

Table 1. Dry, wet, and total deposition of several N and S species within Bandelier National Monument, NM in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 13.5 | 0.00 | 13.5 | 0.5% |
| NO ₂ | 128.0 | 0.00 | 128.0 | 4.8% |
| NO ₃ | 0.9 | 2.1 | 3.0 | 0.1% |
| N ₂ O ₅ | 14.5 | 2.9 | 17.4 | 0.6% |
| HNO ₃ | 912.3 | 347.0 | 1259.3 | 46.8% |
| HNO ₂ | 1.0 | 0.00 | 1.0 | 0.04% |
| Peroxyacetyl Nitrate (PAN) | 41.9 | 0.01 | 41.9 | 1.6% |
| PANx (MPAN, PPN, OPAN) ^c | 16.9 | 0.00 | 16.9 | 0.6% |
| Organic Nitrate Groups (NTR) | 35.6 | 38.5 | 74.1 | 2.8% |
| Peroxynitric Acid (PNA) | 0.6 | 0.6 | 1.2 | 0.05% |
| NH ₃ | 303.8 | 24.8 | 328.6 | 12.2% |
| Particulate NO ₃ | 17.0 | 137.7 | 154.7 | 5.7% |
| Particulate NH ₄ | 54.6 | 599.3 | 653.9 | 24.3% |
| Total N Deposition | 1540.6 | 1153.0 | 2693.5 | 100.0% |
| SO ₂ | 156.1 | 1.0 | 157.1 | 11.5% |
| H ₂ SO ₄ | 0.8 | 0.0 | 0.9 | 0.1% |
| Particulate SO ₄ | 86.5 | 1118.2 | 1204.8 | 88.4% |
| Total S Deposition | 243.5 | 1119.2 | 1362.7 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 2. Dry, wet, and total deposition of several N and S species within Bosque del Apache, NM in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|--------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 12.8 | 0.00 | 12.8 | 0.3% |
| NO ₂ | 154.3 | 0.00 | 154.3 | 4.0% |
| NO ₃ | 0.9 | 2.0 | 2.9 | 0.1% |
| N ₂ O ₅ | 12.2 | 1.0 | 13.3 | 0.3% |
| HNO ₃ | 802.0 | 293.3 | 1095.3 | 28.4% |
| HNO ₂ | 1.2 | 0.00 | 1.2 | 0.03% |
| Peroxyacetyl Nitrate (PAN) | 39.8 | 0.01 | 39.8 | 1.0% |
| PANx (MPAN, PPN, OPAN) ^c | 16.3 | 0.00 | 16.3 | 0.4% |
| Organic Nitrate Groups (NTR) | 30.6 | 40.6 | 71.3 | 1.9% |
| Peroxynitric Acid (PNA) | 0.6 | 0.3 | 0.9 | 0.02% |
| NH ₃ | 1771.0 | 111.6 | 1882.6 | 48.9% |
| Particulate NO ₃ | 16.5 | 71.7 | 88.2 | 2.3% |
| Particulate NH ₄ | 59.4 | 412.3 | 471.7 | 12.2% |
| Total N Deposition | 2917.7 | 932.9 | 3850.6 | 100.0% |
| SO ₂ | 145.2 | 1.2 | 146.5 | 15.5% |
| H ₂ SO ₄ | 1.1 | 0.0 | 1.1 | 0.1% |
| Particulate SO ₄ | 78.7 | 716.4 | 795.1 | 84.3% |
| Total S Deposition | 225.0 | 717.6 | 942.7 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 3. Dry, wet, and total deposition of several N and S species within the Gila Wilderness Area, NM in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 3.2 | 0.00 | 3.2 | 0.2% |
| NO ₂ | 42.3 | 0.00 | 42.3 | 2.0% |
| NO ₃ | 0.5 | 0.7 | 1.2 | 0.1% |
| N ₂ O ₅ | 5.1 | 0.5 | 5.6 | 0.3% |
| HNO ₃ | 598.2 | 336.9 | 935.1 | 44.0% |
| HNO ₂ | 0.2 | 0.00 | 0.2 | 0.01% |
| Peroxyacetyl Nitrate (PAN) | 39.0 | 0.01 | 39.0 | 1.8% |
| PANx (MPAN, PPN, OPAN) ^c | 16.4 | 0.01 | 16.4 | 0.8% |
| Organic Nitrate Groups (NTR) | 30.5 | 67.0 | 97.5 | 4.6% |
| Peroxynitric Acid (PNA) | 0.7 | 0.6 | 1.3 | 0.06% |
| NH ₃ | 159.7 | 16.1 | 175.8 | 8.3% |
| Particulate NO ₃ | 19.3 | 120.5 | 139.8 | 6.6% |
| Particulate NH ₄ | 60.2 | 605.2 | 665.4 | 31.3% |
| Total N Deposition | 975.3 | 1147.6 | 2122.8 | 100.0% |
| SO ₂ | 156.1 | 1.0 | 157.1 | 11.5% |
| H ₂ SO ₄ | 0.8 | 0.0 | 0.9 | 0.1% |
| Particulate SO ₄ | 86.5 | 1118.2 | 1204.8 | 88.4% |
| Total S Deposition | 243.5 | 1119.2 | 1362.7 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 4. Dry, wet, and total deposition of several N and S species within Salt Creek Wilderness Area, NM in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|----------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 19.3 | 0.00 | 19.3 | 0.2% |
| NO ₂ | 219.0 | 0.00 | 219.0 | 1.9% |
| NO ₃ | 1.0 | 2.1 | 3.2 | 0.0% |
| N ₂ O ₅ | 7.0 | 1.7 | 8.7 | 0.1% |
| HNO ₃ | 685.2 | 224.1 | 909.3 | 7.9% |
| HNO ₂ | 1.2 | 0.00 | 1.2 | 0.01% |
| Peroxyacetyl Nitrate (PAN) | 49.0 | 0.01 | 49.0 | 0.4% |
| PANx (MPAN, PPN, OPAN) ^c | 22.1 | 0.00 | 22.1 | 0.2% |
| Organic Nitrate Groups (NTR) | 45.8 | 49.8 | 95.6 | 0.8% |
| Peroxynitric Acid (PNA) | 0.5 | 0.3 | 0.8 | 0.01% |
| NH ₃ | 9079.1 | 425.5 | 9504.6 | 83.0% |
| Particulate NO ₃ | 16.2 | 101.9 | 118.1 | 1.0% |
| Particulate NH ₄ | 67.2 | 438.8 | 506.0 | 4.4% |
| Total N Deposition | 10212.5 | 1244.3 | 11456.8 | 100.0% |
| SO ₂ | 223.5 | 2.7 | 226.2 | 22.4% |
| H ₂ SO ₄ | 1.1 | 0.0 | 1.1 | 0.1% |
| Particulate SO ₄ | 77.6 | 704.0 | 781.6 | 77.5% |
| Total S Deposition | 302.2 | 706.7 | 1008.9 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 5. Dry, wet, and total deposition of several N and S species within San Andres National Wildlife Refuge, NM in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|--------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 6.0 | 0.00 | 6.0 | 0.2% |
| NO ₂ | 110.9 | 0.00 | 110.9 | 3.9% |
| NO ₃ | 3.3 | 2.5 | 5.8 | 0.2% |
| N ₂ O ₅ | 18.2 | 1.3 | 19.5 | 0.7% |
| HNO ₃ | 780.5 | 294.1 | 1074.6 | 37.7% |
| HNO ₂ | 0.7 | 0.00 | 0.7 | 0.03% |
| Peroxyacetyl Nitrate (PAN) | 39.3 | 0.01 | 39.3 | 1.4% |
| PANx (MPAN, PPN, OPAN) ^c | 16.8 | 0.01 | 16.8 | 0.6% |
| Organic Nitrate Groups (NTR) | 33.9 | 44.1 | 78.0 | 2.7% |
| Peroxynitric Acid (PNA) | 0.5 | 0.4 | 0.8 | 0.03% |
| NH ₃ | 927.1 | 83.5 | 1010.7 | 35.4% |
| Particulate NO ₃ | 21.0 | 56.0 | 77.1 | 2.7% |
| Particulate NH ₄ | 69.5 | 343.9 | 413.4 | 14.5% |
| Total N Deposition | 2027.9 | 825.8 | 2853.7 | 100.0% |
| SO ₂ | 194.8 | 1.8 | 196.6 | 20.4% |
| H ₂ SO ₄ | 1.4 | 0.0 | 1.4 | 0.1% |
| Particulate SO ₄ | 92.7 | 674.5 | 767.1 | 79.5% |
| Total S Deposition | 288.9 | 676.3 | 965.2 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 6. Dry, wet, and total deposition of several N and S species within San Pedro Parks Wilderness Area in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 17.6 | 0.00 | 17.6 | 0.5% |
| NO ₂ | 179.6 | 0.00 | 179.6 | 5.3% |
| NO ₃ | 1.4 | 0.4 | 1.8 | 0.1% |
| N ₂ O ₅ | 53.9 | 0.9 | 54.8 | 1.6% |
| HNO ₃ | 1212.6 | 368.2 | 1580.9 | 46.7% |
| HNO ₂ | 0.9 | 0.00 | 0.9 | 0.03% |
| Peroxyacetyl Nitrate (PAN) | 51.0 | 0.01 | 51.0 | 1.5% |
| PANx (MPAN, PPN, OPAN) ^c | 20.3 | 0.00 | 20.3 | 0.6% |
| Organic Nitrate Groups (NTR) | 48.0 | 22.7 | 70.7 | 2.1% |
| Peroxynitric Acid (PNA) | 0.9 | 0.4 | 1.3 | 0.04% |
| NH ₃ | 373.6 | 17.3 | 390.8 | 11.5% |
| Particulate NO ₃ | 20.3 | 211.7 | 232.0 | 6.9% |
| Particulate NH ₄ | 59.9 | 723.9 | 783.8 | 23.2% |
| Total N Deposition | 2040.0 | 1345.6 | 3385.5 | 100.0% |
| SO ₂ | 188.1 | 0.3 | 188.4 | 12.4% |
| H ₂ SO ₄ | 1.2 | 0.0 | 1.2 | 0.1% |
| Particulate SO ₄ | 79.2 | 1253.3 | 1332.5 | 87.5% |
| Total S Deposition | 268.5 | 1253.6 | 1522.1 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 7. Dry, wet, and total deposition of several N and S species within White Mountain Wilderness Area, NM in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 5.8 | 0.00 | 5.8 | 0.2% |
| NO ₂ | 144.2 | 0.00 | 144.2 | 4.0% |
| NO ₃ | 2.1 | 0.8 | 2.9 | 0.1% |
| N ₂ O ₅ | 16.5 | 0.6 | 17.1 | 0.5% |
| HNO ₃ | 895.1 | 304.7 | 1199.8 | 33.5% |
| HNO ₂ | 0.7 | 0.00 | 0.7 | 0.02% |
| Peroxyacetyl Nitrate (PAN) | 56.4 | 0.01 | 56.4 | 1.6% |
| PANx (MPAN, PPN, OPAN) ^c | 24.2 | 0.01 | 24.2 | 0.7% |
| Organic Nitrate Groups (NTR) | 48.0 | 56.5 | 104.5 | 2.9% |
| Peroxynitric Acid (PNA) | 0.9 | 0.5 | 1.4 | 0.04% |
| NH ₃ | 1162.0 | 92.9 | 1254.9 | 35.1% |
| Particulate NO ₃ | 32.8 | 99.1 | 132.0 | 3.7% |
| Particulate NH ₄ | 112.3 | 521.5 | 633.8 | 17.7% |
| Total N Deposition | 2501.0 | 1076.6 | 3577.6 | 100.0% |
| SO ₂ | 214.3 | 0.8 | 215.2 | 17.9% |
| H ₂ SO ₄ | 1.0 | 0.0 | 1.0 | 0.1% |
| Particulate SO ₄ | 148.8 | 836.4 | 985.2 | 82.0% |
| Total S Deposition | 364.1 | 837.3 | 1201.4 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 8. Dry, wet, and total deposition of several N and S species within Wheeler Peak Wilderness Area, NM in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 7.3 | 0.00 | 7.3 | 0.2% |
| NO ₂ | 69.6 | 0.00 | 69.6 | 2.3% |
| NO ₃ | 0.8 | 0.6 | 1.3 | 0.0% |
| N ₂ O ₅ | 17.5 | 0.6 | 18.1 | 0.6% |
| HNO ₃ | 859.6 | 473.9 | 1333.5 | 43.1% |
| HNO ₂ | 0.6 | 0.00 | 0.6 | 0.02% |
| Peroxyacetyl Nitrate (PAN) | 48.7 | 0.01 | 48.7 | 1.6% |
| PANx (MPAN, PPN, OPAN) ^c | 18.9 | 0.00 | 18.9 | 0.6% |
| Organic Nitrate Groups (NTR) | 48.2 | 57.7 | 106.0 | 3.4% |
| Peroxynitric Acid (PNA) | 1.0 | 0.8 | 1.8 | 0.06% |
| NH ₃ | 169.4 | 21.5 | 190.9 | 6.2% |
| Particulate NO ₃ | 18.6 | 247.4 | 266.0 | 8.6% |
| Particulate NH ₄ | 56.0 | 973.2 | 1029.3 | 33.3% |
| Total N Deposition | 1316.3 | 1775.7 | 3092.0 | 100.0% |
| SO ₂ | 95.9 | 0.3 | 96.2 | 5.6% |
| H ₂ SO ₄ | 0.7 | 0.0 | 0.7 | 0.0% |
| Particulate SO ₄ | 76.2 | 1544.4 | 1620.6 | 94.4% |
| Total S Deposition | 172.7 | 1544.7 | 1717.4 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 9. Dry, wet, and total deposition of several N and S species within Great Sand Dunes National Park, CO in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 5.1 | 0.00 | 5.1 | 0.2% |
| NO ₂ | 50.8 | 0.00 | 50.8 | 2.0% |
| NO ₃ | 1.1 | 0.9 | 2.0 | 0.1% |
| N ₂ O ₅ | 12.9 | 0.8 | 13.7 | 0.5% |
| HNO ₃ | 656.7 | 335.1 | 991.8 | 39.2% |
| HNO ₂ | 0.4 | 0.00 | 0.4 | 0.02% |
| Peroxyacetyl Nitrate (PAN) | 42.2 | 0.01 | 42.2 | 1.7% |
| PANx (MPAN, PPN, OPAN) ^c | 16.0 | 0.00 | 16.0 | 0.6% |
| Organic Nitrate Groups (NTR) | 40.7 | 43.5 | 84.2 | 3.3% |
| Peroxynitric Acid (PNA) | 0.9 | 0.5 | 1.4 | 0.06% |
| NH ₃ | 387.6 | 52.1 | 439.6 | 17.4% |
| Particulate NO ₃ | 15.0 | 155.9 | 171.0 | 6.8% |
| Particulate NH ₄ | 51.8 | 662.5 | 714.3 | 28.2% |
| Total N Deposition | 1281.3 | 1251.3 | 2532.6 | 100.0% |
| SO ₂ | 79.7 | 0.5 | 80.1 | 7.3% |
| H ₂ SO ₄ | 0.4 | 0.0 | 0.4 | 0.0% |
| Particulate SO ₄ | 66.1 | 947.8 | 1013.9 | 92.6% |
| Total S Deposition | 146.2 | 948.3 | 1094.4 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 10. Dry, wet, and total deposition of several N and S species within Weminuche Wilderness Area, CO in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 6.1 | 0.00 | 6.1 | 0.2% |
| NO ₂ | 61.6 | 0.00 | 61.6 | 2.5% |
| NO ₃ | 0.4 | 0.3 | 0.8 | 0.0% |
| N ₂ O ₅ | 10.4 | 0.5 | 11.0 | 0.4% |
| HNO ₃ | 677.4 | 409.0 | 1086.4 | 44.4% |
| HNO ₂ | 0.5 | 0.00 | 0.5 | 0.02% |
| Peroxyacetyl Nitrate (PAN) | 40.8 | 0.01 | 40.8 | 1.7% |
| PANx (MPAN, PPN, OPAN) ^c | 15.3 | 0.00 | 15.3 | 0.6% |
| Organic Nitrate Groups (NTR) | 48.2 | 20.4 | 68.6 | 2.8% |
| Peroxynitric Acid (PNA) | 1.0 | 0.2 | 1.2 | 0.05% |
| NH ₃ | 131.1 | 10.2 | 141.2 | 5.8% |
| Particulate NO ₃ | 17.2 | 236.3 | 253.5 | 10.4% |
| Particulate NH ₄ | 51.5 | 707.2 | 758.7 | 31.0% |
| Total N Deposition | 1061.3 | 1384.1 | 2445.5 | 100.0% |
| SO ₂ | 75.3 | 0.2 | 75.5 | 5.5% |
| H ₂ SO ₄ | 0.5 | 0.0 | 0.5 | 0.0% |
| Particulate SO ₄ | 70.7 | 1215.8 | 1286.5 | 94.4% |
| Total S Deposition | 146.5 | 1215.9 | 1362.4 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 11. Dry, wet, and total deposition of several N and S species within Mesa Verde National Park, CO in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 17.9 | 0.00 | 17.9 | 0.5% |
| NO ₂ | 203.0 | 0.00 | 203.0 | 6.0% |
| NO ₃ | 1.9 | 2.1 | 4.0 | 0.1% |
| N ₂ O ₅ | 35.5 | 7.1 | 42.6 | 1.3% |
| HNO ₃ | 1334.5 | 482.6 | 1817.1 | 54.1% |
| HNO ₂ | 1.1 | 0.00 | 1.1 | 0.03% |
| Peroxyacetyl Nitrate (PAN) | 46.7 | 0.00 | 46.7 | 1.4% |
| PANx (MPAN, PPN, OPAN) ^c | 17.9 | 0.00 | 17.9 | 0.5% |
| Organic Nitrate Groups (NTR) | 34.7 | 21.4 | 56.1 | 1.7% |
| Peroxynitric Acid (PNA) | 0.7 | 0.3 | 1.0 | 0.03% |
| NH ₃ | 305.2 | 23.2 | 328.4 | 9.8% |
| Particulate NO ₃ | 19.9 | 181.6 | 201.5 | 6.0% |
| Particulate NH ₄ | 61.6 | 560.0 | 621.6 | 18.5% |
| Total N Deposition | 2080.8 | 1278.2 | 3359.0 | 100.0% |
| SO ₂ | 177.2 | 2.6 | 179.8 | 14.7% |
| H ₂ SO ₄ | 1.2 | 0.0 | 1.2 | 0.1% |
| Particulate SO ₄ | 80.1 | 960.0 | 1040.0 | 85.2% |
| Total S Deposition | 258.4 | 962.6 | 1221.0 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 12. Dry, wet, and total deposition of several N and S species within Chiricahua National Monument, AZ in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 5.3 | 0.00 | 5.3 | 0.1% |
| NO ₂ | 82.0 | 0.00 | 82.0 | 2.3% |
| NO ₃ | 2.4 | 2.1 | 4.4 | 0.1% |
| N ₂ O ₅ | 11.4 | 1.5 | 12.9 | 0.4% |
| HNO ₃ | 781.4 | 624.7 | 1406.1 | 39.1% |
| HNO ₂ | 0.5 | 0.00 | 0.5 | 0.01% |
| Peroxyacetyl Nitrate (PAN) | 41.9 | 0.02 | 41.9 | 1.2% |
| PANx (MPAN, PPN, OPAN) ^c | 17.8 | 0.01 | 17.8 | 0.5% |
| Organic Nitrate Groups (NTR) | 38.6 | 145.0 | 183.6 | 5.1% |
| Peroxynitric Acid (PNA) | 0.6 | 0.8 | 1.4 | 0.04% |
| NH ₃ | 384.6 | 80.1 | 464.7 | 12.9% |
| Particulate NO ₃ | 21.0 | 156.3 | 177.2 | 4.9% |
| Particulate NH ₄ | 75.0 | 1119.9 | 1194.9 | 33.3% |
| Total N Deposition | 1462.4 | 2130.3 | 3592.7 | 100.0% |
| SO ₂ | 275.2 | 3.2 | 278.3 | 12.0% |
| H ₂ SO ₄ | 1.3 | 0.1 | 1.3 | 0.1% |
| Particulate SO ₄ | 109.5 | 1934.7 | 2044.2 | 88.0% |
| Total S Deposition | 386.0 | 1937.9 | 2323.9 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 13. Dry, wet, and total deposition of several N and S species within Petrified Forest National Park, AZ in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|--------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 26.0 | 0.00 | 26.0 | 1.2% |
| NO ₂ | 246.6 | 0.00 | 246.6 | 11.7% |
| NO ₃ | 1.7 | 1.4 | 3.0 | 0.1% |
| N ₂ O ₅ | 23.0 | 2.2 | 25.2 | 1.2% |
| HNO ₃ | 891.8 | 171.7 | 1063.5 | 50.4% |
| HNO ₂ | 1.9 | 0.00 | 1.9 | 0.09% |
| Peroxyacetyl Nitrate (PAN) | 39.4 | 0.00 | 39.4 | 1.9% |
| PANx (MPAN, PPN, OPAN) ^c | 15.7 | 0.00 | 15.7 | 0.7% |
| Organic Nitrate Groups (NTR) | 32.6 | 18.1 | 50.7 | 2.4% |
| Peroxynitric Acid (PNA) | 0.5 | 0.2 | 0.7 | 0.03% |
| NH ₃ | 248.4 | 14.5 | 262.9 | 12.5% |
| Particulate NO ₃ | 15.4 | 69.5 | 84.9 | 4.0% |
| Particulate NH ₄ | 49.7 | 241.2 | 290.9 | 13.8% |
| Total N Deposition | 1592.9 | 518.8 | 2111.7 | 100.0% |
| SO ₂ | 220.7 | 1.9 | 222.6 | 28.7% |
| H ₂ SO ₄ | 1.7 | 0.0 | 1.7 | 0.2% |
| Particulate SO ₄ | 68.8 | 482.7 | 551.5 | 71.1% |
| Total S Deposition | 291.2 | 484.6 | 775.8 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 14. Dry, wet, and total deposition of several N and S species within Big Bend National Park, TX in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 2.8 | 0.00 | 2.8 | 0.1% |
| NO ₂ | 50.5 | 0.00 | 50.5 | 2.4% |
| NO ₃ | 1.2 | 1.8 | 3.1 | 0.1% |
| N ₂ O ₅ | 2.8 | 0.9 | 3.7 | 0.2% |
| HNO ₃ | 762.2 | 394.1 | 1156.3 | 55.4% |
| HNO ₂ | 0.1 | 0.00 | 0.1 | 0.01% |
| Peroxyacetyl Nitrate (PAN) | 36.3 | 0.02 | 36.3 | 1.7% |
| PANx (MPAN, PPN, OPAN) ^c | 17.5 | 0.01 | 17.5 | 0.8% |
| Organic Nitrate Groups (NTR) | 40.8 | 101.7 | 142.5 | 6.8% |
| Peroxynitric Acid (PNA) | 0.4 | 0.6 | 1.0 | 0.05% |
| NH ₃ | 146.7 | 11.0 | 157.6 | 7.5% |
| Particulate NO ₃ | 18.2 | 58.3 | 76.5 | 3.7% |
| Particulate NH ₄ | 78.0 | 362.8 | 440.8 | 21.1% |
| Total N Deposition | 1157.5 | 931.2 | 2088.7 | 100.0% |
| SO ₂ | 288.1 | 4.3 | 292.4 | 18.4% |
| H ₂ SO ₄ | 1.7 | 0.1 | 1.8 | 0.1% |
| Particulate SO ₄ | 119.2 | 1175.8 | 1295.0 | 81.5% |
| Total S Deposition | 409.0 | 1180.2 | 1589.1 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 15. Dry, wet, and total deposition of several N and S species within Guadalupe Mountains National Park, TX in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|--------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 9.4 | 0.00 | 9.4 | 0.4% |
| NO ₂ | 148.5 | 0.00 | 148.5 | 6.5% |
| NO ₃ | 3.6 | 0.5 | 4.1 | 0.2% |
| N ₂ O ₅ | 30.3 | 0.3 | 30.6 | 1.3% |
| HNO ₃ | 1066.5 | 136.2 | 1202.7 | 52.9% |
| HNO ₂ | 0.7 | 0.00 | 0.7 | 0.03% |
| Peroxyacetyl Nitrate (PAN) | 49.1 | 0.01 | 49.1 | 2.2% |
| PANx (MPAN, PPN, OPAN) ^c | 22.1 | 0.00 | 22.1 | 1.0% |
| Organic Nitrate Groups (NTR) | 46.7 | 36.1 | 82.8 | 3.6% |
| Peroxynitric Acid (PNA) | 0.5 | 0.3 | 0.8 | 0.04% |
| NH ₃ | 335.5 | 7.1 | 342.6 | 15.1% |
| Particulate NO ₃ | 23.2 | 41.3 | 64.5 | 2.8% |
| Particulate NH ₄ | 86.3 | 230.7 | 317.0 | 13.9% |
| Total N Deposition | 1822.4 | 452.5 | 2275.0 | 100.0% |
| SO ₂ | 503.3 | 1.3 | 504.5 | 45.3% |
| H ₂ SO ₄ | 3.1 | 0.0 | 3.1 | 0.3% |
| Particulate SO ₄ | 127.9 | 477.2 | 605.1 | 54.4% |
| Total S Deposition | 634.3 | 478.4 | 1112.7 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 16. Dry, wet, and total deposition of several N and S species within Cherokee National, OK in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 43.1 | 0.00 | 43.1 | 0.5% |
| NO ₂ | 635.3 | 0.00 | 635.3 | 7.2% |
| NO ₃ | 2.7 | 7.2 | 9.8 | 0.1% |
| N ₂ O ₅ | 41.9 | 10.2 | 52.1 | 0.6% |
| HNO ₃ | 1789.0 | 1239.0 | 3028.0 | 34.5% |
| HNO ₂ | 3.9 | 0.01 | 3.9 | 0.04% |
| Peroxyacetyl Nitrate (PAN) | 143.0 | 0.06 | 143.0 | 1.6% |
| PANx (MPAN, PPN, OPAN) ^c | 67.9 | 0.03 | 67.9 | 0.8% |
| Organic Nitrate Groups (NTR) | 162.6 | 355.7 | 518.3 | 5.9% |
| Peroxynitric Acid (PNA) | 0.6 | 1.3 | 2.0 | 0.02% |
| NH ₃ | 1985.1 | 286.2 | 2271.2 | 25.9% |
| Particulate NO ₃ | 62.6 | 294.2 | 356.8 | 4.1% |
| Particulate NH ₄ | 196.9 | 1456.3 | 1653.2 | 18.8% |
| Total N Deposition | 5134.6 | 3650.3 | 8784.9 | 100.0% |
| SO ₂ | 1578.3 | 33.3 | 1611.6 | 33.3% |
| H ₂ SO ₄ | 5.7 | 0.1 | 5.9 | 0.1% |
| Particulate SO ₄ | 183.4 | 3043.4 | 3226.9 | 66.6% |
| Total S Deposition | 1767.5 | 3076.9 | 4844.3 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 17. Dry, wet, and total deposition of several N and S species within Wichita Mountains, OK in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 21.8 | 0.00 | 21.8 | 0.4% |
| NO ₂ | 399.8 | 0.00 | 399.8 | 6.8% |
| NO ₃ | 5.2 | 2.6 | 7.9 | 0.1% |
| N ₂ O ₅ | 46.0 | 3.5 | 49.5 | 0.8% |
| HNO ₃ | 1606.5 | 534.7 | 2141.2 | 36.2% |
| HNO ₂ | 2.2 | 0.00 | 2.2 | 0.04% |
| Peroxyacetyl Nitrate (PAN) | 120.3 | 0.02 | 120.3 | 2.0% |
| PANx (MPAN, PPN, OPAN) ^c | 56.2 | 0.01 | 56.2 | 1.0% |
| Organic Nitrate Groups (NTR) | 129.9 | 140.5 | 270.4 | 4.6% |
| Peroxynitric Acid (PNA) | 0.7 | 0.7 | 1.4 | 0.02% |
| NH ₃ | 1417.4 | 133.6 | 1551.0 | 26.2% |
| Particulate NO ₃ | 42.0 | 213.1 | 255.2 | 4.3% |
| Particulate NH ₄ | 154.0 | 884.6 | 1038.6 | 17.6% |
| Total N Deposition | 4002.1 | 1913.5 | 5915.6 | 100.0% |
| SO ₂ | 552.9 | 7.6 | 560.5 | 24.0% |
| H ₂ SO ₄ | 1.9 | 0.0 | 2.0 | 0.1% |
| Particulate SO ₄ | 156.7 | 1615.5 | 1772.2 | 75.9% |
| Total S Deposition | 711.5 | 1623.2 | 2334.7 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 18. Dry, wet, and total deposition of several N and S species within Sac and Fox Nation, OK in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 31.4 | 0.00 | 31.4 | 0.3% |
| NO ₂ | 546.3 | 0.00 | 546.3 | 5.7% |
| NO ₃ | 2.2 | 5.2 | 7.4 | 0.1% |
| N ₂ O ₅ | 56.8 | 6.8 | 63.6 | 0.7% |
| HNO ₃ | 1503.2 | 1169.1 | 2672.4 | 27.9% |
| HNO ₂ | 3.9 | 0.00 | 3.9 | 0.04% |
| Peroxyacetyl Nitrate (PAN) | 126.9 | 0.06 | 127.0 | 1.3% |
| PANx (MPAN, PPN, OPAN) ^c | 58.1 | 0.03 | 58.1 | 0.6% |
| Organic Nitrate Groups (NTR) | 144.1 | 288.4 | 432.5 | 4.5% |
| Peroxynitric Acid (PNA) | 0.6 | 0.9 | 1.5 | 0.02% |
| NH ₃ | 2785.5 | 376.8 | 3162.3 | 33.0% |
| Particulate NO ₃ | 113.8 | 405.0 | 518.9 | 5.4% |
| Particulate NH ₄ | 260.7 | 1701.2 | 1961.9 | 20.5% |
| Total N Deposition | 5633.4 | 3953.6 | 9587.1 | 100.0% |
| SO ₂ | 1614.6 | 24.9 | 1639.5 | 33.9% |
| H ₂ SO ₄ | 5.2 | 0.2 | 5.3 | 0.1% |
| Particulate SO ₄ | 194.8 | 3002.8 | 3197.5 | 66.0% |
| Total S Deposition | 1814.5 | 3027.9 | 4842.4 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates

Table 19. Dry, wet, and total deposition of several N and S species within Tall Grass Prairie National Preserve, KS in 2008. Adopted from ENVIRON International Corporation, Alpine Geophysics, LLC and University of North Carolina, 2013.

| Parameter | Deposition (g/ha) ^a | | | Proportion of Total Deposition ^b |
|-------------------------------------|--------------------------------|---------------|---------------|---|
| | Dry | Wet | Dry + Wet | |
| NO | 31.1 | 0.00 | 31.1 | 0.3% |
| NO ₂ | 476.5 | 0.00 | 476.5 | 5.3% |
| NO ₃ | 2.4 | 7.7 | 10.1 | 0.1% |
| N ₂ O ₅ | 47.7 | 11.4 | 59.1 | 0.7% |
| HNO ₃ | 1519.8 | 1321.1 | 2840.9 | 31.3% |
| HNO ₂ | 3.4 | 0.01 | 3.4 | 0.04% |
| Peroxyacetyl Nitrate (PAN) | 138.4 | 0.06 | 138.4 | 1.5% |
| PANx (MPAN, PPN, OPAN) ^c | 63.1 | 0.03 | 63.1 | 0.7% |
| Organic Nitrate Groups (NTR) | 166.7 | 339.7 | 506.4 | 5.6% |
| Peroxynitric Acid (PNA) | 0.7 | 1.3 | 2.0 | 0.02% |
| NH ₃ | 2211.2 | 464.4 | 2675.6 | 29.5% |
| Particulate NO ₃ | 71.8 | 349.4 | 421.2 | 4.6% |
| Particulate NH ₄ | 192.7 | 1645.8 | 1838.5 | 20.3% |
| Total N Deposition | 4925.5 | 4140.9 | 9066.4 | 100.0% |
| SO ₂ | 1052.1 | 26.9 | 1078.9 | 27.3% |
| H ₂ SO ₄ | 2.9 | 0.1 | 3.0 | 0.1% |
| Particulate SO ₄ | 167.2 | 2708.1 | 2875.3 | 72.7% |
| Total S Deposition | 1222.1 | 2735.1 | 3957.2 | 100.0% |

a Represents either g-N/ha or g-S/ha depending on parameter

b Proportion of Dry+Wet N deposition to total N deposition

c PANx: Represents higher order oxidized peroxyacetyl nitrates