

Figure S1. Illustration of time-domain reflectometer (COTDR) method based on Rayleigh scattering.

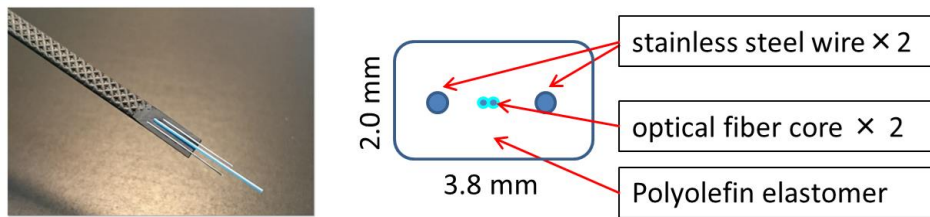


Figure S2. Photo (left) and structure (right) of the optical fiber cable

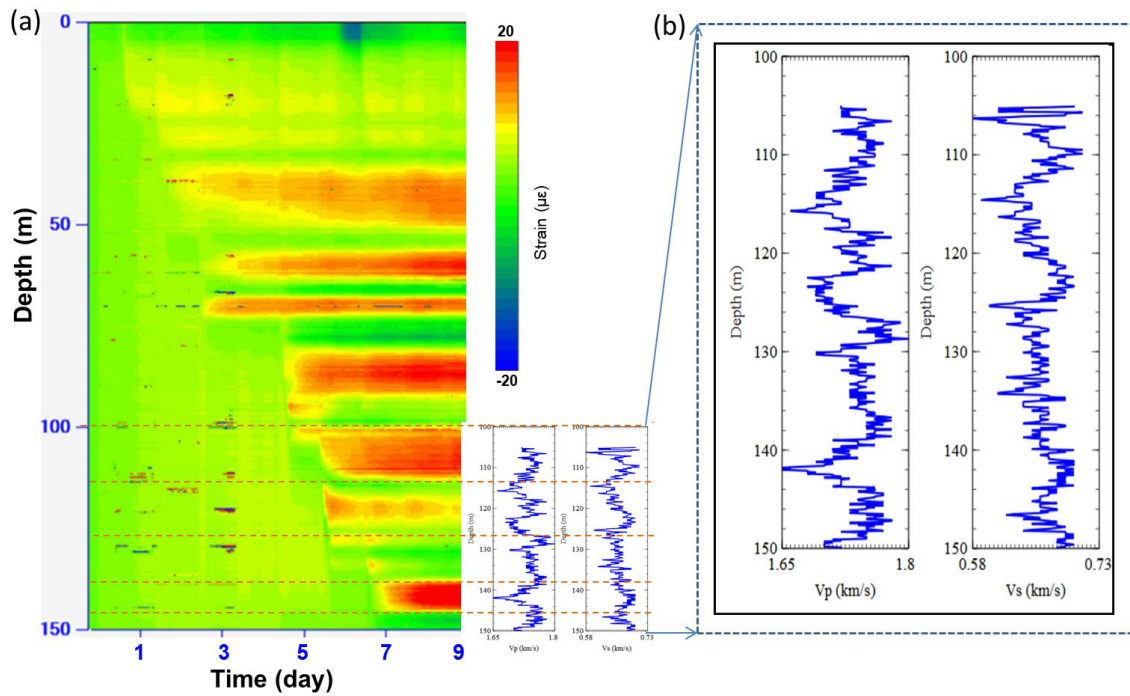


Figure S3. Contours of strain changes with time and depth at (a) well obs1 and (b) the well logs of compressive and shear wave velocities (V_p and V_s).

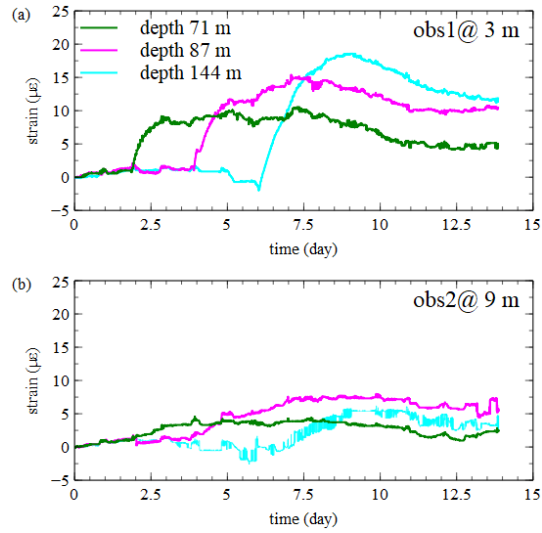


Figure S4. Strain changes with respect to time at depths approximately 71, 87, and 144 m of obs1 (a) and obs2 (b) wells.

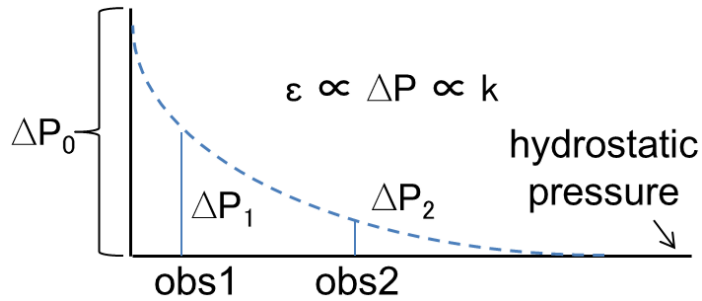


Figure S5. Schematic illustration of spatial strain (ϵ) due to changes in pore pressure (ΔP). The latter is controlled by permeability (k) of formation layers.

Table S1. Fitted flow rate (m^3/s) of each layer for interpreting the strain changes at wells obs1 and obs2.

| Layer | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------|---------|---------|---------|---------|---------|---------|
| obs1 (3m) | 6.0E-08 | 9.5E-07 | 2.8E-06 | 1.7E-06 | 2.6E-06 | 2.7E-06 |
| obs2 (9m) | 2.7E-07 | 2.0E-07 | 2.9E-07 | 7.3E-07 | 5.1E-07 | 5.1E-07 |