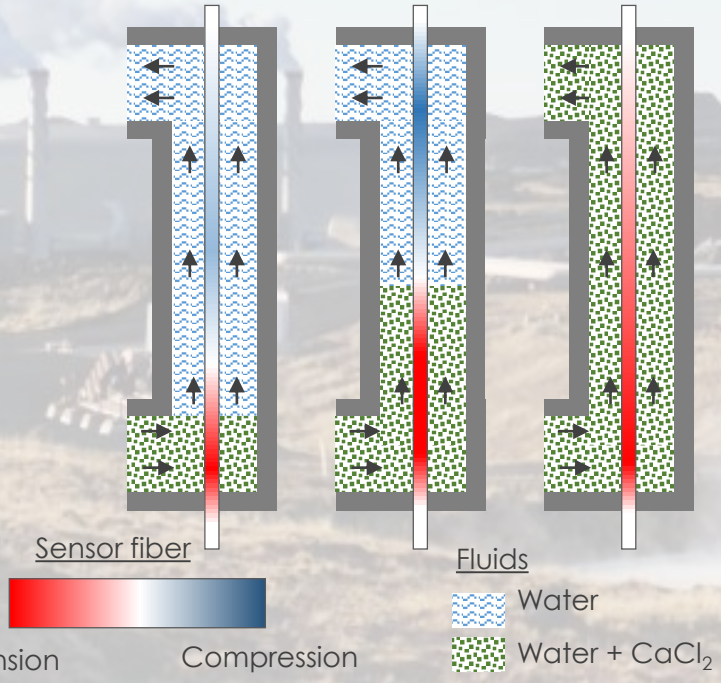
FOMON.

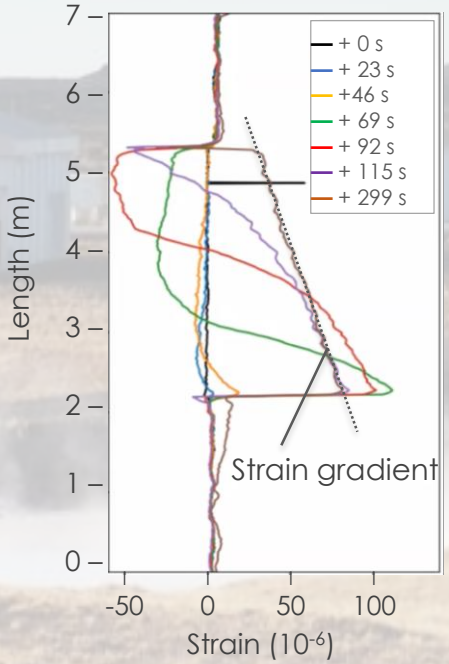
Fiber Optic Monitoring. Consulting - Implementation - Data Analysis

Distributed viscosity and flow velocity measurement

Highlights

- Fiber-optic based sensor for fluid rheological properties such as viscosity
- Theoretical model of sensor derived from principles of fluid mechanics
- Experimental validation of the sensor
- Watery solutions down to the range of 1 – 7 mPa s can be distinguished





$$\frac{\varepsilon}{L} = \frac{32\pi}{D_H} q\eta \frac{d_c}{k}$$

Strain gradient — Flow velocity — Cable diameter — Cable stiffness — Hyd. diameter — Viscosity

Patentnr: EP 3 730 926 A1

Open access publication:
Lipus, M. P., Kranz, S., Reinsch, T., Cunow, C., Henninges, J., Reich, M. (2022): Distributed viscosity and flow velocity measurements using a fiber-optic shear stress sensor. - Sensors and Actuators A - Physical, 345, 113760. https://doi.org/10.1016/j.sna.2022.113760

We at FOMON. Our mission is to plan, execute and analyze fiber-optic monitoring campaigns in challenging scientific and industrial applications. We are experts in designing and implementing monitoring solutions for borehole applications. Our unique patented distributed fluid shear stress sensor allows to derive fluid rheological properties (density and viscosity) with high accuracy - in real time. After having successfully conducted numerous borehole installations in past and ongoing research projects at the German Research Centre for Geosciences (GFZ Potsdam), we now offer our expertise under the name of FOMON.

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