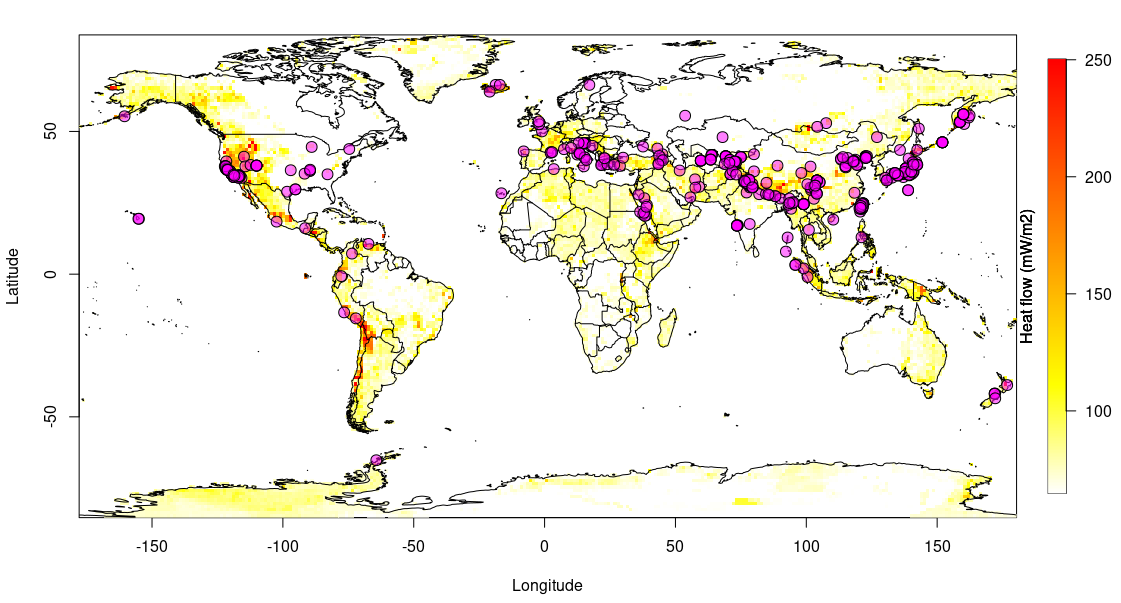
Supplementary Material

# Continental heat flow and seismic precursors

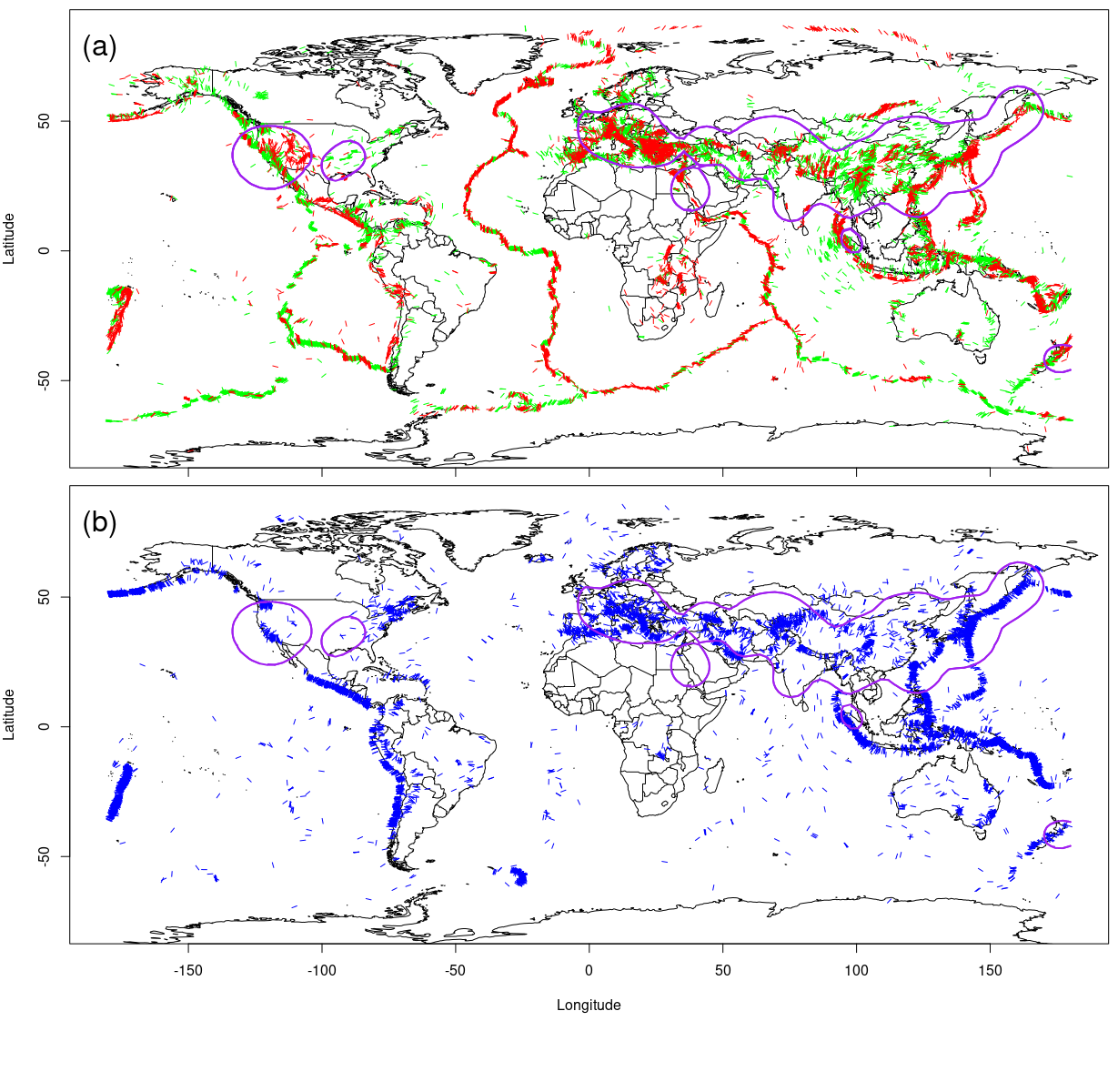
The recent new compilation and model of the global heat flow by Lucazeau (2019) offers the opportunity to calculate the average heat flow value in the area where a precursor occurred with an approximation of 0.5°. The majority of the listed precursors occurred in areas with heat flow value higher than the average continental heat flow (~67 mW·m-2).



**Supplementary Figure 1.** Continental heat flow map from Lucazeau (2019) and seismic precursors (purple circles) from our updated catalogue.

# Tectonic stress regimes and seismic precursors

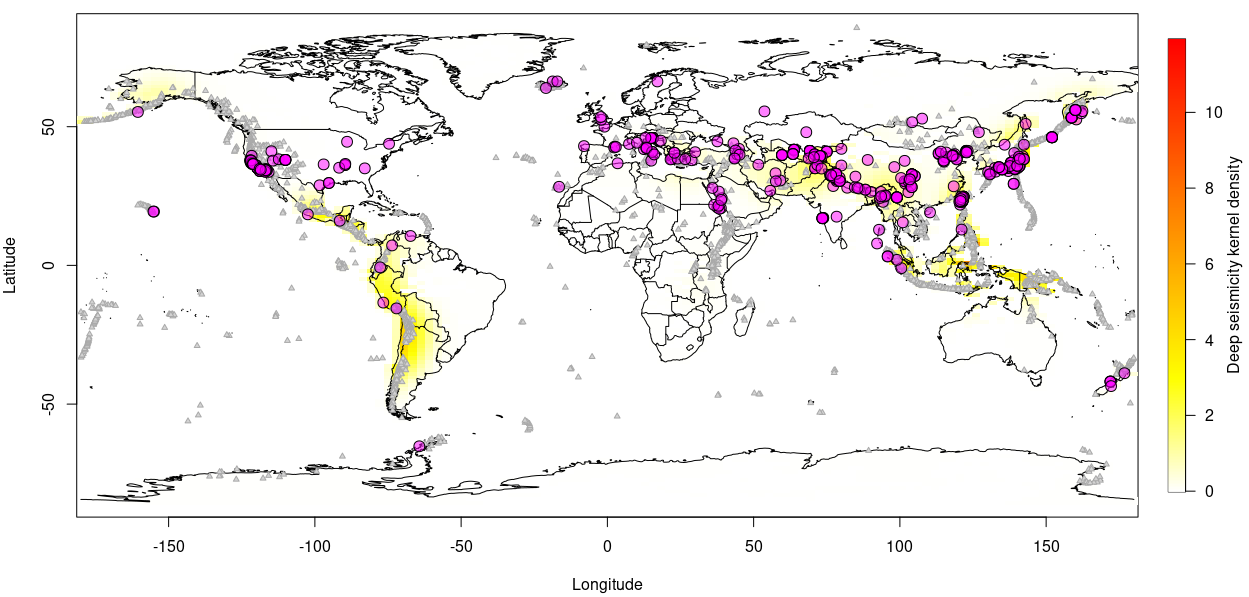
The World Stress Map (WSM) compiled since 1986 shows the orientation of the maximum horizontal stress and the dominant tectonic regime. Heidbach et al. (2018) recently updated the WSM database with further data records. We divided the tectonic regimes into two categories: normal faulting/strike-slip (NF/SS in Fig. 2a) and thrust faulting (TF in Fig. 2b). The plots in Figure 2 show that the first category is the most dominant where the majority of seismic precursors have occurred, in particular in Central Asia and North America.



**Supplementary Figure 2.** Horizontal stress orientation and tectonic regimes for (a) normal (red) and strike-slip (green) faulting and (b) thrust faulting (blue) from Heidbach et al. (2018). The areas where the majority of seismic precursors occur are within the purple lines.

## Seismic precursors deep seismicity

We show in our work that seismic precursors are clustered in regions in the world characterized by shallow seismicity (with hypocentral depth < 20 km). In Figure 3, we calculated the kernel density of the distribution of deep earthquakes (with hypocentral depth ≥ 20 km) and compared with the position of the seismic precursors of our catalogue. We found no apparent spatial correspondence between the seismic precursors and regions with more deep seismicity as, instead, observed for the shallow seismicity.



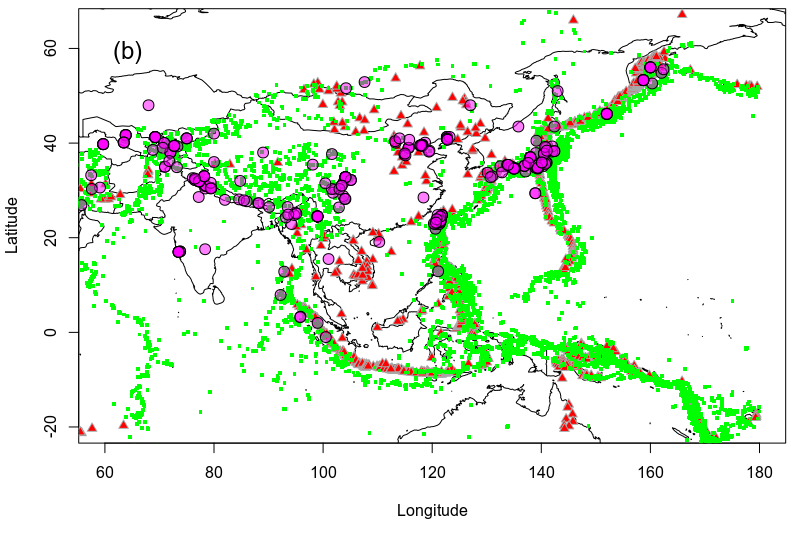
**Supplementary Figure 3.** Kernel density map of deep (hypocentral depth ≥ 20 km) seismic activity. Seismic precursors are shown as purple circles and Holocene and Pleistocene volcanoes as small light gray triangles.

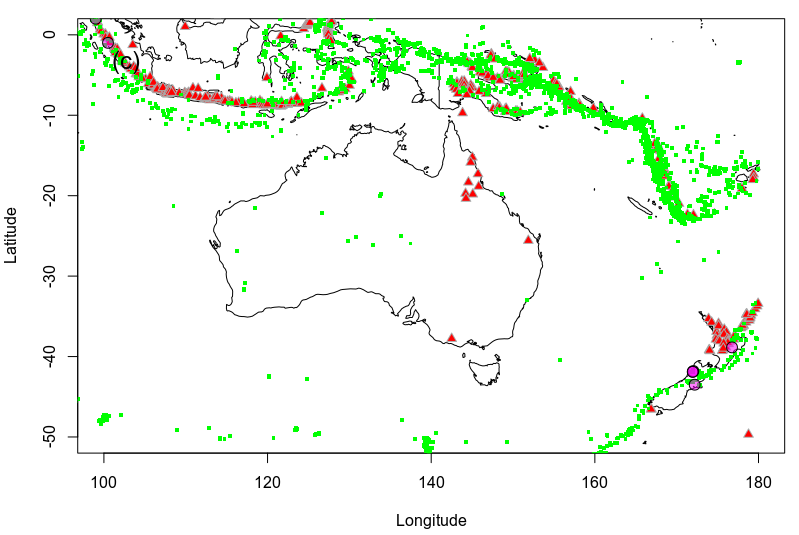
## Potential areas for monitoring earthquake preparation processes

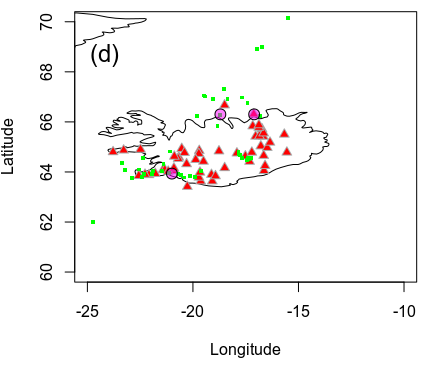
In these figures are shown earthquakes (green dots) characterized by M>=5.5 (International Seismological Centre, 2020) that occurred in areas affected by relatively high heat flux (>=65 mW/m2) in the depth interval 0-20 km. Each seismic event is inserted in a pixel (50·50 km) indicating the local heat flux (Lucazeau , 2019). Pleistocenic and Holocenic volcanic areas (red triangles) are also indicated (Global Volcanism Program, 2013). Earthquake precursors that occurred in the considered areas are shown in Fig.2 and in Supplementary Material Fig.4a-h through more detailed local maps.

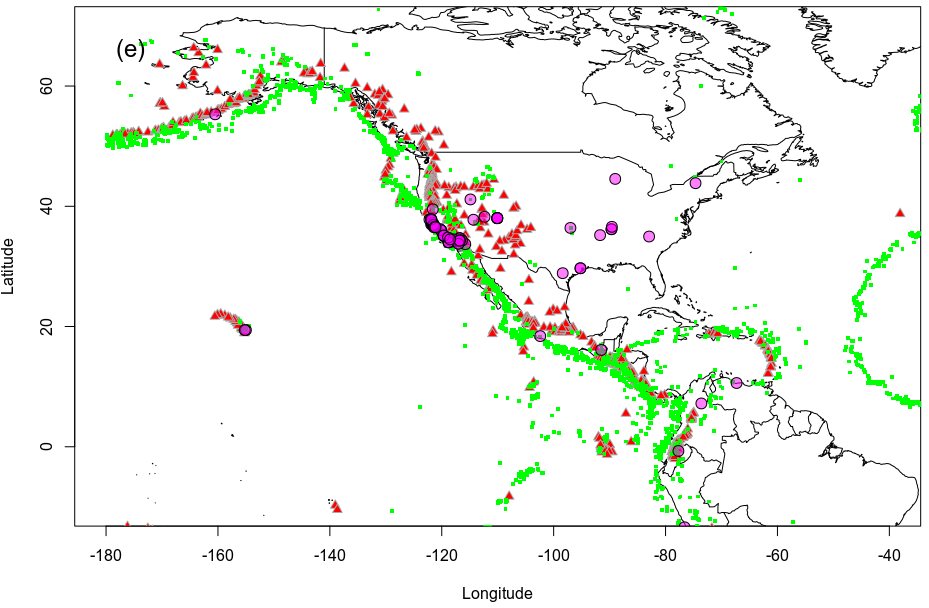
Clusters of shallow earthquakes in area with high heat flux and volcanism represent areas characterized by a relatively higher favourability to detect possible earthquake precursors.

## 

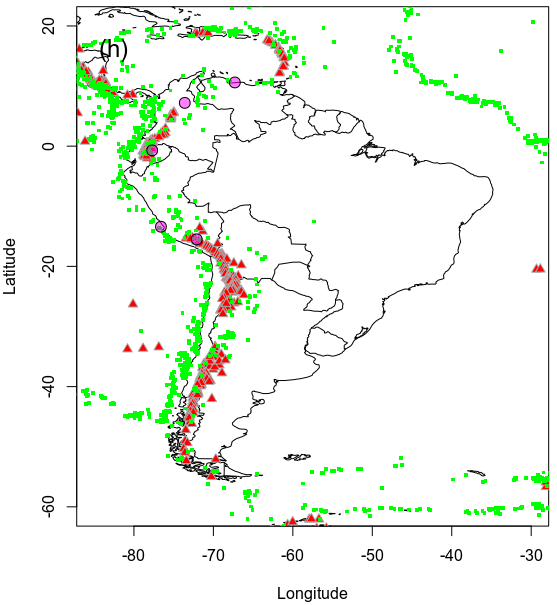








## 



**Supplementary Figure 4.** Different areas of the world where shallow earthquakes (0-20 km, green dots) with M>=5.5 occur in areas characterized by heat flux ≥ 65 mW/m2. Pleistocenic and Holocenic volcanic areas (red triangles) and seismic precursors (purple circles) are also shown.

## Seismic precursor catalogue

In Table 1, we report our catalogue of seismic precursors. The precursor-earthquake distance and time lag (in days) for b-value-type precursors must be considered as our interpretation of the work where these values are not clearly expressed. The references in Table 1 are fully reported in the section References at the end of the Supplementary Material.

| **Long** | **Lat** | **M** | **Distance** | **Days lag** | **Type** | **Ref** |
| --- | --- | --- | --- | --- | --- | --- |
| 51.60 | 36.30 | 6.3 | 100 | 730 | bvalue | *Agh-Atabai and Mirabedini, 2014* |
| 15.95 | 40.01 | 5 | 100 |  | bvalue | *Baskoutas and D'Alessandro 2014* |
| 39.06 | 24.24 | 5.8 |  | 1140 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 38.79 | 20.56 | 6.4 |  | 900 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 38.13 | 26.59 | 6 |  | 510 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 37.58 | 20.86 | 6.1 |  | 990 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 38.34 | 20.42 | 6 |  | 1680 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 36.50 | 21.78 | 6.7 |  | 660 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 37.98 | 21.51 | 7 |  | 2190 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 35.85 | 27.92 | 6.7 |  | 1560 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 38.85 | 23.62 | 6.1 |  | 630 | bvalue | *Baskoutas and Papadopoulos 2013* |
| 79.42 | 30.41 | 6.8 | 100 |  | bvalue | *Baskoutas et al, 2011* |
| 93.60 | 24.90 | 6.7 | 100 |  | bvalue | *Borgohain et al., 2018* |
| 104.01 | 28.24 | 7.1 |  | 861 | bvalue | *Chen et al., 1984b* |
| 98.96 | 24.49 | 6.7 | 200 | 695 | bvalue | *Chen et al., 1984b* |
| 121.51 | 24.46 | 6.4 |  | 251 | bvalue | *Chen et al., 1990* |
| 95.80 | 3.20 | 9 | 150 | 4015 | bvalue | *DasGupta et al., 2007* |
| 135.01 | 34.58 | 7.2 | 100 | 2637 | bvalue | *Enescu and Ito, 2001* |
| 43.50 | 38.50 | 7.2 | 100 | 573 | bvalue | *Görgün, 2013* |
| 140.70 | 39.18 | 6.2 | 100 | 730 | bvalue | *Hasegawa et al., 1975* |
| 140.10 | 35.90 | 6 |  | 730 | bvalue | *Imoto, 1991* |
| 133.90 | 35.40 | 6.2 |  | 730 | bvalue | *Imoto, 1991* |
| 137.60 | 35.80 | 6.8 |  | 730 | bvalue | *Imoto, 1991* |
| 140.10 | 35.90 | 6.1 |  | 730 | bvalue | *Imoto, 1991* |
| 133.90 | 35.40 | 6.7 | 100 | 730 | bvalue | *Imoto, 1991* |
| -76.55 | -13.38 | 8 | 250 | 920 | bvalue | *Kulhanek et al., 2018* |
| 120.70 | 23.20 | 5.2 | 30 | 30 | bvalue | *Lin, 2010* |
| 172.20 | -43.50 | 7.2 | 150 | 365 | bvalue | *Lu, 2017* |
| 118.20 | 39.40 | 7.8 |  | 545 | bvalue | *Ma, 1978* |
| 122.80 | 40.70 | 7.3 |  | 665 | bvalue | *Ma, 1978* |
| 115.00 | 37.80 | 7.2 |  | 1030 | bvalue | *Ma, 1978* |
| 119.40 | 38.20 | 7.4 |  | 365 | bvalue | *Ma, 1978* |
| 115.80 | 40.70 | 5.5 |  | 84 | bvalue | *Ma, 1978* |
| 118.00 | 39.50 | 4.2 |  | 96 | bvalue | *Ma, 1978* |
| 104.10 | 28.20 | 7.1 |  | 665 | bvalue | *Ma, 1982* |
| 100.40 | 31.50 | 7.9 |  | 515 | bvalue | *Ma, 1982* |
| 130.72 | 32.77 | 7.3 | 50 |  | bvalue | *Nanjo and Yoshida, 2017* |
| 142.40 | 38.30 | 9 | 300 | 3650 | bvalue | *Nanjo et al., 2012* |
| 92.19 | 7.92 | 7.2 | 150 | 135 | bvalue | *Nuannin et al., 2012* |
| 29.97 | 40.76 | 6.7 | 100 |  | bvalue | *Öztürk, 2010* |
| 70.59 | 38.95 | 6.3 | 100 |  | bvalue | *Popandopoulos, 2018* |
| -121.90 | 37.80 | 4.3 |  | 1 | bvalue | *Bufe, 1970* |
| -67.30 | 10.60 | 6.6 | 100 | 930 | bvalue | *Fiedler, 1974* |
| -121.20 | 36.60 | 5 |  | 130 | bvalue | *Wyss and Lee, 1973* |
| -121.10 | 36.50 | 4.6 |  | 120 | bvalue | *Wyss and Lee, 1973* |
| 95.10 | 25.10 | 7.3 | 300 | 4259 | bvalue | *Sahu and Saikia, 1994* |
| -118.88 | 34.80 | 5 |  | 1278 | bvalue | *Smith, 1981* |
| 172.04 | -41.76 | 7.1 |  | 2191 | bvalue | *Smith, 1981* |
| -118.50 | 34.50 | 6.4 |  | 2556 | bvalue | *Smith, 1981* |
| 171.97 | -41.90 | 5.9 |  | 1168 | bvalue | *Smith, 1981* |
| 176.77 | -38.86 | 5.7 |  | 1460 | bvalue | *Smith, 1981* |
| 171.97 | -41.90 | 6 |  | 1168 | bvalue | *Smith, 1981* |
| 55.70 | 26.90 | 6.1 | 100 | 170 | bvalue | *Sorbi et al., 2012* |
| 76.50 | 32.50 | 5 |  | 105 | bvalue | *Srivastava et al., 1984* |
| 142.37 | 38.32 | 9 |  | 4450 | bvalue | *Tormann et al., 2015* |
| 120.80 | 23.90 | 7.6 | 100 | 1577 | bvalue | *Tsai et al., 2006* |
| 141.00 | 38.40 | 6.2 | 100 | 170 | bvalue | *Tsukakoshi and Shimazaki, 2008* |
| -97.00 | 36.40 | 5.8 | 100 | 60 | bvalue | *Walter et al., 2017* |
| -155.15 | 19.44 | 7.2 | 20 | 2340 | bvalue | *Wyss et al., 1981* |
| 103.40 | 31.00 | 8 | 200 | 5110 | bvalue | *Zhao and Wu. 2008* |
| 114.00 | 41.00 | 6.3 | 150 | 365 | bvalue | *Zheng and Zhou, 2014* |
| 57.48 | 33.21 | 7.4 | 500 | 21 | gas emissions | *Barsukov et al., 1985* |
| 43.81 | 41.45 | 5.6 |  |  | gas emissions | *Bella et al., 1995a, 1995b* |
| 45.20 | 39.88 | 6.9 | 400 |  | gas emissions | *Bella et al., 1995a, 1995b* |
| 160.00 | 56.00 | 7.1 | 100 |  | gas emissions | *Biagi et al., 2000a,2000b* |
| 160.00 | 56.00 | 7 | 152 |  | gas emissions | *Biagi et al., 2000a,2000b* |
| 160.00 | 56.00 | 6.9 | 96 | 60 | gas emissions | *Biagi et al., 2000a,2000b* |
| 160.00 | 56.00 | 7.1 | 228 |  | gas emissions | *Biagi et al., 2000a,2000b* |
| 160.00 | 56.00 | 7.7 | 366 | 3 | gas emissions | *Biagi et al., 2000a,2000b* |
| 13.38 | 42.35 | 6.3 | 10 | 7 | gas emissions | *Bonfanti et al., 2012* |
| 94.70 | 24.80 | 5.8 | 748 | 2 | gas emissions | *Chaudhuri et al., 2010* |
| 73.22 | 34.90 | 5 | 215 | 2 | gas emissions | *Chaudhuri et al., 2013* |
| 84.81 | 32.00 | 6.3 | 938 | 16 | gas emissions | *Chaudhuri et al., 2013* |
| 71.84 | 36.25 | 5 | 212 | 4 | gas emissions | *Chaudhuri et al., 2013a* |
| -116.85 | 34.26 | 4.8 | 30 | 150 | gas emissions | *Chung, 1985* |
| -116.85 | 34.26 | 4.8 |  |  | gas emissions | *Craig, 1980* |
| -74.64 | 43.84 | 3.9 | 14 |  | gas emissions | *Fleischer, 1981* |
| -88.99 | 44.55 | 1.5 | 1 |  | gas emissions | *Fleischer, 1981* |
| -110.07 | 38.03 | 6.6 | 300 |  | gas emissions | *Fleischer, 1981* |
| 122.75 | 40.85 | 7.3 | 26 |  | gas emissions | *Fleischer, 1981* |
| 122.75 | 40.85 | 7.3 |  | NA | gas emissions | *Fleischer, 1981* |
| 123.17 | 41.27 | 4.8 | 32 |  | gas emissions | *Fleischer, 1981* |
| 63.45 | 40.13 | 7.3 | 400 |  | gas emissions | *Fleischer, 1981* |
| -77.67 | -0.68 | 6.9 | 367 |  | gas emissions | *Flores Humanante et al., 1990* |
| -117.91 | 34.51 | 3.5 | 25 | 31 | gas emissions | *Hauksson, 1981* |
| -82.94 | 34.97 | 2.3 | 1 | 14 | gas emissions | *Hauksson, 1981* |
| -118.78 | 34.03 | 4.7 | 20 | 82 | gas emissions | *Hauksson, 1981* |
| -116.85 | 34.26 | 5 | 85 | 12 | gas emissions | *Hauksson, 1981* |
| -116.85 | 34.26 | 5 | 31 | 45 | gas emissions | *Hauksson, 1981* |
| -110.07 | 38.03 | 6.6 | 335 | 116 | gas emissions | *Hauksson, 1981* |
| -110.07 | 38.03 | 6.6 | 310 | 95 | gas emissions | *Hauksson, 1981* |
| -110.07 | 38.03 | 6.6 | 265 | 145 | gas emissions | *Hauksson, 1981* |
| -110.07 | 38.03 | 6.6 | 260 | 2 | gas emissions | *Hauksson, 1981* |
| 118.18 | 39.63 | 7.8 | 50 | 970 | gas emissions | *Hauksson, 1981* |
| 118.18 | 39.63 | 7.8 | 100 | 15 | gas emissions | *Hauksson, 1981* |
| 118.18 | 39.63 | 7.8 | 130 | 1370 | gas emissions | *Hauksson, 1981* |
| 118.18 | 39.63 | 7.8 | 130 | 162 | gas emissions | *Hauksson, 1981* |
| 105.13 | 32.24 | 5.2 | 345 | 14 | gas emissions | *Hauksson, 1981* |
| 98.95 | 24.51 | 7.5 | 20 | 510 | gas emissions | *Hauksson, 1981* |
| 98.95 | 24.51 | 7.5 | 190 | 425 | gas emissions | *Hauksson, 1981* |
| 98.95 | 24.51 | 7.5 | 210 | 160 | gas emissions | *Hauksson, 1981* |
| 98.95 | 24.51 | 7.5 | 215 | 130 | gas emissions | *Hauksson, 1981* |
| 98.95 | 24.51 | 7.5 | 360 | 75 | gas emissions | *Hauksson, 1981* |
| 98.95 | 24.51 | 7.5 | 420 | 290 | gas emissions | *Hauksson, 1981* |
| 98.95 | 24.51 | 7.5 | 450 | 12 | gas emissions | *Hauksson, 1981* |
| 104.09 | 32.78 | 7.2 | 40 | 480 | gas emissions | *Hauksson, 1981* |
| 104.09 | 32.78 | 7.2 | 100 | 420 | gas emissions | *Hauksson, 1981* |
| 104.09 | 32.78 | 7.2 | 100 | 190 | gas emissions | *Hauksson, 1981* |
| 104.09 | 32.78 | 7.2 | 320 | 200 | gas emissions | *Hauksson, 1981* |
| 104.09 | 32.78 | 7.2 | 340 | 48 | gas emissions | *Hauksson, 1981* |
| 104.09 | 32.78 | 7.2 | 340 | 160 | gas emissions | *Hauksson, 1981* |
| 104.09 | 32.78 | 7.2 | 390 | 160 | gas emissions | *Hauksson, 1981* |
| 104.09 | 32.78 | 7.2 | 560 | 34 | gas emissions | *Hauksson, 1981* |
| 69.22 | 41.26 | 5.3 | 5 | 400 | gas emissions | *Hauksson, 1981* |
| 69.22 | 41.26 | 4 | 5 | 11 | gas emissions | *Hauksson, 1981* |
| 69.22 | 41.26 | 3.5 | 5 | 3 | gas emissions | *Hauksson, 1981* |
| 69.22 | 41.26 | 3.5 | 5 | 3 | gas emissions | *Hauksson, 1981* |
| 69.22 | 41.26 | 3 | 5 | 8 | gas emissions | *Hauksson, 1981* |
| 69.22 | 41.26 | 3.3 | 5 | 7 | gas emissions | *Hauksson, 1981* |
| 69.22 | 41.26 | 3 | 5 | 4 | gas emissions | *Hauksson, 1981* |
| 63.83 | 41.67 | 4.7 | 130 | 5 | gas emissions | *Hauksson, 1981* |
| 73.35 | 39.30 | 7.3 | 530 | 100 | gas emissions | *Hauksson, 1981* |
| 80.00 | 42.00 | 5.3 | 100 | 110 | gas emissions | *Hauksson, 1981* |
| 63.45 | 40.13 | 7.3 | 470 | 4 | gas emissions | *Hauksson, 1981* |
| 63.45 | 40.13 | 7.3 | 550 | 90 | gas emissions | *Hauksson, 1981* |
| 70.85 | 40.04 | 6.6 | 200 | 125 | gas emissions | *Hauksson, 1981* |
| 53.73 | 55.53 | 7.1 | 65 | 50 | gas emissions | *Hauksson, 1981* |
| 72.71 | 39.42 | 6.7 | 270 | 470 | gas emissions | *Hauksson, 1981* |
| 72.71 | 39.42 | 6.7 | 300 | 470 | gas emissions | *Hauksson, 1981* |
| 72.71 | 39.42 | 6.7 | 150 | 75 | gas emissions | *Hauksson, 1981* |
| 72.71 | 39.42 | 6.7 | 150 | 70 | gas emissions | *Hauksson, 1981* |
| 70.85 | 40.04 | 6.6 | 190 | 60 | gas emissions | *Hauksson, 1981, Fleischer, 1981* |
| 105.13 | 32.24 | 7.2 | 350 | 2 | gas emissions | *Jiang and Li, 1981* |
| 117.76 | 39.46 | 6.9 |  | 12 | gas emissions | *Jiang et al., 1981* |
| 132.77 | 33.84 | 4.9 | 50 | 120 | gas emissions | *Kawabe, 1984* |
| -119.65 | 35.12 | 4.3 | 25 | 60 | gas emissions | *King, 1978, King, 1980* |
| -119.65 | 35.12 | 4 | 47 | 90 | gas emissions | *King, 1978, King, 1980* |
| 121.53 | 23.51 | 5 | 32 | 54 | gas emissions | *Kuo et al., 2013* |
| 122.75 | 40.85 | 7.4 |  |  | gas emissions | *Liang, 1980* |
| 118.18 | 39.63 | 7.8 |  |  | gas emissions | *Liang, 1980* |
| 104.09 | 32.78 | 7.9 |  |  | gas emissions | *Liang, 1980* |
| 117.76 | 39.46 | 6.5 |  |  | gas emissions | *Liang, 1980* |
| 139.84 | 35.21 | 6.6 | 280 | 0 | gas emissions | *Nagamine and Sugisaki, 1991a* |
| -121.54 | 36.84 | 4.8 | 15 | 30 | gas emissions | *O'Neil and King, 1980* |
| 2.90 | 42.70 | 5.2 | 100 |  | gas emissions | *Perez, 1996* |
| 10.14 | 44.15 | 5.2 |  | 20 | gas emissions | *Pierotti et al., 2015* |
| -8.00 | 43.00 | 4.6 | 90 |  | gas emissions | *Redondo et al., 1996* |
| -121.40 | 36.85 | 5.2 |  | 11 | gas emissions | *Reimer, 1980* |
| -121.84 | 37.11 | 7.1 | 60 |  | gas emissions | *Reimer, 1990* |
| -121.54 | 37.09 | 5.9 | 65 |  | gas emissions | *Reimer, 1990* |
| -121.91 | 37.88 | 5.5 | 155 |  | gas emissions | *Reimer, 1990* |
| -121.38 | 36.48 | 4.9 | 35 |  | gas emissions | *Reimer, 1990* |
| -121.77 | 37.68 | 4.1 | 120 |  | gas emissions | *Reimer, 1990* |
| -121.54 | 36.84 | 4.5 | 45 |  | gas emissions | *Reimer, 1990* |
| 139.10 | 40.46 | 7.7 | 480 |  | gas emissions | *Satake et al., 1985* |
| -120.31 | 36.23 | 5.2 | 40 |  | gas emissions | *Sato et al., 1986* |
| 104.19 | 51.61 | 6.2 |  | 20 | gas emissions | *Semenov and Smekalin, 2011* |
| -117.00 | 33.75 | 3.7 | 13 | 3 | gas emissions | *Shapiro et al., 1985* |
| 113.15 | 40.44 | 5.8 | 285 | 15 | gas emissions | *Shi and Cai, 1986* |
| 118.18 | 39.63 | 7.8 | 460 | 8 | gas emissions | *Shi and Cai, 1986* |
| 138.00 | 37.00 | 6.8 | 50 | 230 | gas emissions | *Sugisaki and Sugiura, 1985, Sugisaki and Sugiura, 1986* |
| 138.00 | 37.00 | 6.8 | 230 | 120 | gas emissions | *Sugisaki and Sugiura, 1985, Sugisaki and Sugiura, 1986* |
| 138.00 | 37.00 | 6.8 | 50 | 120 | gas emissions | *Sugisaki and Sugiura, 1985, Sugisaki and Sugiura, 1986* |
| 138.00 | 37.00 | 6.8 |  | 15 | gas emissions | *Sugisaki and Sugiura, 1985, Sugisaki and Sugiura, 1986* |
| 134.96 | 34.65 | 6.9 | 50 |  | gas emissions | *Sugisaki et al., 1996* |
| 134.96 | 34.65 | 7.2 | 220 | 0 | gas emissions | *Sugisaki et al., 1996* |
| 134.96 | 34.65 | 7.2 | 220 | 0 | gas emissions | *Sugisaki et al., 1996* |
| 136.91 | 35.18 | 4.1 | 100 | 60 | gas emissions | *Sugisaki, 1978* |
| 136.91 | 35.18 | 4.1 | 60 | 50 | gas emissions | *Sugisaki, 1978* |
| 136.91 | 35.18 | 4.1 | 75 | 50 | gas emissions | *Sugisaki, 1978* |
| 136.91 | 35.18 | 4.1 | 130 | 120 | gas emissions | *Sugisaki, 1978* |
| 110.31 | 19.10 | 5.2 | 340 | 14 | gas emissions | *Teng, 1980* |
| 104.09 | 32.78 | 7.2 | 320 | 1 | gas emissions | *Teng, 1980* |
| 68.80 | 38.55 |  | 20 | 1 | gas emissions | *Varshal et al., 1985* |
| 77.25 | 31.92 | 2.2 | 166 |  | gas emissions | *Virk and Baljinder, 1995* |
| 77.25 | 31.92 | 2.7 | 105 |  | gas emissions | *Virk and Baljinder, 1995* |
| 77.25 | 31.92 | 4.4 | 440 |  | gas emissions | *Virk and Baljinder, 1995* |
| 77.25 | 31.92 | 4.4 | 440 |  | gas emissions | *Virk and Baljinder, 1995* |
| 77.25 | 31.92 | 3.6 | 265 |  | gas emissions | *Virk and Baljinder, 1995* |
| 77.25 | 31.92 | 3.7 | 325 |  | gas emissions | *Virk and Baljinder, 1995* |
| 77.25 | 31.92 | 3.7 | 325 |  | gas emissions | *Virk and Baljinder, 1995* |
| 79.50 | 30.50 | 6.8 |  |  | gas emissions | *Virk et al., 2001* |
| 79.50 | 30.50 | 6.8 |  |  | gas emissions | *Virk et al., 2001* |
| 79.50 | 30.50 | 6.8 |  |  | gas emissions | *Virk et al., 2001* |
| 139.37 | 34.72 | 6.8 | 25 | 230 | gas emissions | *Wakita et al., 1988* |
| 139.37 | 34.72 | 6.8 | 25 | 7 | gas emissions | *Wakita et al., 1988* |
| 118.37 | 28.45 | 7.9 | 200 | 9 | gas emissions | *Wakita et al., 1988* |
| 103.67 | 28.84 | 5.5 | 200 | 9 | gas emissions | *Wakita et al., 1988* |
| 121.00 | 24.75 | 7 |  | 30 | gas emissions | *Walia et al., 2009* |
| 120.30 | 23.00 | 7 |  | 30 | gas emissions | *Walia et al., 2009* |
| 121.59 | 23.66 | 6.1 |  | 3 | gas emissions | *Walia et al., 2013* |
| 120.70 | 22.97 | 6.4 |  | 8 | gas emissions | *Walia et al., 2013* |
| 42.506 | 13.39 | 3 | 11.5 |  | ground deformation | *Bella et al., 1995a,b* |
| 42.499 | 13.41 | 3.1 | 9.1 |  | ground deformation | *Bella et al., 1995a,b* |
| 42.412 | 13.46 | 3.3 | 7.6 |  | ground deformation | *Bella et al., 1995a,b* |
| 42.537 | 13.19 | 3.5 | 27.7 |  | ground deformation | *Bella et al., 1995a,b* |
| 42.72 | 13.50 | 3.5 | 28 |  | ground deformation | *Bella et al., 1995a,b* |
| 42.534 | 13.09 | 3.7 | 35.8 |  | ground deformation | *Bella et al., 1995a,b* |
| 42.582 | 13.29 | 3.7 | 27.7 |  | ground deformation | *Bella et al., 1995a,b* |
| 42.36 | 13.27 | 3.9 | 23.1 |  | ground deformation | *Bella et al., 1995a,b* |
| 120.97 | 23.77 | 7.6 | 100 | 365 | ground deformation | *Chen et al., 2015* |
| -117.50 | 34.26 | 4.1 | 15 | 21 | ground deformation | *Clark, 1981* |
| 101.62 | 37.68 | 6.4 | 30 | 150 | ground deformation | *Cui et al., 2016* |
| 13.00 | 46.20 | 3.9 | 2.9 | 9 | ground deformation | *Dal Moro and Zadro, 1999* |
| 13.00 | 46.00 | 4.1 | 2 | 60 | ground deformation | *Dragoni et al., 1985* |
| 162.35 | 55.58 | 6.9 | 100 | 2 | ground deformation | *Fedotov et al., 1992* |
| 139.01 | 37.89 | 7.5 | 30 | 1825 | ground deformation | *Fujii and Nakane, 1997* |
| -121.7 | 37.4 | 2.5 |  |  | ground deformation | *Iwatsubo and Mortersen, 1979* |
| -121.7 | 37.4 | 3.9 | 4.5 | 2.6 | ground deformation | *Iwatsubo and Mortersen, 1979* |
| -121.80 | 37.30 | 4.2 | 6 | 3 | ground deformation | *Iwatsubo and Mortersen, 1979* |
| -122.18 | 37.80 | 4.3 | 6 | 30 | ground deformation | *Jones et al., 1977* |
| 140.88 | 39.03 | 6.9 | 50 | 1460 | ground deformation | *Kumazawa et al., 2010* |
| -116.40 | 34.28 | 5.1 | 8 | 2 | ground deformation | *Leary and Malin, 1984* |
| -116.40 | 34.28 | 2 | 8 | 5 | ground deformation | *Leary and Malin, 1984* |
| -116.40 | 34.28 | 2.4 | 24 | 2 | ground deformation | *Leary and Malin, 1984* |
| -116.40 | 34.28 | 3.1 | 32 | 2 | ground deformation | *Leary and Malin, 1984* |
| -114.87 | 41.14 | 6.2 | 60 | 30 | ground deformation | *Li and Lin, 2020* |
| -114.34 | 37.76 | 4.5 | 50 | 30 | ground deformation | *Li and Lin, 2020* |
| -112.35 | 38.25 | 4.6 | 50 | 30 | ground deformation | *Li and Lin, 2020* |
| -98.38 | 28.87 | 4.8 | 50 | 30 | ground deformation | *Li and Lin, 2020* |
| 135.75 | 43.50 | 7.7 | 90 | 150 | ground deformation | *Linde et al., 1988* |
| -72.08 | -15.54 | 7.6 | 120 | 1 | ground deformation | *Melbourne and Webb, 2002* |
| 137.10 | 34.00 | 8.1 | 200 | 1 | ground deformation | *Mogi, 1985* |
| 13.38 | 42.35 | 6.3 | 30 | 180 | ground deformation | *Nardò et al., 2020* |
| 130.17 | 33.74 | 6.6 | 100 | 180 | ground deformation | *Ogata, 2010* |
| -115.82 | 33.75 | 6.1 |  | 46 | ground deformation | *Shifflett and Witbaard, 1996* |
| -116.39 | 34.27 | 7.3 |  | 22 | ground deformation | *Shifflett and Witbaard, 1996* |
| -154.96 | 19.37 | 7.2 |  | 150 | ground deformation | *Wyss et al., 1981* |
| 80.00 | 36.00 | 7.3 | 200 |  | ground deformation | *Yiqing et al. 2015* |
| 103.70 | 31.60 | 8 | 200 |  | ground deformation | *Yiqing et al. 2015* |
| 102.20 | 30.20 | 7 | 100 |  | ground deformation | *Yiqing et al. 2015* |
| 115.67 | 39.00 | 6.9 | 100 | 100 | groundwater level | *Alimova and Zubkov, 1983* |
| 138.92 | 34.86 | 7 | 35 | 289 | groundwater level | *Alimova and Zubkov, 1983* |
| 22.93 | 40.64 | 4.8 | 33 | 5 | groundwater level | *Asteriadis and Livieratos, 1989* |
| 73.50 | 17.00 | 4.4 | 3 | 23 | groundwater level | *Chadha et al., 2003* |
| 73.50 | 17.00 | 4.3 | 12 | 3 | groundwater level | *Chadha et al., 2003* |
| 73.50 | 17.00 | 4.7 | 24 | 28 | groundwater level | *Chadha et al., 2003* |
| 73.50 | 17.00 | 5.2 | 12 | 24 | groundwater level | *Chadha et al., 2003* |
| 107.61 | 52.85 | 5 | 25 | 60 | groundwater level | *Golenetskii et al., 1982* |
| 139.77 | 35.42 | 5.9 | 90 | 2 | groundwater level | *Igarashi et al., 1992* |
| 142.45 | 43.52 | 8.1 | 1,260 |  | groundwater level | *Igarashi et al., 1996* |
| 142.00 | 39.33 | 7.8 | 800 |  | groundwater level | *Igarashi et al., 1996* |
| 63.83 | 41.67 | 7.3 | 200 | 1 | groundwater level | *Ishankulov and Kalugin, 1976* |
| 131.00 | 33.00 | 6.6 | 226 | 0 | groundwater level | *Kawabe et al., 1988* |
| 139.10 | 35.24 | 6.1 | 510 | 5 | groundwater level | *King et al., 2000* |
| 139.10 | 35.24 | 7.2 | 220 | 10 | groundwater level | *King et al., 2000* |
| 139.10 | 35.24 | 7.5 | 800 | 10 | groundwater level | *King et al., 2000* |
| 139.10 | 35.24 | 8.1 | 1,260 | 30 | groundwater level | *King et al., 2000* |
| 139.10 | 35.24 | 6.6 | 290 | 5 | groundwater level | *King et al., 2000* |
| 139.10 | 35.24 | 5.8 | 50 | 180 | groundwater level | *King et al., 2000* |
| 63.83 | 41.67 | 5.1 | 150 | 40 | groundwater level | *Kissin et al., 1984a* |
| 63.83 | 41.67 | 5.1 | 150 | 5 | groundwater level | *Kissin et al., 1984a* |
| 71.00 | 35.00 | 6.6 | 450 | 4 | groundwater level | *Kissin et al., 1984b* |
| 138.92 | 34.86 | 2.5 | 30 | 1 | groundwater level | *Koizumi et al., 1999, Koizumi et al., 2004* |
| 158.68 | 53.32 | 5.2 | 139 |  | groundwater level | *Kopylova and Boldina, 2012* |
| 158.68 | 53.32 | 6.3 | 152 |  | groundwater level | *Kopylova and Boldina, 2012* |
| 158.68 | 53.32 | 5.4 | 153 |  | groundwater level | *Kopylova and Boldina, 2012* |
| 158.68 | 53.32 | 5.5 | 145 |  | groundwater level | *Kopylova and Boldina, 2012* |
| 158.68 | 53.32 | 5.2 | 296 |  | groundwater level | *Kopylova and Boldina, 2012* |
| 158.68 | 53.32 | 5 | 259 |  | groundwater level | *Kopylova and Boldina, 2012* |
| 158.68 | 53.32 | 5.4 | 185 |  | groundwater level | *Kopylova and Boldina, 2012* |
| 162.04 | 54.84 | 7.8 | 300 | 90 | groundwater level | *Kopylova and Boldina, 2020* |
| -116.78 | 34.69 | 5 |  | 25 | groundwater level | *Kovach et al., 1975* |
| -116.78 | 34.69 | 4.7 |  | 40 | groundwater level | *Kovach et al., 1975* |
| 75.00 | 41.00 | 6.8 | 140 | 3 | groundwater level | *Mavlyanov and Sultankhodzhaev, 1981* |
| -116.97 | 33.79 | 5.5 | 35 | 4 | groundwater level | *Merifield and Lamar, 1981* |
| 59.07 | 30.61 | 6.7 | 400 | 21 | groundwater level | *Mil'kis & Voronin, 1983* |
| 63.83 | 41.67 | 7.3 | 530 | 300 | groundwater level | *Mil'kis and Voronin, 1983* |
| 59.67 | 39.75 | 7.3 | 10 | 180 | groundwater level | *Mil'kis, 1984* |
| 59.67 | 39.75 | 7.3 | 10 | 60 | groundwater level | *Mil'kis, 1984* |
| 59.67 | 39.75 | 7.3 | 90 | 225 | groundwater level | *Mil'kis, 1984* |
| 59.67 | 39.75 | 7.3 | 90 | 150 | groundwater level | *Mil'kis, 1984* |
| 152.00 | 46.17 | 5.6 | 440 | 9 | groundwater level | *Monakhov et al., 1979* |
| 152.00 | 46.17 | 7 | 450 | 6 | groundwater level | *Monakhov et al., 1980* |
| 152.00 | 46.17 | 5.2 | 90 | 6 | groundwater level | *Monakhov et al., 1980* |
| 152.00 | 46.17 | 7.5 | 270 | 7 | groundwater level | *Monakhov, 1981* |
| 152.00 | 46.17 | 5.4 | 95 | 5 | groundwater level | *Monakhov, 1981* |
| 152.00 | 46.17 | 6.3 | 170 | 6 | groundwater level | *Monakhov, 1981* |
| 75.00 | 41.00 | 6.6 | 300 | 35 | groundwater level | *Orolbaev, 1984* |
| 75.00 | 41.00 | 6.6 | 140 | 14 | groundwater level | *Orolbaev, 1984* |
| 68.00 | 48.00 | 5.3 | 95 | 2 | groundwater level | *Ospanov and Mizev, 1985* |
| 122.67 | 41.25 | 7.3 | 40 | 8 | groundwater level | *Raleigh et al., 1977* |
| 122.67 | 41.25 | 7.3 | 145 | 4 | groundwater level | *Raleigh et al., 1977* |
| -120.06 | 36.00 | 6.1 | 70 |  | groundwater level | *Roeloffs and Quilty, 1997* |
| 72.00 | 38.00 | 6.3 | 210 | 135 | groundwater level | *Sultankhodzhaev and Chernov, 1978* |
| 72.00 | 38.00 | 5 | 25 | 150 | groundwater level | *Sultankhodzhaev and Chernov, 1978* |
| 72.00 | 38.00 | 5.9 | 100 | 3 | groundwater level | *Sultankhodzhaev et al., 1986* |
| 139.25 | 34.75 | 7 | 30 | 0 | groundwater level | *Wakita, 1984* |
| 98.14 | 35.45 | 6.8 | 20 | 20 | groundwater level | *Wang et al., 1984a* |
| 122.67 | 41.25 | 5.6 | 20 | 1 | groundwater level | *Wang et al., 1984a* |
| 115.67 | 39.00 | 7.8 | 5 | 2640 | groundwater level | *Wang et al., 1984b* |
| 115.67 | 39.00 | 7.8 | 30 | 1090 | groundwater level | *Wang et al., 1984b* |
| 138.92 | 34.86 | 6.6 | 30 | 40 | groundwater level | *Yamaguchi, 1980* |
| 121.00 | 24.00 | 6.3 |  | 0 | groundwater level | *Yu and Mitchell, 1988* |
| 59.67 | 39.75 | 4.5 | 120 | 60 | groundwater level | *Zhukov et al., 1978* |
| 15.32 | 40.90 | 6.5 | 220 | 150 | radon | *Allegri et al., 1983* |
| 15.32 | 40.90 | 6.5 | 200 | 180 | radon | *Allegri et al., 1983* |
| 7.40 | 43.77 | 3.9 | 56 | 5 | radon | *Borchiellini et al., 1991* |
| 78.32 | 30.91 | 4.9 | 60 | 7 | radon | *Choubey et al., 2009* |
| 3.48 | 36.77 | 6.7 | 1,120 | 2 | radon | *Cigolini et al., 2007* |
| -1.00 | 50.00 | 1.2 | 90 |  | radon | *Crockett et al., 2006* |
| -2.08 | 52.50 | 3.1 | 90 |  | radon | *Crockett et al., 2006* |
| -2.24 | 53.48 | 5 | 90 |  | radon | *Crockett et al., 2006* |
| 92.87 | 12.84 | 5 | 1,215 |  | radon | *Das et al., 2006* |
| 95.85 | 3.32 | 9.1 | 2,275 |  | radon | *Das et al., 2006* |
| 100.50 | -1.00 | 5.8 | 2,120 |  | radon | *Das et al., 2006* |
| 99.00 | 2.00 | 5.1 | 2,070 |  | radon | *Das et al., 2006* |
| 84.60 | 28.10 | 7.8 | 722 | 5 | radon | *Deb et al., 2016* |
| 88.10 | 27.30 | 6.9 | 612 | 6 | radon | *Deb et al., 2016* |
| 86.00 | 27.70 | 7.3 | 618 | 13 | radon | *Deb et al., 2016* |
| 90.10 | 26.50 | 5.6 | 470 | 29 | radon | *Deb et al., 2016* |
| -160.50 | 55.34 | 6.3 | 180 |  | radon | *Fleischer and Mogro-Campero, 1985* |
| 118.18 | 39.63 | 7.8 | 1,800 |  | radon | *Fleischer, 1981* |
| 120.54 | 22.92 | 6.6 | 31 | 14 | radon | *Fu et al., 2017* |
| 88.19 | 27.30 | 5 | 93 | 9 | radon | *Ghosh et al., 2011* |
| 85.45 | 27.90 | 4.9 | 98 | 24 | radon | *Ghosh et al., 2011* |
| -21.00 | 63.93 | 2.7 | 14 | 22 | radon | *Hauksson and Goddard, 1981* |
| -21.00 | 63.93 | 3.4 | 5 | 17 | radon | *Hauksson and Goddard, 1981* |
| -21.00 | 63.93 | 3.4 | 21 | 17 | radon | *Hauksson and Goddard, 1981* |
| -21.00 | 63.93 | 4.3 | 16 | 18 | radon | *Hauksson and Goddard, 1981* |
| -21.00 | 63.93 | 1.9 | 9 | 19 | radon | *Hauksson and Goddard, 1981* |
| -21.00 | 63.93 | 2.8 | 8 | 17 | radon | *Hauksson and Goddard, 1981* |
| -21.00 | 63.93 | 2.8 | 5 | 33 | radon | *Hauksson and Goddard, 1981* |
| -17.10 | 66.30 | 4.1 | 56 | 50 | radon | *Hauksson and Goddard, 1981* |
| 119.47 | 38.43 | 7.4 | 170 | 170 | radon | *Hauksson, 1981* |
| 114.90 | 37.60 | 4.3 | 42 | 40 | radon | *Hauksson, 1981* |
| 115.10 | 37.40 | 4.9 | 18 | 16 | radon | *Hauksson, 1981* |
| 122.75 | 40.85 | 7.3 | 50 | 270 | radon | *Hauksson, 1981* |
| 122.75 | 40.85 | 7.3 | 50 | 50 | radon | *Hauksson, 1981* |
| 122.75 | 40.85 | 7.3 | 140 | 66 | radon | *Hauksson, 1981* |
| 122.75 | 40.85 | 7.3 | 140 | 8 | radon | *Hauksson, 1981* |
| 138.94 | 29.38 | 7.9 | 1,000 | 2 | radon | *Igarashi and Wakita, 1990* |
| 138.94 | 29.38 | 7.9 | 4 | 3 | radon | *Igarashi and Wakita, 1990* |
| 140.47 | 37.75 | 6.6 | 260 |  | radon | *Igarashi et al., 1990* |
| 140.47 | 37.75 | 6.7 | 130 |  | radon | *Igarashi et al., 1990* |
| 140.47 | 37.75 | 6.6 | 110 |  | radon | *Igarashi et al., 1990* |
| 135.18 | 34.69 | 7.2 | 30 | 90 | radon | *Igarashi et al., 1995* |
| 14.99 | 37.75 | 3.5 | 650 | 6 | radon | *Imme et al., 2005* |
| 26.55 | 38.27 | 4.1 | 7 | 6 | radon | *Inan et al., 2010* |
| -119.65 | 35.12 | 4 | 45 | 15 | radon | *King, 1980* |
| -119.65 | 35.12 | 4.2 | 75 | 240 | radon | *King, 1980* |
| -119.65 | 35.12 | 3.4 | 40 | 1 | radon | *King, 1985* |
| -119.65 | 35.12 | 3.4 | 1 | 1 | radon | *King, 1985* |
| 121.40 | 23.07 | 6.8 |  |  | radon | *Kuo et al., 2010* |
| 121.09 | 22.88 | 6.1 |  |  | radon | *Kuo et al., 2010* |
| 121.30 | 22.86 | 5.9 |  |  | radon | *Kuo et al., 2010* |
| 121.46 | 23.30 | 5.4 |  |  | radon | *Kuo et al., 2010* |
| 121.76 | 24.75 | 5.8 | 39 |  | radon | *Liu et al., 1985* |
| 121.76 | 24.75 | 5.2 | 23 |  | radon | *Liu et al., 1985* |
| 121.76 | 24.75 | 4.6 | 14 |  | radon | *Liu et al., 1985* |
| 121.76 | 24.75 | 5 | 37 |  | radon | *Liu et al., 1985* |
| 121.76 | 24.75 | 5.3 | 45 |  | radon | *Liu et al., 1985* |
| 57.55 | 30.28 | 4.2 | 20 | 10 | radon | *Montazeri et al., 2011* |
| 21.55 | 38.15 | 6.5 | 20 | 60 | radon | *Nikolopoulos et al., 2012; Nikolopoulos et al., 2014; Petraki et al., 2013a; Petraki et al., 2013b* |
| 24.00 | 38.50 | 5.1 | 80 | 7 | radon | *Nikolopoulos et al., 2015* |
| -16.51 | 28.33 | 2.5 |  | 180 | radon | *Perez et al., 2007* |
| 12.51 | 41.89 | 2.5 | 25 |  | radon | *Garavaglia et al., 1998* |
| 18.30 | 44.95 | 2.8 | 70 | 30 | radon | *Planinic et al. 2000* |
| -73.58 | 7.23 | 6.2 |  | 0 | radon | *Ghosh et al., 2009* |
| -91.51 | 16.11 | 4.7 | 100 | 10 | radon | *Alekseev et al., 1995* |
| 101.00 | 15.50 | 6.2 | 293 | 14 | radon | *Wattananikorn et al., 1998* |
| 82.00 | 28.00 | 3 | 17 |  | radon | *Ghosh et al., 2009* |
| 37.60 | 44.70 | 5 |  | 3 | radon | *Nevinsky and Tsvetkova, 2005* |
| -64.26 | -65.25 | 7.5 | 1,176 |  | radon | *Ilic et al., 2005* |
| 143.00 | 51.00 | 5.4 | 700 | 12 | radon | *Tsvetkova et al., 2005* |
| 78.43 | 30.37 | 4.6 | 16 |  | radon | *Ramola et al., 2008* |
| 78.37 | 17.56 | 1 | 30 | 1 | radon | *Reddy et al., 2004* |
| 121.09 | 12.93 | 7.1 | 48 | 7 | radon | *Richon et al., 2003* |
| -102.39 | 18.35 | 8.1 | 260 |  | radon | *Segovia et al., 1989* |
| -118.17 | 34.15 | 2.9 | 21 | 1 | radon | *Shapiro et al., 1980* |
| -118.17 | 34.15 | 2.8 | 12 | 10 | radon | *Shapiro et al., 1980* |
| -118.78 | 34.03 | 4.6 | 54 |  | radon | *Shapiro et al., 1980* |
| -95.21 | 29.69 | 2.9 | 21 | 3 | radon | *Shapiro et al., 1980* |
| -95.21 | 29.69 | 2.8 | 12 | 9 | radon | *Shapiro et al., 1980* |
| -118.78 | 34.03 | 4.7 | 54 | 42 | radon | *Shapiro et al., 1980* |
| 76.50 | 32.17 | 6.8 | 150 |  | radon | *Singh et al., 1991* |
| 77.24 | 28.60 | 5.4 |  | 15 | radon | *Singh et al., 1999* |
| 78.20 | 33.00 | 5 | 201 | 13 | radon | *Singh et al., 2010* |
| 79.40 | 31.60 | 4 | 339 |  | radon | *Singh et al., 2010* |
| 78.20 | 33.00 | 5 | 210 | 14 | radon | *Singh et al., 2010* |
| 78.20 | 33.00 | 5 | 188 | 13 | radon | *Singh et al., 2010* |
| 78.20 | 33.00 | 5 | 199 | 3 | radon | *Singh et al., 2010* |
| 94.90 | 25.30 | 4.8 | 278 | 1 | radon | *Singh et al., 2016* |
| 94.20 | 22.90 | 4.7 | 176 | 4 | radon | *Singh et al., 2016* |
| 93.50 | 26.50 | 5.5 | 320 | 12 | radon | *Singh et al., 2016* |
| 93.20 | 24.30 | 4.5 | 78 | 24 | radon | *Singh et al., 2016* |
| -89.66 | 36.18 | 3.9 |  | 33 | radon | *Steele, 1981* |
| -89.66 | 36.18 | 4 | 40 | 150 | radon | *Steele, 1984* |
| -91.73 | 35.23 | 4 | 160 | 365 | radon | *Steele, 1984* |
| 89.00 | 38.00 | 4.2 | 120 | 60 | radon | *Steele, 1984* |
| -89.59 | 36.58 | 3.5 | 50 | 60 | radon | *Steele, 1984* |
| 44.43 | 40.00 | 4.2 | 65 | 90 | radon | *Ghosh et al., 2009* |
| -120.06 | 36.00 | 5.6 | 300 | 10 | radon | *Teng and Sun, 1986* |
| -117.32 | 34.18 | 5 | 20 | 42 | radon | *Teng and Sun, 1986* |
| 118.74 | 40.10 | 6 | 200 | 3 | radon | *Teng, 1980* |
| 101.84 | 29.52 | 5.2 | 70 | 12 | radon | *Teng, 1980* |
| 101.63 | 30.31 | 5.8 | 54 | 12 | radon | *Teng, 1980* |
| 45.00 | 42.00 | 2.7 | 150 | 10 | radon | *Tsvetkova et al., 2001* |
| 43.06 | 44.05 | 5.4 | 300 | 3 | radon | *Tsvetkova et al., 2005* |
| 138.00 | 37.00 | 6.8 | 65 | 14 | radon | *Ui et al., 1988* |
| 78.50 | 31.00 | 7 | 450 | 7 | radon | *Virk and Singh, 1994* |
| 78.50 | 31.00 | 7 | 270 | 7 | radon | *Virk and Singh, 1994* |
| 78.50 | 31.00 | 7 | 330 | 7 | radon | *Virk and Singh, 1994* |
| 71.00 | 35.00 | 5 | 400 |  | radon | *Virk et al., 1993* |
| 76.50 | 32.17 | 6.6 | 400 |  | radon | *Virk et al., 1993* |
| 139.25 | 34.75 | 7 | 25 |  | radon | *Wakita et al., 1980* |
| 140.93 | 35.75 | 6 | 200 | 1 | radon | *Wakita et al., 1989* |
| 140.73 | 35.63 | 6 | 200 | 2 | radon | *Wakita et al., 1991* |
| 76.10 | 32.57 | 5.1 | 10 | 3 | radon | *Walia et al., 2006* |
| 103.37 | 31.02 | 8 | 99 | 7 | radon | *Ye et al., 2015* |
| 102.96 | 30.28 | 7 | 15 | 7 | radon | *Ye et al., 2015* |
| 15.49 | 45.96 | 0.8 | 1 | 2 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 0.7 | 2 | 3 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 2.1 | 2 | 17 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1.8 | 2 |  | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 3.2 | 1 |  | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 2.2 | 1 | 33 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 3 | 0 |  | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1.8 | 1 |  | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1.9 | 2 | 5 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1.1 | 1 |  | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 2.7 | 2 |  | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1.3 | 1 | 1 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1 | 2 |  | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1.6 | 1 | 22 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1.4 | 0 | 10 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 2.7 | 2 | 33 | radon | *Zmazek et al., 2005* |
| 15.49 | 45.96 | 1.9 | 1 |  | radon | *Zmazek et al., 2005* |
| 15.51 | 45.96 | 3 | 0 | 3 | radon | *Zmazek et al., 2005* |
| 15.51 | 45.96 | 1.4 | 0 |  | radon | *Zmazek et al., 2005* |
| 15.51 | 45.96 | 2.7 | 2 |  | radon | *Zmazek et al., 2005* |
| 15.51 | 45.96 | 1.9 | 1 |  | radon | *Zmazek et al., 2005* |
| 14.99 | 45.90 | 3 | 0 | 18 | radon | *Zmazek et al., 2005* |
| 14.99 | 45.90 | 1.8 | 1 | 7 | radon | *Zmazek et al., 2005* |
| 14.99 | 45.90 | 1.9 | 2 |  | radon | *Zmazek et al., 2005* |
| 14.99 | 45.90 | 1.4 | 0 |  | radon | *Zmazek et al., 2005* |
| 14.99 | 45.90 | 2.7 | 2 | 4 | radon | *Zmazek et al., 2005* |
| 22.93 | 40.64 | 4.8 | 41 | 5 | temp. variations | *Asteriadis and Livieratos, 1989* |
| 141.00 | 35.90 | 7 | 290 | 0 | temp. variations | *Mogi et al., 1989* |
| 139.10 | 34.90 | 5.4 | 16 |  | temp. variations | *Mogi et al., 1989* |
| 139.19 | 34.92 | 6.7 | 16 | 3 | temp. variations | *Mogi et al., 1989* |
| 139.30 | 34.60 | 7 | 31 | 10 | temp. variations | *Mogi et al., 1989* |
| 140.32 | 35.15 | 5.4 | 28 |  | temp. variations | *Mogi et al., 1989* |
| 142.03 | 38.19 | 7.4 | 470 |  | temp. variations | *Mogi et al., 1989* |
| 139.38 | 35.12 | 5.7 | 46 | 0 | temp. variations | *Mogi et al., 1989* |
| 113.29 | 40.09 | 6.1 | 200 | 2 | temp. variations | *Qiang et al., 1997* |
| -121.88 | 37.04 | 7.1 | 43 | 3 | temp. variations | *Silver et al., 1990; Valette-Silver and Silver, 1991; Silver and Valette-Silver, 1992* |
| 21.88 | 38.33 | 5.4 | 2 | 1 | temp. variations | *Soter, 1999* |
| -121.65 | 37.13 | 6.1 | 200 | 1 | temp. variations | *Valette-Silver and Silver, 1991; Silver and Valette-Silver, 1992* |
| -121.57 | 39.52 | 5.8 | 200 | 1 | temp. variations | *Valette-Silver and Silver, 1991; Silver and Valette-Silver, 1992* |
| 13.22 | 42.71 | 6 | 57 | 120 | water composition | *Barberio et al., 2017* |
| 17.10 | 66.30 | 5.8 | 100 | 7 | water composition | *Claesson et al., 2004* |
| 28.81 | 37.92 | 4.5 | 8 | 30 | water composition | *Inan et al., 2010* |
| 43.51 | 38.72 | 7.2 |  |  | water composition | *Inan et al., 2012* |
| -121.49 | 36.78 | 4.8 | 10 | 30 | water composition | *King et al., 1981* |
| 134.41 | 35.00 | 3.7 | 10 |  | water composition | *Koizumi et al., 1985* |
| 132.50 | 35.10 | 6.1 | 182 |  | water composition | *Koizumi et al., 1985* |
| 134.59 | 34.95 | 4.3 | 9 |  | water composition | *Koizumi et al., 1985* |
| 134.23 | 34.95 | 4.9 | 24 |  | water composition | *Koizumi et al., 1985* |
| 134.59 | 34.94 | 3.9 | 9 |  | water composition | *Koizumi et al., 1985* |
| 134.56 | 34.92 | 3.5 | 7 |  | water composition | *Koizumi et al., 1985* |
| 133.73 | 35.43 | 6.2 | 88 |  | water composition | *Koizumi et al., 1985* |
| 120.60 | 21.90 | 7.2 | 22 | 120 | water composition | *Liu et al., 2010* |
| 13.38 | 42.35 | 6.3 |  | 30 | water composition | *Plastino et al., 2010* |
| 2.54 | 42.80 | 5.2 | 29 | 8 | water composition | *Poitrasson et al., 1999* |
| 73.83 | 17.12 | 4.7 | 24 | 8 | water composition | *Reddy and Nagabhushanam, 2011* |
| 73.82 | 17.11 | 5.1 | 24 | 2 | water composition | *Reddy and Nagabhushanam, 2011* |
| 160.32 | 52.59 | 6.5 | 48 |  | water composition | *Ryabinin et al., 2012* |
| -18.75 | 66.31 | 5.6 | 76 | 150 | water composition | *Skelton et al., 2014* |
| 127.00 | 48.00 | 5 |  |  | water composition | *Sorokina et al., 2011* |
| 2.25 | 42.50 | 5.2 | 29 | 5 | water composition | *Toutain et al., 1997* |
| 135.18 | 34.69 | 7.2 | 20 | 4 | water composition | *Tsunogai and Wakita, 1995, Tsunogai and Wakita, 1996* |
| 102.87 | 26.38 | 5.4 | 200 | 100 | water composition | *Wang et al., 2018* |

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