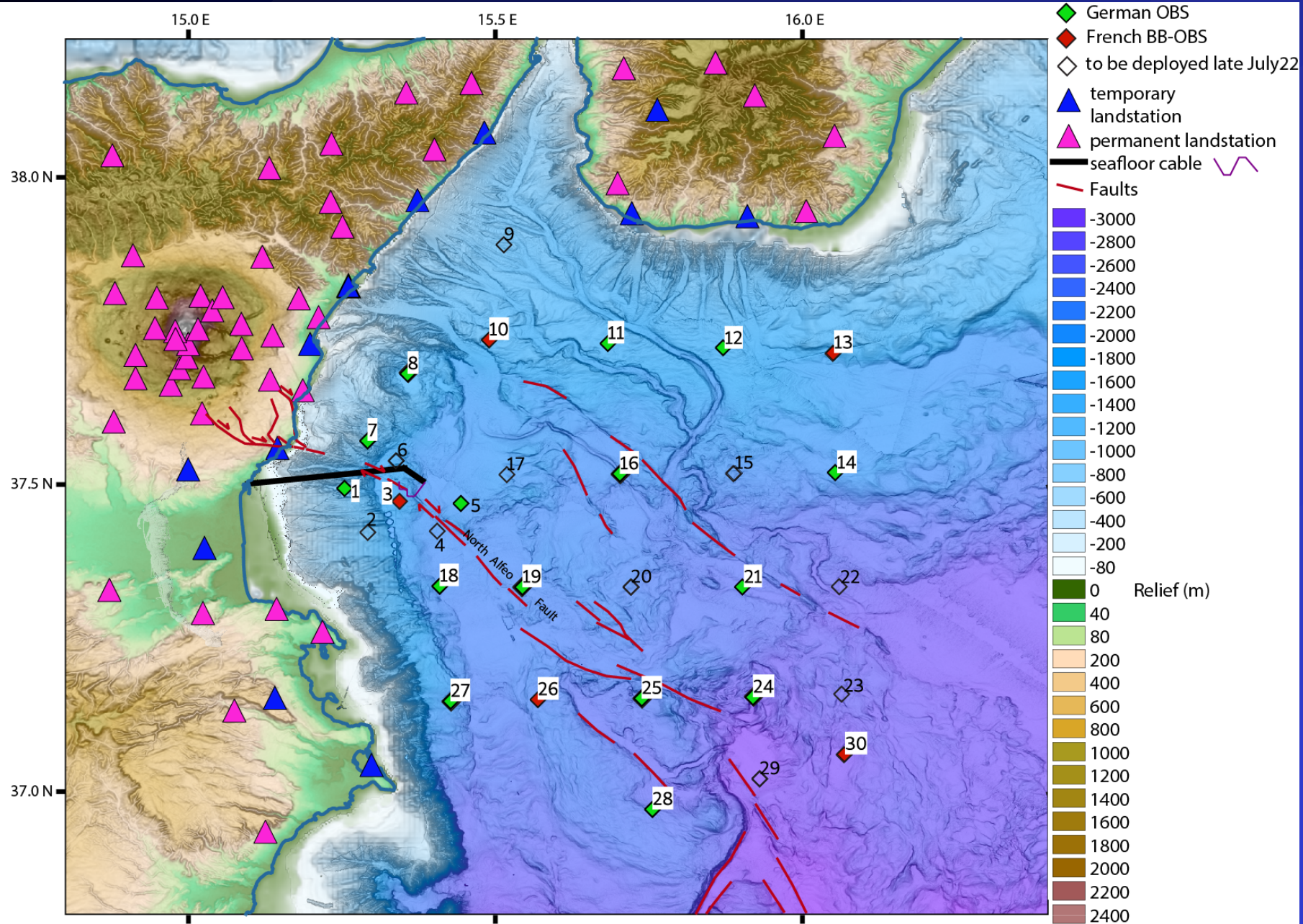
Tight
fiber1



BOTDR observations: cause of elongation signals observed?



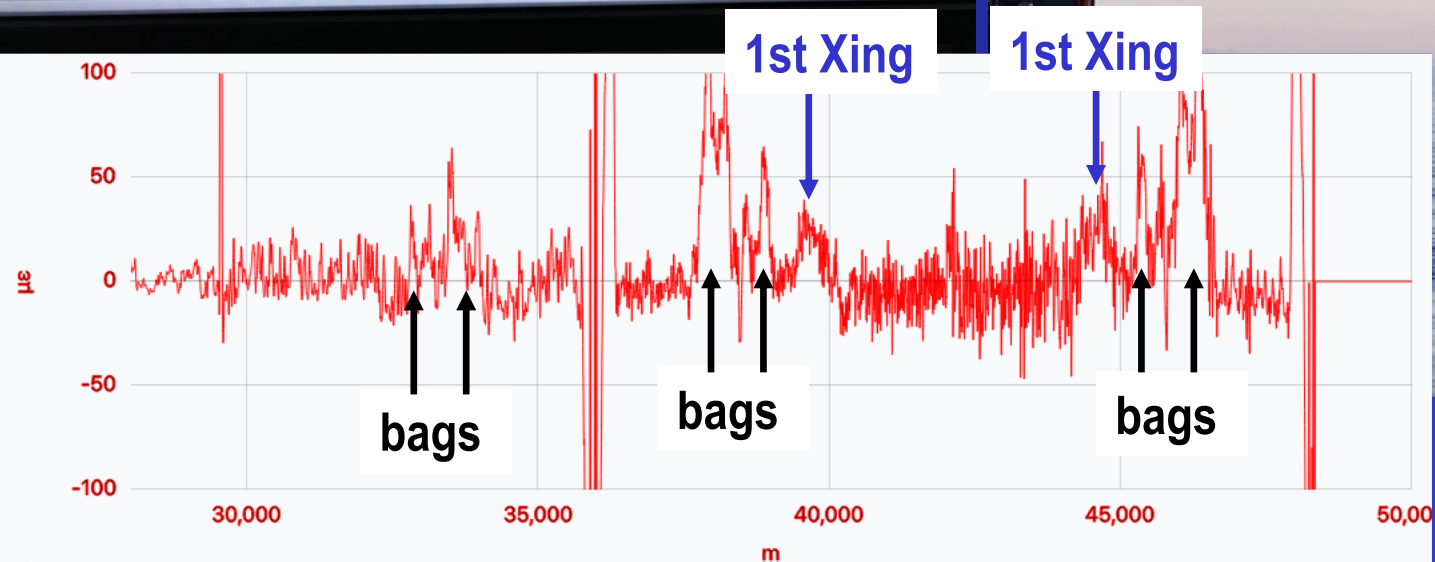
FocusX2 expedition (Jan. 2022): 5 Brest BB-OBS, 15 Geomar OBS, (9 LOT-OBS =unfilled diamonds, not deployed), INGV permanent land stations (+12 temporary land stations)



Thanks for your attention !



Operations on Fugro vessel Handin Tide with ROV 2 Sept. 2021



FocusX2 expedition (Jan. 2022)

R/V PourquoiPas

**Micro-bathymetry NW
prolongation North Alfeo Fault**



AUV idafx

