

Table 5.

**Kīlauea East Rift Zone SO<sub>2</sub> emission rates, vehicle-based.**

Note: The uncertainty in the radiative transfer of light through the plume may result in minimum constraint emission rates, particularly for 2008. Simulated Radiative Transfer DOAS (SRT-DOAS), simulates realistic light paths in and around the volcanic plume containing variable amounts of SO<sub>2</sub> and aerosols. These data are presented without SRT-DOAS adjustment. Date and Time are in Hawaiian Standard Time (HST).

| Date/Time HST | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|---------------|-----------------------|----------|----------|-------------|---|--------------|
| 1/4/07 10:30  | 1660                  | 510      | 8.7      | 36          | 6 | b            |
| 1/12/07 13:25 | 2310                  | 1300     | 6        | 42          | 6 | b            |
| 1/17/07 14:30 | 2890                  | 330      | 6        | 60          | 2 | c            |
| 1/19/07 10:15 | 2090                  | 850      | 5.6      | 48          | 4 | c            |
| 2/11/07 14:35 | 2120                  | 470      | 9.6      | 20          | 6 | c            |
| 2/12/07 14:05 | 1850                  | 970      | 6.3      | 74          | 4 | c            |
| 2/16/07 11:00 | 1860                  | 540      | 5.4      | 32          | 5 | b            |
| 2/20/07 13:50 | 1670                  | 370      | 8.3      | 42          | 6 | a            |
| 2/26/07 14:00 | 2050                  | 320      | 8.7      | 20          | 3 | c            |
| 3/21/07 14:00 | 1680                  | 420      | 6.4      | 53          | 5 | b            |
| 4/15/07 13:00 | 2470                  | 1660     | 7        | 72          | 8 | c            |
| 4/17/07 0:00  | 2070                  | 700      | 7.9      | 57          | 6 | b            |
| 4/23/07 10:25 | 1690                  | 280      | 8.8      | 36          | 5 | c            |
| 4/25/07 16:20 | 2080                  | 620      | 7.2      | 40          | 4 | b            |
| 4/27/07 13:40 | 1380                  | 430      | 7.2      | 50          | 6 | b            |
| 4/30/07 10:15 | 1330                  | 370      | 4.8      | 42          | 3 |              |
| 5/1/07 13:30  | 1430                  | 580      | 6        | 56          | 8 | b            |
| 5/7/07 14:30  | 1520                  | 540      | 8.8      | 30          | 8 | a            |
| 5/10/07 13:30 | 1520                  | 330      | 8        | 40          | 6 | b            |
| 5/22/07 13:30 | 1380                  | 470      | 6.9      | 77          | 8 | c            |
| 5/24/07 13:35 | 1530                  | 560      | 7.5      | 47          | 5 | b            |
| 5/30/07 13:50 | 920                   | 150      | 6.4      | 69          | 5 | c            |
| 5/31/07 13:00 | 1240                  | 310      | 7.6      | 82          | 6 | b            |
| 6/5/07 13:00  | 1520                  | 520      | 6.5      | 45          | 7 | b            |
| 6/8/07 10:00  | 1820                  | 1050     | 4.7      | 80          | 8 | b            |
| 6/8/07 14:00  | 2080                  | 410      | 6.4      | 79          | 5 | a            |
| 6/11/07 14:00 | 3130                  | 1610     | 5.9      | 83          | 7 | a            |
| 6/12/07 14:00 | 1240                  | 460      | 6.9      | 50          | 8 | b            |

Abbreviations: t/d=metric tonne (1000 kg)/day, SD=standard deviation, WS=wind speed, WD=wind direction east of true north, N=number of traverses, BDL=below detection limit

| Date/Time HST | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|---------------|-----------------------|----------|----------|-------------|---|--------------|
| 6/14/07 10:00 | 3090                  | 2960     | 4.6      | 48          | 6 | b            |
| 6/17/07 11:15 | 2380                  | 330      | 5.6      | 51          | 2 | b            |
| 6/17/07 14:17 | 1380                  | 430      | 5.7      | 69          | 8 | c            |
| 6/18/07 14:50 | 390                   | 50       | 7.7      | 37          | 8 | b            |
| 6/19/07 10:25 | 660                   | 40       | 5.8      | 34          | 2 | b            |
| 6/20/07 10:30 | 680                   | 70       | 6.5      | 38          | 3 | a            |
| 6/20/07 15:00 | 700                   | 140      | 6.7      | 37          | 4 | a            |
| 6/21/07 9:54  | 710                   | 280      | 7.4      | 44          | 5 | a            |
| 6/21/07 13:25 | 720                   | 200      | 6.7      | 40          | 8 | a            |
| 6/22/07 9:42  | 770                   | 210      | 8.3      | 37          | 7 | a            |
| 6/23/07 10:33 | 680                   | 100      | 8.8      | 27          | 6 | a            |
| 6/24/07 10:40 | 370                   | 120      | 8.9      | 25          | 6 | b            |
| 6/25/07 14:00 | 250                   | 110      | 5.9      | 54          | 8 | a            |
| 6/26/07 14:00 | 270                   | 80       | 6.3      | 88          | 7 | c            |
| 6/27/07 14:00 | 200                   | 60       | 9.9      | 38          | 8 |              |
| 6/28/07 13:30 | 230                   | 50       | 9.6      | 23          | 8 | a            |
| 6/29/07 14:00 | 180                   | 50       | 10.4     | 16          | 7 | b            |
| 7/2/07 14:30  | 140                   | 40       | 6.3      | 44          | 6 | a            |
| 7/3/07 11:30  | 110                   | 10       | 6.4      | 39          | 6 | a            |
| 7/5/07 15:00  | 130                   | 30       | 10       | 15          | 4 | b            |
| 7/6/07 15:00  | 60                    | 30       | 10.6     | 20          | 4 | b            |
| 7/9/07 14:45  | 100                   | 50       | 9.2      | 31          | 4 | a            |
| 7/12/07 15:00 | 50                    | 40       | 10       | 10          | 2 | c            |
| 7/14/07 15:40 | 50                    | 40       | 8        | 20          | 2 | c            |
| 7/19/07 15:00 | 170                   | 70       | 10.3     | 5           | 4 | b            |
| 7/20/07 10:00 | 140                   | 50       | 11.1     | 9           | 8 | b            |
| 7/21/07 15:45 | 1760                  | 420      | 5.1      | 53          | 2 | b            |
| 7/22/07 10:00 | 1350                  | 260      | 4.4      | 44          | 4 | b            |
| 7/24/07 10:00 | 780                   | 260      | 6.1      | 34          | 5 |              |
| 7/24/07 13:30 | 910                   | 170      | 7.7      | 30          | 6 |              |
| 7/26/07 14:00 | 840                   | 130      | 6.8      | 64          | 5 | c            |
| 7/29/07 15:30 | 1020                  | 40       | 5.8      | 54          | 4 | c            |
| 8/2/07 13:15  | 1340                  | 250      | 8.5      | 16          | 5 | c            |
| 8/4/07 15:00  | 1100                  | 230      | 6.4      | 73          | 2 | b            |

Abbreviations: t/d=metric tonne (1000 kg)/day, SD=standard deviation, WS=wind speed, WD=wind direction east of true north, N=number of traverses, BDL=below detection limit

| Date/Time HST  | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|----------------|-----------------------|----------|----------|-------------|---|--------------|
| 8/6/07 13:30   | 930                   | 320      | 7.8      | 34          | 4 |              |
| 8/7/07 13:30   | 1100                  | 120      | 7.4      | 33          | 6 | c            |
| 8/13/07 10:30  | 1290                  | 210      | 7.9      | 31          | 6 | b            |
| 8/13/07 13:30  | 1460                  | 200      | 11.8     | 25          | 6 | c            |
| 8/16/07 14:00  | 2350                  | 470      | 5.2      | 41          | 4 | c            |
| 8/17/07 13:30  | 2720                  | 750      | 8.9      | 14          | 5 | c            |
| 8/20/07 13:20  | 2670                  | 730      | 6.9      | 33          | 7 | c            |
| 8/21/07 14:40  | 3330                  | 630      | 6.3      | 35          | 5 | c            |
| 8/22/07 13:30  | 2160                  | 550      | 6.3      | 68          | 6 | c            |
| 8/27/07 10:00  | 3350                  | 470      | 4.5      | 20          | 2 | c            |
| 8/27/07 14:00  | 1920                  | 140      | 5.5      | 80          | 2 | c            |
| 8/30/07 13:00  | 2240                  | 400      | 6.2      | 71          | 6 | b            |
| 9/2/07 15:00   | 3680                  | 250      | 7.4      | 24          | 4 | c            |
| 9/6/07 13:30   | 2100                  | 240      | 5.8      | 73          | 2 | c            |
| 9/7/07 14:00   | 2260                  | 470      | 5.2      | 48          | 4 | c            |
| 9/10/07 13:00  | 2140                  | 400      | 6.7      | 28          | 7 | c            |
| 9/11/07 13:30  | 3130                  | 640      | 7.4      | 29          | 4 | b            |
| 9/12/07 13:30  | 2510                  | 850      | 6        | 50          | 6 | c            |
| 9/17/07 13:30  | 2920                  | 330      | 6.2      | 52          | 6 | b            |
| 9/19/07 13:30  | 3350                  | 880      | 6.8      | 52          | 6 | b            |
| 9/20/07 14:40  | 3750                  | 840      | 5.9      | 36          | 5 | c            |
| 9/21/07 14:00  | 2550                  | 490      | 8.3      | 22          | 4 | a            |
| 9/24/07 14:20  | 1900                  | 170      | 5.5      | 66          | 4 | c            |
| 9/27/07 13:30  | 2170                  | 330      | 5.9      | 44          | 4 | b            |
| 9/28/07 14:00  | 3440                  | 590      | 7.6      | 15          | 6 | c            |
| 10/1/07 13:30  | 3120                  | 650      | 5.1      | 53          | 3 | c            |
| 10/2/07 13:30  | 3760                  | 690      | 5.7      | 60          | 4 | c            |
| 10/5/07 14:30  | 3060                  | 840      | 8.2      | 26          | 2 | c            |
| 10/9/07 14:00  | 1600                  | 140      | 7.1      | 40          | 2 |              |
| 10/11/07 14:00 | 2380                  | 430      | 9.7      | 12          | 5 |              |
| 10/15/07 13:30 | 1940                  | 500      | 7.1      | 33          | 6 | a            |
| 10/16/07 13:40 | 2330                  | 510      | 7        | 21          | 4 | c            |
| 10/19/07 14:00 | 1770                  | 390      | 6.9      | 34          | 6 |              |
| 10/23/07 13:45 | 2400                  | 1120     | 5.4      | 54          | 5 | c            |

Abbreviations: t/d=metric tonne (1000 kg)/day, SD=standard deviation, WS=wind speed, WD=wind direction east of true north, N=number of traverses, BDL=below detection limit

| Date/Time HST  | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|----------------|-----------------------|----------|----------|-------------|---|--------------|
| 10/25/07 14:00 | 2410                  | 540      | 10.9     | 11          | 3 | c            |
| 11/8/07 13:45  | 1560                  | 240      | 8.1      | 41          | 6 | c            |
| 11/25/07 14:00 | 2040                  | 560      | 6.3      | 86          | 4 | c            |
| 12/10/07 14:00 | 1480                  | 560      | 6.1      | 37          | 4 | c            |
| 12/17/07 0:00  | 1900                  | 400      | 9.8      | 14          | 4 | c            |
| 12/18/07 15:00 | 1730                  | 400      | 7        | 41          | 6 | b            |
| 12/28/07 14:30 | 1850                  | 0        | 4        | 58          | 1 | c            |
| 1/2/08 14:15   | 1630                  | 480      | 7.3      | 15          | 6 | b            |
| 1/11/08 14:00  | 1830                  | 280      | 5.8      | 87          | 4 | c            |
| 1/15/08 15:00  | 1910                  | 590      | 6.9      | 2           | 6 | c            |
| 1/20/08 15:40  | 2250                  | 720      | 9.2      | 30          | 6 | ?            |
| 1/25/08 14:10  | 1810                  | 390      | 7.5      | 20          | 6 | ?            |
| 2/1/08 14:30   | 2440                  | 1250     | 5        | 70          | 2 | c            |
| 2/13/08 15:00  | 2840                  | 620      | 6.7      | 23          | 4 | c            |
| 2/28/08 9:50   | 3180                  | 470      | 5        | 37          | 5 | c            |
| 2/29/08 0:00   | 2610                  | 810      | 5.5      | 50          | 7 |              |
| 3/3/08 15:05   | 2090                  | 450      | 6        | 30          | 4 |              |
| 3/13/08 0:00   | 3310                  | 1700     | 6        | 44          | 6 |              |
| 3/15/08 0:00   | 2120                  | 310      | 4        | 40          | 5 |              |
| 3/19/08 15:00  | 2050                  | 1140     | 7        | 43          | 4 |              |
| 3/20/08 14:00  | 2860                  | 990      | 5        | 60          | 6 | c            |
| 3/23/08 15:00  | 2160                  | 630      | 7        | 40          | 4 | b            |
| 3/27/08 15:30  | 2530                  | 560      | 5.5      | 37          | 3 | c            |
| 3/29/08 16:30  | 1810                  | 450      | 8.5      | 32          | 5 | c            |
| 4/1/08 15:30   | 1530                  | 580      | 10       | --          | 4 |              |
| 4/5/08 13:30   | 1350                  | 120      | 5.5      | 25          | 5 | c            |
| 4/10/08 13:00  | 2370                  | --       | 3        | 92          | 1 | c            |
| 4/11/08 2:30   | 2750                  | 890      | 7.1      | 45          | 7 |              |
| 4/12/08 15:30  | 2270                  | 480      | 7.4      | 53          | 5 |              |
| 4/13/08 14:00  | 1760                  | 290      | 11.4     | 35          | 6 |              |
| 4/27/08 10:30  | 2240                  | 0        | 6        | 40          | 1 | c            |
| 4/29/08 12:30  | 1450                  | 430      | 9        | 11          | 3 | c            |
| 5/1/08 10:30   | 1330                  | 340      | 7.5      | 15          | 4 | c            |
| 5/2/08 12:00   | 2860                  | 1430     | 8        | 37          | 2 | c            |

Abbreviations: t/d=metric tonne (1000 kg)/day, SD=standard deviation, WS=wind speed, WD=wind direction east of true north, N=number of traverses, BDL=below detection limit

| Date/Time HST | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|---------------|-----------------------|----------|----------|-------------|---|--------------|
| 5/7/08 13:55  | 1620                  | 520      | 6.5      | 40          | 4 | c            |
| 5/9/08 14:15  | 1350                  | 320      | 7        | 38          | 4 | c            |
| 5/11/08 15:55 | 2860                  | 560      | 7.5      | 41          | 2 | c            |
| 5/19/08 13:50 | 2060                  | 740      | 7.5      | 25          | 4 | c            |
| 5/25/08 14:00 | 1920                  | 120      | 5        | 28          | 3 | c            |
| 5/27/08 10:20 | 4680                  | 700      | 6.4      | 40          | 4 | c            |
| 5/29/08 9:30  | 2740                  | 650      | 5.8      | 35          | 6 | c            |
| 5/29/08 14:25 | 3560                  | 580      | 6.5      | 35          | 4 | c            |
| 5/30/08 10:45 | 2980                  | 690      | 5.5      | 26          | 6 | c            |
| 5/30/08 13:30 | 3330                  | 640      | 6.5      | 35          | 4 | c            |
| 6/2/08 13:55  | 1660                  | 520      | 7.4      | 33          | 6 | c            |
| 6/3/08 13:25  | 3080                  | 700      | 6.5      | 60          | 4 | c            |
| 6/5/08 13:50  | 1890                  | 250      | 7.1      | 45          | 4 | c            |
| 6/6/08 10:40  | 2950                  | 260      | 4.7      | 50          | 2 | c            |
| 6/9/08 14:00  | 1530                  | 260      | 7.7      | 25          | 4 | c            |
| 6/13/08 13:45 | 1730                  | 480      | 6.2      | 30          | 4 | c            |
| 6/19/08 14:20 | 1490                  | 310      | 9.7      | 35          | 4 | b            |
| 6/23/08 15:00 | 1460                  | 380      | 9        | 25          | 4 | c            |
| 6/24/08 13:45 | 1310                  | 550      | 6.7      | 25          | 4 | c            |
| 7/4/08 10:00  | 3060                  | 180      | 4        | 25          | 2 | c            |
| 7/6/08 10:30  | 4810                  | 1070     | 6        | 40          | 4 | c            |
| 7/17/08 16:00 | 6270                  | 1250     | 7.1      | 32          | 6 | c            |
| 7/18/08 10:28 | 7100                  | 1290     | 10.1     | 8           | 4 | c            |
| 7/22/08 14:01 | 4710                  | 1290     | 8.7      | 31          | 6 | c            |
| 7/25/08 14:00 | 5970                  | 800      | 9.2      | 15          | 4 | c            |
| 7/31/08 14:00 | 1860                  | 510      | 7.2      | 36          | 4 | c            |
| 8/4/08 13:30  | 2670                  | 800      | 8.8      | 23          | 4 | c            |
| 8/7/08 14:00  | 1650                  | 330      | 8.6      | 34          | 6 | b            |
| 8/8/08 13:35  | 2410                  | 670      | 7.5      | 28          | 6 | c            |
| 8/18/08 15:00 | 3100                  | 640      | 6.6      | 38          | 4 | c            |
| 8/20/08 11:20 | 3160                  | 660      | 6.4      | 38          | 2 | b            |
| 8/22/08 15:35 | 1790                  | 640      | 6.9      | 30          | 3 | c            |
| 9/4/08 15:45  | 2600                  | 540      | 5.9      | 36          | 4 | c            |
| 9/8/08 14:40  | 1700                  | 290      | 7.5      | 31          | 6 | c            |

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| Date/Time HST  | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N  | Quality code |
|----------------|-----------------------|----------|----------|-------------|----|--------------|
| 9/21/08 16:25  | 1710                  | 710      | 6.6      | 21          | 4  | c            |
| 10/3/08 15:00  | 1210                  | 130      | 8        | 28          | 4  | a            |
| 10/5/08 11:45  | 1360                  | 650      | 6        | 34          | 6  |              |
| 10/9/08 15:20  | 900                   | 430      | 5.7      | 34          | 4  | c            |
| 10/10/08 15:30 | 1230                  | 240      | 7.4      | 36          | 6  |              |
| 10/16/08 15:00 | 970                   | 210      | 7.2      | 28          | 10 | c            |
| 10/17/08 15:05 | 1220                  | 180      | 7.7      | 29          | 8  | c            |
| 10/23/08 14:30 | 1090                  | 230      | 7        | 35          | 8  | c            |
| 10/24/08 10:55 | 1080                  | 490      | 6.3      | 27          | 6  | c            |
| 10/24/08 15:30 | 1130                  | 450      | 5.3      | 39          | 6  | c            |
| 10/29/08 16:15 | 1300                  | 90       | 7.9      | 11          | 2  | c            |
| 10/30/08 15:30 | 1170                  | 130      | 4.1      | 11          | 4  | c            |
| 10/31/08 15:07 | 1310                  | 100      | 8.5      | 358         | 2  | c            |
| 11/3/08 15:00  | 1730                  | 460      | 4.7      | 74          | 6  | c            |
| 11/6/08 15:30  | 1560                  | 330      | 8.8      | 7           | 5  | c            |
| 11/7/08 14:15  | 2040                  | 660      | 5.1      | 63          | 6  | c            |
| 11/18/08 15:55 | 910                   | 120      | 11.4     | 2           | 4  | c            |
| 11/24/08 13:45 | 1610                  | 380      | 9.7      | 29          | 8  | c            |
| 11/25/08 14:30 | 1280                  | 190      | 6        | 53          | 6  | c            |
| 12/5/08 14:15  | 1690                  | 490      | 9.3      | 3           | 8  | c            |
| 12/9/08 15:00  | 1480                  | 270      | 1        | 146         | 2  | c            |
| 12/22/08 15:45 | 1370                  | 290      | 6.8      | 40          | 6  | b            |
| 12/23/08 14:51 | 1810                  | 300      | 8.2      | 17          | 6  | b            |
| 12/24/08 11:15 | 1020                  | 290      | 8.7      | 12          | 3  | c            |
| 1/7/09 15:15   | 1780                  | 280      | 8.5      | 32          | 6  | b            |
| 1/21/09 14:40  | 1120                  | 300      | 7.1      | 12          | 2  |              |
| 1/22/09 14:50  | 780                   | 190      | 7.9      | 20          | 4  |              |
| 1/23/09 14:12  | 1270                  | 540      | 6.1      | 40          | 6  |              |
| 1/30/09 14:42  | 1130                  | 370      | 6.3      | 35          | 6  |              |
| 2/2/09 13:39   | 1440                  | 290      | 3.7      | 7           | 4  |              |
| 2/3/09 13:47   | 950                   | 420      | 9        | 36          | 6  |              |
| 2/5/09 13:39   | 990                   | 300      | 5.3      | 46          | 6  |              |
| 2/13/09 13:26  | 930                   | 250      | 9.4      | 35          | 6  |              |
| 2/17/09 14:17  | 640                   | 170      | 8.7      | 18          | 4  |              |

Abbreviations: t/d=metric tonne (1000 kg)/day, SD=standard deviation, WS=wind speed, WD=wind direction east of true north, N=number of traverses, BDL=below detection limit

| Date/Time HST | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|---------------|-----------------------|----------|----------|-------------|---|--------------|
| 2/19/09 13:31 | 1130                  | 270      | 8        | 8           | 6 |              |
| 2/20/09 14:48 | 1090                  | 240      | 6.5      | 9           | 4 |              |
| 2/25/09 15:14 | 640                   | 10       | 8.9      | 12          | 2 |              |
| 2/27/09 14:23 | 1070                  | 140      | 13       | 4           | 6 |              |
| 3/4/09 13:36  | 1010                  | 730      | 7.4      | 37          | 8 |              |
| 3/10/09 14:26 | 1900                  | 690      | 9.5      | -3          | 3 |              |
| 3/19/09 12:14 | 960                   | 300      | 6.4      | 36          | 5 |              |
| 3/23/09 14:15 | 1180                  | 550      | 10.5     | 41          | 6 |              |
| 3/26/09 13:54 | 1200                  | 790      | 7.6      | 54          | 6 |              |
| 3/27/09 14:33 | 1040                  | 500      | 6.6      | 41          | 4 |              |
| 4/1/09 13:40  | 1600                  | 800      | 6.7      | 56          | 6 |              |
| 4/2/09 13:27  | 990                   | 260      | 7        | 33          | 6 |              |
| 4/6/09 14:30  | 1190                  | 290      | 7.5      | 25          | 5 |              |
| 4/7/09 14:24  | 1110                  | 230      | 8        | 26          | 6 |              |
| 4/13/09 14:14 | 1320                  | 340      | 9.8      | 46          | 5 |              |
| 4/14/09 14:44 | 1930                  | 550      | 7.8      | 42          | 6 |              |
| 5/8/09 10:00  | 1400                  | 220      | 6.4      | 28          | 4 |              |
| 6/5/09 10:43  | 800                   | 330      | 6.8      | 25          | 4 |              |
| 6/11/09 0:00  | 1060                  | 270      | 7.2      | 46          | 7 |              |
| 6/16/09 13:38 | 2020                  | 670      | 6.9      | 52          | 7 |              |
| 6/17/09 14:43 | 1480                  | 510      | 9.8      | 30          | 6 |              |
| 6/22/09 14:45 | 1620                  | 530      | 10.9     | 23          | 4 |              |
| 6/23/09 13:30 | 1280                  | 270      | 10.2     | 29          | 6 |              |
| 6/24/09 13:52 | 1360                  | 310      | 9.7      | 40          | 8 |              |
| 6/26/09 13:27 | 1350                  | 480      | 7.4      | 41          | 4 |              |
| 7/7/09 14:02  | 1220                  | 80       | 7.5      | 37          | 6 |              |
| 7/10/09 13:41 | 1770                  | 560      | 8.2      | 34          | 6 |              |
| 7/14/09 13:52 | 1710                  | 430      | 10.4     | 23          | 4 |              |
| 8/4/09 13:34  | 1030                  | 390      | 7.5      | 27          | 2 |              |
| 8/7/09 14:50  | 1040                  | 280      | 10       | 30          | 6 |              |
| 8/10/09 14:32 | 780                   | --       | 4        | 3           | 1 |              |
| 8/20/09 11:00 | 840                   | 330      | 8        | 34          | 6 |              |
| 8/27/09 11:08 | 840                   | 140      | 7        | 24          | 5 |              |
| 9/1/09 14:41  | 890                   | 180      | 8.5      | 29          | 6 |              |

Abbreviations: t/d=metric tonne (1000 kg)/day, SD=standard deviation, WS=wind speed, WD=wind direction east of true north, N=number of traverses, BDL=below detection limit

| Date/Time HST  | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|----------------|-----------------------|----------|----------|-------------|---|--------------|
| 9/2/09 14:50   | 790                   | 170      | 10       | 22          | 6 |              |
| 9/16/09 14:17  | 700                   | 220      | 7        | 22          | 6 |              |
| 9/18/09 14:12  | 560                   | 160      | 6.7      | 39          | 5 |              |
| 9/23/09 15:03  | 1060                  | 260      | 5.5      | 29          | 6 |              |
| 9/24/09 13:49  | 720                   | 110      | 7.8      | 20          | 4 |              |
| 9/28/09 14:50  | 870                   | 290      | 7.9      | 32          | 2 |              |
| 9/29/09 14:05  | 1210                  | --       | 11.9     | 17          | 1 |              |
| 10/1/09 14:00  | 360                   | 190      | 6.7      | 30          | 6 |              |
| 10/2/09 14:30  | 710                   | 140      | 10.9     | 14          | 4 |              |
| 10/16/09 14:18 | 1260                  | 150      | 9.1      | 21          | 4 |              |
| 10/18/09 13:32 | 760                   | 320      | 8.5      | 32          | 4 |              |
| 11/3/09 13:41  | 1310                  | 290      | 8        | 20          | 6 |              |
| 11/4/09 14:24  | 1370                  | 180      | 12       | 9           | 4 |              |
| 11/6/09 14:41  | 1210                  | 640      | 4.2      | 33          | 4 |              |
| 11/16/09 14:44 | 1740                  | 1040     | 4.9      | 46          | 3 |              |
| 11/17/09 14:10 | 810                   | 160      | 8.7      | 37          | 6 |              |
| 11/19/09 11:45 | 890                   | 150      | 9.9      | 22          | 7 |              |
| 11/20/09 12:40 | 1320                  | 420      | 11.1     | 19          | 6 |              |
| 11/24/09 11:46 | 1290                  | 270      | 8.1      | 24          | 5 |              |
| 11/30/09 11:30 | 1150                  | 220      | 10.9     | 6           | 4 |              |
| 12/1/09 11:08  | 720                   | 160      | 5.9      | 22          | 6 |              |
| 12/10/09 10:59 | 1180                  | 300      | 5.1      | 27          | 4 |              |
| 12/18/09 14:30 | 900                   | 460      | 5        | 356         | 2 |              |
| 1/21/10 12:11  | 1080                  | 220      | 7.9      | 17          | 8 |              |
| 2/8/10 13:41   | 760                   | 130      | 7.4      | 31          | 8 |              |
| 2/9/10 15:10   | 1430                  | 870      | 6.2      | 68          | 4 |              |
| 2/10/10 14:14  | 1520                  | 300      | 8.4      | 14          | 6 |              |
| 2/11/10 13:43  | 1850                  | 800      | 7.9      | 39          | 8 |              |
| 3/3/10 11:36   | 740                   | 300      | 8.9      | 29          | 7 |              |
| 3/4/10 10:48   | 440                   | 90       | 6.4      | 12          | 6 |              |
| 3/9/10 4:34    | 650                   | 220      | 11       | 18          | 7 |              |
| 3/12/10 11:08  | 360                   | 80       | 8.9      | 8           | 4 |              |
| 3/23/10 14:46  | 410                   | 110      | 6.8      | 30          | 4 |              |
| 3/24/10 15:13  | 1050                  | 170      | 8.9      | 26          | 5 |              |

Abbreviations: t/d=metric tonne (1000 kg)/day, SD=standard deviation, WS=wind speed, WD=wind direction east of true north, N=number of traverses, BDL=below detection limit

| Date/Time HST  | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|----------------|-----------------------|----------|----------|-------------|---|--------------|
| 3/25/10 14:46  | 400                   | 100      | 8.8      | 32          | 4 |              |
| 3/29/10 12:06  | 280                   | 70       | 8.8      | 13          | 6 |              |
| 3/31/10 11:33  | 380                   | 70       | 13.3     | 18          | 7 |              |
| 4/1/10 14:35   | 360                   | 160      | 9.1      | 44          | 4 |              |
| 4/9/10 14:31   | 470                   | 80       | 6.4      | 32          | 6 |              |
| 4/19/10 15:28  | 600                   | 90       | 11.2     | 10          | 5 |              |
| 4/21/10 14:03  | 560                   | 390      | 6.5      | 38          | 6 |              |
| 4/23/10 15:18  | 520                   | 110      | 6.8      | 33          | 4 |              |
| 5/6/10 15:49   | 340                   | 130      | 7.7      | 25          | 4 | c            |
| 5/7/10 13:51   | 530                   | 260      | 6.7      | 45          | 6 | c            |
| 5/17/10 16:26  | 390                   | 0        | 6.8      | 22          | 1 | c            |
| 5/24/10 14:24  | 350                   | 80       | 8        | 37          | 4 | c            |
| 6/4/10 15:37   | 510                   | 20       | 5.9      | 21          | 2 | c            |
| 6/21/10 15:43  | 350                   | 60       | 6.9      | 63          | 4 | c            |
| 6/22/10 15:21  | 730                   | 110      | 8.5      | 40          | 3 | b            |
| 6/23/10 14:05  | 340                   | 90       | 9.1      | 29          | 6 | b            |
| 6/24/10 14:55  | 460                   | 20       | 11.2     | 19          | 4 | b            |
| 7/1/10 13:53   | 450                   | 50       | 14       | 22          | 2 | b            |
| 7/2/10 15:02   | 360                   | 130      | 7.3      | 41          | 4 | b            |
| 7/9/10 14:57   | 870                   | 110      | 11       | 22          | 3 | c            |
| 7/16/10 14:39  | 430                   | 90       | 7.3      | 32          | 6 | a            |
| 7/22/10 14:39  | 630                   | 50       | 7.9      | 26          | 2 | b            |
| 8/2/10 14:28   | 570                   | 80       | 7.5      | 33          | 6 | a            |
| 8/3/10 15:15   | 390                   | 40       | 8.9      | 29          | 6 | a            |
| 8/9/10 14:36   | 390                   | 90       | 7.9      | 30          | 6 | a            |
| 8/11/10 14:20  | 400                   | 90       | 7.4      | 37          | 8 | a            |
| 8/23/10 15:43  | 460                   | 60       | 7.8      | 24          | 6 |              |
| 8/26/10 14:25  | 500                   | 70       | 6.2      | 40          | 6 |              |
| 9/2/10 15:06   | 430                   | 90       | 6.1      | 30          | 5 |              |
| 9/14/10 14:56  | 320                   | 40       | 8.2      | 27          | 3 |              |
| 9/16/10 13:44  | 200                   | 60       | 8.7      | 32          | 3 |              |
| 9/21/10 14:10  | 280                   | 30       | 6.2      | 35          | 5 | a            |
| 10/4/10 14:48  | 370                   | 110      | 6        | 49          | 6 | b            |
| 10/12/10 14:42 | 340                   | 40       | 6.4      | 46          | 5 | b            |

Abbreviations: t/d=metric tonne (1000 kg)/day, SD=standard deviation, WS=wind speed, WD=wind direction east of true north, N=number of traverses, BDL=below detection limit

| Date/Time HST                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SO <sub>2</sub> (t/d) | SD (t/d) | WS (m/s) | WD (degree) | N | Quality code |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------|----------|-------------|---|--------------|
| 10/14/10 15:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 170                   | 0        | 5.6      | 36          | 1 | c            |
| 10/15/10 13:54                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 200                   | 0        | 6.8      | 34          | 1 | c            |
| 10/26/10 14:31                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 240                   | 30       | 8.5      | 34          | 6 | b            |
| 10/27/10 14:17                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 280                   | 90       | 7.8      | 37          | 6 | b            |
| 10/29/10 14:31                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 300                   | 80       | 6.8      | 22          | 4 | c            |
| 11/4/10 14:27                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 390                   | 180      | 10.9     | 27          | 4 | c            |
| 11/8/10 14:07                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 310                   | 80       | 6.2      | 32          | 6 | b            |
| 11/10/10 13:45                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 320                   | 60       | 6.1      | 40          | 4 | b            |
| 11/24/10 13:44                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 250                   | 20       | 5.3      | 48          | 3 | b            |
| 11/26/10 14:05                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 180                   | 30       | 9.6      | 31          | 4 | b            |
| 12/1/10 14:06                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 310                   | 5        | 9.3      | 20          | 2 | b            |
| Date/Time HST indicates date/time at the beginning of measurement session.                                                                                                                                                                                                                                                                                                                                                                                                              |                       |          |          |             |   |              |
| <b>Data Quality Codes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |          |          |             |   |              |
| Data quality codes were instituted for the ERZ traverse data as the 15 km between the vent and measurement site allowed for variable plume structure and measurement quality. Blank cells in this column indicate that the quality code was not available.                                                                                                                                                                                                                              |                       |          |          |             |   |              |
| A - BEST QUALITY DATA -usually with strong, steady, well constrained wind conditions, and a compact, consistent plume shape (15.7% of data). Nearly all spectra have sufficient radiance for good spectral fitting and accurate column amount.                                                                                                                                                                                                                                          |                       |          |          |             |   |              |
| B - GOOD QUALITY DATA - usually with moderately consistent plume shape and location of plume on road. Collected under moderately strong, uniform winds, with good constraint on wind speed and direction. For summit data, some spectra in core of plume may have poor column amount retrievals due to low radiance.                                                                                                                                                                    |                       |          |          |             |   |              |
| C - ACCEPTABLE DATA - may have variable plume location and shape. Wind speed and direction may be variable or poorly constrained. Some runs may measure a partial plume, and result in a minimum emission rate. For summit data, some spectra in core of plume have poor column amount retrievals due to low radiance. Measurements made under conditions of significant meteoric cloud (>50%), with suspected wind shear, or instrument inconsistencies are included in this category. |                       |          |          |             |   |              |

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