Table S4: Fitted coupling coefficient for the *ImHφ* signal

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Calculated signal | Regime | Frequency, kHz | Resistivity, ohm·m | Probe |
| “–0.25 m” | “0 m” | “+0.25 m” |
| Measured signal |
| *ReI* | *ImI* | *ReI* | *ImI* | *ReI* | *ImI* |
| *ImHφ* | SUM | 250 | 1.04 | 0.095 | 0.069 | 0.094 | 0.083 | 0.094 | 0.069 |
| 2.5 | 0.099 | 0.029 | 0.099 | 0.034 | 0.100 | 0.031 |
| 3.57 | 0.096 | 0.018 | 0.096 | 0.020 | 0.098 | 0.020 |
| 5.41 | 0.097 | 0.010 | 0.097 | 0.013 | 0.099 | 0.012 |
| 8.13 | 0.098 | 0.006 | 0.100 | 0.007 | 0.102 | 0.006 |
| 11.9 | 0.103 | 0.002 | 0.105 | 0.003 | 0.107 | 0.003 |
| 100 | 1.04 | 0.238 | 0.067 | 0.237 | 0.077 | 0.237 | 0.067 |
| 2.5 | 0.245 | 0.026 | 0.245 | 0.031 | 0.245 | 0.028 |
| 3.57 | 0.236 | 0.015 | 0.237 | 0.018 | 0.400 | 0.016 |
| 5.41 | 0.238 | 0.008 | 0.238 | 0.010 | 0.242 | 0.001 |
| 8.13 | 0.242 | 0.003 | 0.245 | 0.005 | 0.249 | 0.004 |
| 11.9 | 0.254 | 0.001 | 0.259 | 0.001 | 0.261 | 0.001 |
| 50 | 1.04 | 0.472 | 0.065 | 0.471 | 0.074 | 0.471 | 0.065 |
| 2.5 | 0.486 | 0.029 | 0.487 | 0.032 | 0.493 | 0.029 |
| 3.57 | 0.466 | 0.015 | 0.468 | 0.018 | 0.475 | 0.016 |
| 5.41 | 0.471 | 0.009 | 0.472 | 0.010 | 0.478 | 0.095 |
| 8.13 | 0.477 | 0.002 | 0.482 | 0.003 | 0.491 | 0.002 |
| 11.9 | 0.498 | 0.001 | 0.508 | 0.001 | 0.511 | 0.001 |
| DIF | 250 | 1.04 | 0.096 | 0.063 | 0.094 | 0.063 | 0.096 | 0.047 |
| 2.5 | 0.101 | 0.029 | 0.101 | 0.029 | 0.103 | 0.022 |
| 3.57 | 0.097 | 0.018 | 0.098 | 0.018 | 0.101 | 0.014 |
| 5.41 | 0.097 | 0.013 | 0.100 | 0.013 | 0.101 | 0.009 |
| 8.13 | 0.097 | 0.080 | 0.099 | 0.008 | 0.102 | 0.005 |
| 11.9 | 0.094 | 0.005 | 0.096 | 0.005 | 0.103 | 0.003 |
| 100 | 1.04 | 0.239 | 0.059 | 0.241 | 0.059 | 0.242 | 0.045 |
| 2.5 | 0.253 | 0.029 | 0.256 | 0.029 | 0.258 | 0.019 |
| 3.57 | 0.241 | 0.017 | 0.247 | 0.017 | 0.250 | 0.012 |
| 5.41 | 0.246 | 0.011 | 0.255 | 0.011 | 0.252 | 0.007 |
| 8.13 | 0.244 | 0.006 | 0.258 | 0.006 | 0.256 | 0.003 |
| 11.9 | 0.243 | 0.005 | 0.261 | 0.005 | 0.259 | 0.002 |
| 50 | 1.04 | 0.475 | 0.056 | 0.480 | 0.056 | 0.483 | 0.044 |
| 2.5 | 0.502 | 0.029 | 0.512 | 0.029 | 0.516 | 0.020 |
| 3.57 | 0.479 | 0.017 | 0.494 | 0.017 | 0.499 | 0.011 |
| 5.41 | 0.489 | 0.012 | 0.508 | 0.012 | 0.502 | 0.005 |
| 8.13 | 0.490 | 0.008 | 0.518 | 0.008 | 0.510 | 0.002 |
| 11.9 | 0.483 | 0.007 | 0.525 | 0.007 | 0.515 | 0.001 |