

Petrophysical Signatures of the Liquid-Steam Phase Transition in Geothermal Reservoir Rocks

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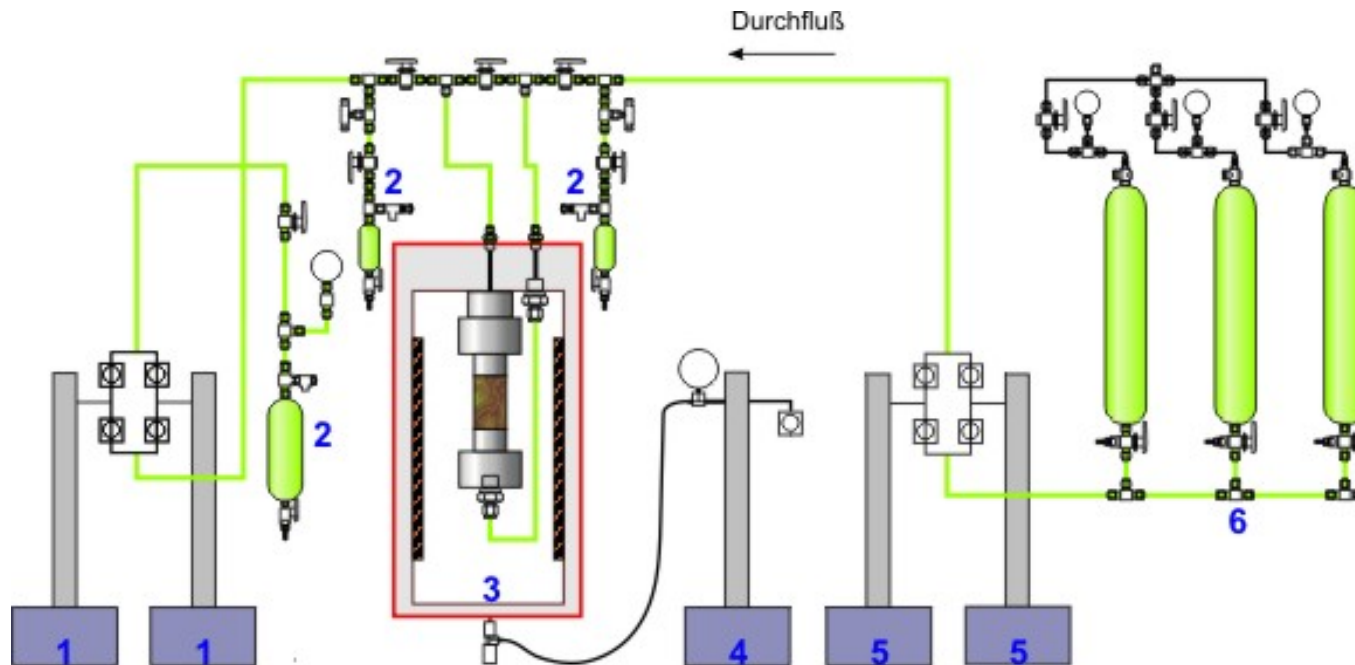
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Sample characterisation

Sample	3A	58	Ftbl
Rock type	Hyaloclastite	Basalt	Sandstone
Origin/Well no.	Ölkelduháls ÖJ-1	Krafla KH-1	Fontainebleau
Depth (m)	795	187	--
Porosity (%)	20.7	20	7.5
Density (g/cm³)	2.15	2.37	2.45
Fluid conductivity (mS/cm)	0.81	0.78	10.8
Pore pressure (bar)	80	19	50
Conf. Pressure (bar)	175	50	100

The apparatus

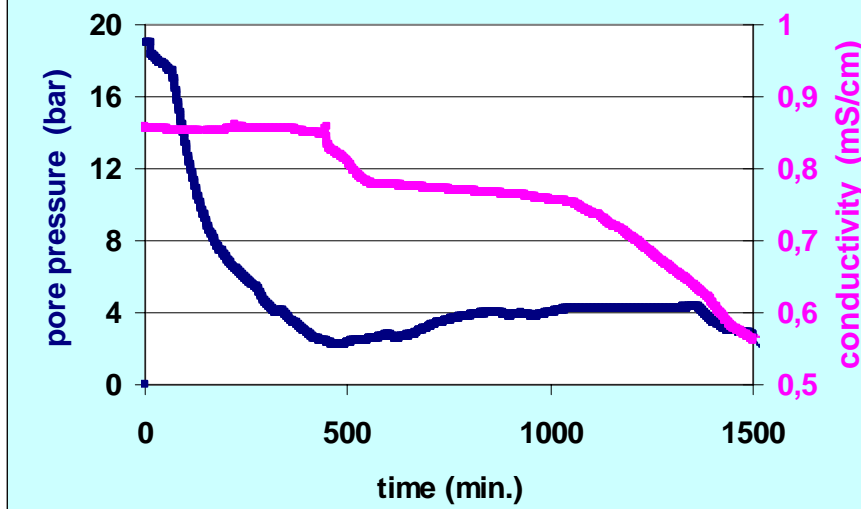
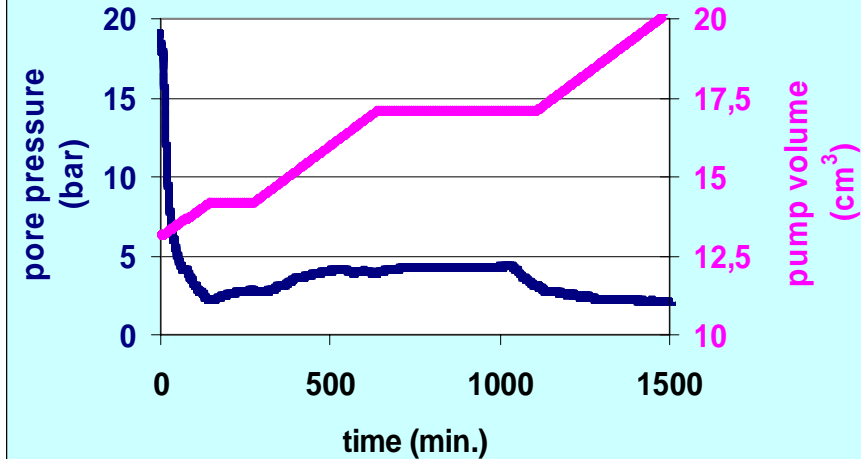


- 1 & 5: Downstream and upstream pumps (P_{\max} : 50 MPa, flow rate: <math><15\text{ l/h}</math>)
- 2: Reservoir for chemical fluid analysis
- 3: Pressure vessel and heater (P_{\max} : 140 MPa, T_{\max} : 250C)
- 4: Confining pressure pump (P_{\max} : 140 MPa oil)
- 6: Fluid reservoir (10 l)

The liquid-steam transition

Release of pore fluid reduces pore pressure => vaporisation
Conductivity decreases gradually

Sample 58



Pore pressure cycling in sandstone

