Table S1. Parameters of the DS aquifer near the calibration boreholes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Borehole | Chloride in borehole (measured)  C, g/l | Water resistivity in borehole | Bulk resistivity measured with TEM | Formation factor  F= | Porosity estimated with TEM |
| 1 | 2 | 3 | 4 | 5 | 6 |
| **Sandy soil** | |  |  |  |  |
| Dr-4 | 218 | 0.045 | 0.5 | 10.6 | 0.30 |
| EB-2 (EB-3E) | 230 | 0.043 | 0.5 | 11.1 | 0.29 |
| EG-11 | 198 | 0.05 | 0.45 | 9 | 0.32 |
| EG-17 | 204 | 0.046 | 0.5 | 10.6 | 0.30 |
| EG-6 | 51.84 | 0.1 | 1.0 | 10 | 0.31 |
| NZ-5 | 231.8 | 0.044 | 0.45 | 9.8 | 0.31 |
| Dr-2 | 105.4 | 0.062 | 0.6 | 10 | 0.31 |
| Dr-3 | 152 | 0.048 | 0.6 | 12.5 | 0.27 |
| EG-19 | 147 | 0.053 | 0.6 | 11.3 | 0.29 |
| EG-18 | 101 | 0.055 | 0.59 | 10 | 0.31 |
| EG-19a | 16.94 | 0.247 | 2.2 | 8.9 | 0.33 |
| Mn-1 | 120 | 0.059 | 0.65 | 5.45 | 0.42 |
| T12 | 60 | 0.089 | 0.85 | 9.6 | 0.31 |
| T1 | 38 | 0.128 | 1.4 | 10.8 | 0.30 |
| T3 | 32 | 0.147 | 1.2 | 8.1 | 0.34 |
| T2 | 12 | 0.326 | 2.5 | 8.3 | 0.34 |
| T4 | 4,2 | 0.795 | 5.8 | 7.7 | 0.35 |
| **Average** | 111.7 | 0.141 | 1.21 | 9.91.31 | 0.320.03 |
| **Lime carbonate** | |  |  |  |  |
| Mn-2 (Mn-5E) | 205 | 0.046 | 0.25 | 5.43 | 0.45 |
| Mn-4 | 216 | 0.05 | 0.25 | 5.0 | 0.46 |
| HS-2 | 208 | 0.052 | 0.3 | 5.8 | 0.43 |
| NZ-3 | 211 | 0.054 | 0.3 | 5.55 | 0.44 |
| NZ-2 | 237 | 0.043 | 0.25 | 5.10 | 0.46 |
| NZ-4 | 245.5 | 0.042 | 0.25 | 5.1 | 0.46 |
| NZ-7 | 228.5 | 0.044 | 0.25 | 5.4 | 0.45 |
| NZ-8 | 187.8 | 0.048 | 0.3 | 6.1 | 0.42 |
| NZ-9 | 209 | 0.046 | 0.3 | 6.4 | 0.41 |
| **Average** | 206.8 | 0.047 | 0.270.02 | 5.80.7 | 0.44 0.02 |

) conductivity of groundwater is based on chloride concentration calculated using equation (2a) for high concentrations;) conductivity of groundwater was measured in the borehole; ) Site names: Dr – Deragot; Mn – Mineral Beach (Shalem-2); EB – Ein Boqeq, HS – Nahal Hever south, EG – Ein Gedi – Arugot, NZ-Newe Zohar ; ) T1-T12 data from Nahal Ze’elim - Tureiba profile (Yechieli et al. 2001); ) porosity calculated by eq. (9) for sands and eq. (10) for lime carbonate; )  is calculated for average effective porosity values: =0.32 for sands and =0.44 for lime carbonates.