



Figure S1. A map of deep boreholes upon which the geological cross-section A-A' was prepared (Fig. 2) and from which groundwater samples were collected (Table 2). Map coordinates are of Israel grid system.

TABLE 1. HYDROSTRATIGRAPHIC UNITS ASSOCIATED WITH THE GEOLOGIC CROSS SECTION AND THEIR PHYSICAL PARAMETERS

Symbols in Fig. 2	Age	Group or Formation	Lithology	Porosity	Regional permeability			Thermal conductivity [W/(m•°C)]
					Bed-parallel hydraulic conductivity (m/yr)*	Bed-normal hydraulic conductivity (m/yr)*		
Qs	Quaternary	Samra Fm.	marlstone	0.03	1×10^{-2}	1×10^{-3}	2	
Qse	Neog.-Quat	Sedom Fm.	salt	0.01	1×10^{-3}	1×10^{-3}	4	
Mh	Miocene	Hazeva Fm.	sandstone and conglomerate	0.15	8×10^2	8×10^0	2.5	
Ts	Tertiary	Saqiye Gp.	marlstone	0.03	1×10^{-2}	1×10^{-3}	2	
Ta	Tertiary	Avdat Gp.	chalk and limestone	0.10	1×10^{-1}	1×10^{-3}	2.5	
Ks	Cret.-Tert.	Mt. Scopus Gp.	chalk	0.10	1×10^{-1}	1×10^{-3}	2.5	
Kju	Cretaceous	Up. Judea Gp.	dolomite and limestone	0.15	8×10^2	8×10^0	2.5	
Kjl	Cretaceous	Low. Judea Gp.	chalk and marl	0.05	6×10^{-1}	6×10^{-3}	2.5	
Kty	Cretaceous	Talme Yafe Gp.	marlstone	0.03	1×10^{-2}	1×10^{-3}	2	
Kg	Cretaceous	Gevar'am Gp.	marlstone	0.03	1×10^{-2}	1×10^{-3}	2	
Kk	Cretaceous	Kurnub Gp.	limestone and sand	0.10	5×10^0	5×10^{-2}	2.5	
Jk	Jurassic	Kidod Fm.	marlstone	0.03	1×10^{-2}	1×10^{-3}	2	
Ja	Jurassic	Arad Gp.	carbonates	0.05	1×10^{-1}	1×10^{-3}	2.5	
Rr	Triassic	Ramon Gp.	Carbonates	0.05	1×10^{-1}	1×10^{-3}	2.5	
Pn	Permian	Negev Gp.	Carbonates	0.05	1×10^{-1}	1×10^{-3}	2.5	
Cy	Cambrian	Yam Suf Gp.	Sandstone	0.15	8×10^2	8×10^0	2.5	
PC	Precamb.	Basement	granite	0	0	0	0	

* 1 m/year = 3×10^{-8} m/s $\approx 3 \times 10^{-15}$ m² = 3 mD (millidarcy).

TABLE 2. BRINE'S PARAMETERS AT DEEP BOREHOLES

Ref.***	Salinity** (g/g)	TDS (mg/L)	Depth* (m)	Well name	Brine type
1	0.08	90 413	4000	Ashkelon 2	R
1	0.12	130 352	3380	Barnea 1	R
1	0.14	151 323	2500	Be'er Sheva 1	R
1	0.16	178 416	3100	Gerar 1	R
1	0.13	139 677	3120	Gerar 1	R
2,4	0.18	207 026	3100	Hazerim 1	R
1	0.10	110 078	2410	Kokhav 7	R
1	0.10	107 758	1980	Kurnub 1	R
1	0.11	123 638	2140	Kurnub 1	R
1	0.11	124 446	2076	M. Katan 2	R
1	0.13	145 355	2241	M. Katan 2	R
1	0.12	129 796	1720	Qeren 1	R
1	0.15	162 532	2130	Qeren 1	R
1	0.15	170 867	2600	Qeren 1	R
1	0.14	151 017	2340	Sherif 1	R
1	0.13	148 984	2175	Zavao 1	R
3	0.13	149 000	712	Zohar 8	R
3	0.25	308 000	1912	Zohar 8	R
1	0.08	85 954	1180	Bamea 1	C
1	0.07	73 021	1340	Bamea 1	C
1	0.05	51 320	1310	Gaza 1	C
1	0.09	94 392	1910	Gerar 1	C
1	0.06	62 636	1050	Kokhav 7	C
3	0.05	41 100	1080	Nirim 2	C
1	0.06	66 966	1780	Sa'ad 1	C
1	0.04	42 472	2300	Sharsheret 1	C
1	0.05	50 018	2650	Sharsheret 1	C
1	0.04	42 472	1730	Shuva 1	C
1	0.05	52 523	2280	Shuva 1	C

Note: Locations of wells are shown in Figure S1.

*Depth below mean sea level.

**Salinity = TDS / $(9.97 \times 10^6 + 0.74 \times \text{TDS})$; Starinsky (1974), neglecting temperature variations.

***References: (1) Starinsky, 1974; (2) Starinsky and Katz, 1978; (3) Fleischer et al., 1977; (4) Nativ, 1984.

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