**Supplementary Table S3**. EC-RAχFC modeling results for the Panjal Traps

|  |  |  |
| --- | --- | --- |
| Parameters | Conditions |  |
| PJ1-033, PJ1-034, PJ4-008  Magma liquidus temperature | 1300oC |  |
| Magma initial temperature | 1300oC |  |
| Assimilant liquids temperature | 1000oC |  |
| Assimilant initial temperature | 600oC |  |
| Solidus temperature | 950oC |  |
| Magma specific heat capacity | 1484 J/kg K |  |
| Assimilant specific hear capacity | 1370 J/kg K |  |
| Equilibrium temperature | 999.53oC |  |
|  |  |  |
| Depleted mantle melt |  |  |
| Magma liquidus temperature | 1350oC |  |
| Magma initial temperature | 1350oC |  |
| Assimilant liquid temperature | 1000oC |  |
| Assimilant initial temperature | 600oC |  |
| Solidus temperature | 950oC |  |
| Magma specific hear capacity | 1484 J/kg K |  |
| Assimilant specific hear capacity | 1370 J/kg K |  |
| Equilibrium temperature | 999.40oC |  |
| Starting compositions | Nd (εNd(*t*)) | δ18O (‰) |
| Magma = PJ1-033 |  |  |
| Magma initial concentration | 11.9 ppm | 0.47 |
| Magma initial isotopic ratio | +1.1 | 9.2 |
| Bulk distribution coefficient of magma | 0.1 |  |
| Magma = PJ1-034 |  |  |
| Magma initial concentration | 10.2 | 0.47 |
| Magma initial isotopic ratio | +1.3 | 8.95 |
| Bulk distribution coefficient of magma | 0.1 |  |
|  |  |  |
| Magma = PJ4-008 |  |  |
| Magma initial concentration | 6.4 ppm | 0.47 |
| Magma initial isotopic ratio | +4.3 | 6.81 |
| Bulk distribution coefficient of magma | 0.1 |  |
| Magma = depleted mantle melt |  |  |
| Magma initial concentration | 5.4 ppm | 0.47 |
| Magma initial isotopic ratio | +9.8 | 5.3 |
| Bulk distribution coefficient of magma | 0.1 |  |
|  |  |  |
| Assimilant compositions |  |  |
| Assimilant = PJ1-049 |  |  |
| Assimilant concentration | 42.9 ppm | 0.5 |
| Assimilant isotopic ratio | -8.9 | 12.86 |
| Bulk distribution coefficient of assimilant | 0.8 |  |
|  |  |  |
| Assimilant = PJ1-033 |  |  |
| Assimilant concentration | 11.9 ppm |  |
| Assimilant isotopic ratio | +1.1 | 9.2 |
| Bulk distribution coefficient of assimilant | 0.1 |  |

Depleted mantle values from Salters and Stracke (2004) and Eiler (2001).