SM-Table 2: Baseline fluid and poroelastic parameters.

|  |  |  |
| --- | --- | --- |
| **Fluid and Poroelastic Parameters** | **Symbols** | **Values** |
| M2 tidal angular frequency | $ω$(rad.s-1) | 1.408$×$10-4 |
| Density of seawater | $ρ\_{0}$ (kg.m-3) | 1040.9/ 1043.9 / 1042.3 a |
| Density of hydrothermal fluids | $ρ\_{f}$ (kg.m-3) | 714.6 / 727.3/ 719.9 b |
| Fluid viscosity | *μ* (Pa.s) | $8.28×$10−5 c |
|  |  | ***Layer 2A*** | ***Layer 2B/C*** |
| P wave velocity | *Vp* (m/s) | 2200d | 5500e |
| S wave velocity | *Vs* (m/s) | 431 | 2940 |
| Porosity | *ϕ* | 0.2f | 0.03g |
| Bulk density | $ρ$ (kg.m-3) | 2568.6 | 2892.8 |
| Grain bulk modulus | *Kg* (GPa) | 50h | 70i |
| Fluid bulk modulus | *Kf* (GPa) | 2.07j | 2.07j |
| Matrix (drained) bulk modulus | *Km* (GPa) | 4.2 | 49.4 |
| Storage compressibility for 1-D loading | *S1* (Pa-1) | 2.82$×$10-10 | 1.93$×$10-11 |

a Density of seawater for LSHF/EPR/MEF. Calculated for pressure at 200 bar and background seawater temperature at 4.4°C (LSHF); for pressure at 250 bar and background seawater temperature at 1.8°C (EPR) and for pressure at 220 bar and background seawater temperature at 2°C (MEF); from Holzbecher (1998); Rabinowicz et al. (1999); Fontaine et al. (2001).

b Density of hydrothermal fluids for LSHF/EPR/MEF. Calculated for pressure at 200 bar and hydrothermal fluid temperature at 330°C (LSHF); for pressure at 250 bar and hydrothermal fluid temperature at 330°C (EPR) and for pressure at 220 bar and hydrothermal fluid temperature at 330°C (MEF); from Holzbecher (1998); Rabinowicz et al. (1999); Fontaine et al. (2001).

c Calculated for hydrothermal fluid temperature at 330°C; from Fontaine et al. (2001).

d Sohn et al. (2004).

e Vera et al. (1990).

f Luyendyk (1984).

g Becker (1985).

h Carmichael (1966); Christensen and Salisbury (1972).

i Pros et al. (1962).

j Crone and Wilcock (2005), computed from the equations of state.

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