Volume evolution of coseismic deposits under rainfall in 2008 Wenchuan earthquake zone

1,Bayi valley

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rainfall (mm) | 40 | | | 60 | | | 100 | | | 200 | | |
| Diffusion coefficient | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 |
| 1 | 27442.8 | 79299 | 85892.4 | 40095 | 110127.6 | 123849 | 80190 | 229878 | 291178.8 | 165726 | 470626.2 | 697118.4 |
| 2 | 29759.4 | 67716 | 71280 | 42589.8 | 104068.8 | 111909.6 | 95337 | 408078 | 397386 | 198514.8 | 643123.8 | 771784.2 |
| 3 | 34036.2 | 66646.8 | 66468.6 | 51678 | 115651.8 | 133115.4 | 118324.8 | 392040 | 500029.2 | 254291.4 | 455122.8 | 327709.8 |
| 4 | 35640 | 69319.8 | 74309.4 | 54529.2 | 115117.2 | 157350.6 | 131333.4 | 311315.4 | 313810.2 | 300088.8 | 271398.6 | 148797 |
| 5 | 36174.6 | 71636.4 | 72705.6 | 57202.2 | 120106.8 | 168577.2 | 140956.2 | 219186 | 206177.4 | 289575 | 117612 | 75022.2 |
| 6 | 36887.4 | 67359.6 | 67894.2 | 59340.6 | 126165.6 | 174279.6 | 138105 | 174814.2 | 105850.8 | 277813.8 | 60588 | 40451.4 |
| 7 | 36531 | 72171 | 68250.6 | 63795.6 | 140065.2 | 163944 | 157528.8 | 128304 | 79833.6 | 217404 | 40629.6 | 32788.8 |
| 8 | 41342.4 | 71101.8 | 73418.4 | 65577.6 | 136679.4 | 119394 | 154321.2 | 55776.6 | 79477.2 | 152895.6 | 25482.6 | 23878.8 |
| 9 | 37778.4 | 70032.6 | 78408 | 71636.4 | 127056.6 | 124205.4 | 151470 | 43124.4 | 37243.8 | 95337 | 17107.2 | 16750.8 |
| 10 | 39560.4 | 71636.4 | 68428.8 | 66825 | 117968.4 | 106385.4 | 148797 | 30828.6 | 20849.4 | 62548.2 | 13721.4 | 11048.4 |
| 11 | 39916.8 | 66468.6 | 80368.2 | 69498 | 116721 | 85357.8 | 140421.6 | 31363.2 | 16929 | 32076 | 11761.2 | 7484.4 |
| 12 | 40095 | 66646.8 | 81437.4 | 75378.6 | 81081 | 81615.6 | 135075.6 | 21027.6 | 17820 | 26551.8 | 8910 | 4455 |
| 13 | 41520.6 | 64508.4 | 87139.8 | 74844 | 85357.8 | 72527.4 | 123314.4 | 17285.4 | 13008.6 | 21205.8 | 8553.6 | 2673 |
| 14 | 40273.2 | 61122.6 | 125452.8 | 76982.4 | 77873.4 | 64152 | 87496.2 | 12474 | 8019 | 13899.6 | 6058.8 | 1425.6 |
| 15 | 42055.2 | 56489.4 | 101752.2 | 77695.2 | 67003.2 | 61835.4 | 68428.8 | 13186.8 | 5702.4 | 10157.4 | 4098.6 | 712.8 |
| 16 | 44550 | 63617.4 | 86427 | 83041.2 | 59340.6 | 50787 | 53103.6 | 8553.6 | 5524.2 | 11404.8 | 2851.2 | 712.8 |
| 17 | 51678 | 55954.8 | 58449.6 | 81972 | 62191.8 | 33145.2 | 38134.8 | 7484.4 | 4811.4 | 7128 | 1603.8 | 712.8 |
| 18 | 52034.4 | 83397.6 | 65043 | 85001.4 | 40451.4 | 29581.2 | 28155.6 | 3920.4 | 2494.8 | 4455 | 1960.2 | 534.6 |
| 19 | 52034.4 | 73418.4 | 67537.8 | 86427 | 36887.4 | 23522.4 | 19780.2 | 4276.8 | 2851.2 | 3742.2 | 1069.2 | 534.6 |
| 20 | 48648.6 | 84110.4 | 68250.6 | 90347.4 | 27799.2 | 21027.6 | 21027.6 | 3742.2 | 1069.2 | 534.6 | 891 | 356.4 |

2, Wenjia valley

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rainfall (mm) | 40 | | | 60 | | | 100 | | | 200 | | |
| Diffusion coefficient | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 |
| 1 | 54270 | 123120 | 80190 | 88290 | 191970 | 123120 | 119070 | 302130 | 227610 | 230040 | 660960 | 659340 |
| 2 | 53460 | 123120 | 61560 | 85860 | 192780 | 107730 | 117450 | 264870 | 136890 | 229230 | 503010 | 399330 |
| 3 | 62370 | 125550 | 51840 | 92340 | 195210 | 74520 | 151470 | 270540 | 102870 | 236520 | 533790 | 321570 |
| 4 | 84240 | 138510 | 70470 | 114210 | 200070 | 83430 | 140940 | 281880 | 113400 | 268920 | 547560 | 303750 |
| 5 | 65610 | 95580 | 38070 | 98010 | 187920 | 59940 | 142560 | 274590 | 81810 | 259200 | 509490 | 328050 |
| 6 | 67230 | 91530 | 34830 | 98010 | 178200 | 52650 | 134460 | 269730 | 76950 | 239760 | 472230 | 324000 |
| 7 | 62370 | 89910 | 36450 | 101250 | 183060 | 54270 | 134460 | 277020 | 69660 | 231660 | 452790 | 315090 |
| 8 | 66420 | 96390 | 37260 | 95580 | 188730 | 48600 | 127980 | 268920 | 68850 | 222750 | 424440 | 362070 |
| 9 | 63990 | 88290 | 29160 | 94770 | 184680 | 52650 | 128790 | 259200 | 62370 | 224370 | 401760 | 350730 |
| 10 | 83430 | 94770 | 36450 | 101250 | 189540 | 54270 | 125550 | 260010 | 78570 | 215460 | 387990 | 328050 |
| 11 | 57510 | 85860 | 21060 | 89910 | 180630 | 38880 | 119070 | 244620 | 69660 | 207360 | 368550 | 358020 |
| 12 | 60750 | 85860 | 27540 | 91530 | 176580 | 39690 | 119070 | 237330 | 68850 | 204930 | 353160 | 401760 |
| 13 | 61560 | 85050 | 24300 | 88290 | 179820 | 42930 | 116640 | 233280 | 69660 | 196830 | 330480 | 426870 |
| 14 | 57510 | 82620 | 25920 | 92340 | 170910 | 38880 | 115830 | 229230 | 67230 | 190350 | 315900 | 425250 |
| 15 | 59130 | 73710 | 23490 | 88290 | 174960 | 38880 | 114210 | 220320 | 68040 | 189540 | 298890 | 443880 |
| 16 | 56700 | 82620 | 24300 | 89100 | 168480 | 38070 | 111780 | 216270 | 68040 | 182250 | 281880 | 437400 |
| 17 | 57510 | 80190 | 22680 | 87480 | 168480 | 38880 | 112590 | 213030 | 72090 | 180630 | 270540 | 416340 |
| 18 | 59130 | 78570 | 21870 | 87480 | 162810 | 32400 | 110160 | 208980 | 63990 | 177390 | 259200 | 389610 |
| 19 | 56700 | 81000 | 23490 | 86670 | 163620 | 45360 | 109350 | 205740 | 71280 | 169290 | 243000 | 371790 |
| 20 | 58320 | 81000 | 24300 | 84240 | 162000 | 36450 | 106920 | 200880 | 73710 | 162810 | 238140 | 354780 |

3, Sujia valley

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rainfall (mm) | 40 | | | 60 | | | 100 | | | 200 | | |
| Diffusion coefficient | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 |
| 1 | 5000 | 23000 | 25800 | 8200 | 32200 | 39000 | 26300 | 54800 | 69300 | 48500 | 98400 | 132600 |
| 2 | 5200 | 9100 | 14500 | 12100 | 16800 | 25700 | 16000 | 39700 | 51300 | 38300 | 81500 | 83200 |
| 3 | 6200 | 12100 | 17800 | 10400 | 22900 | 32900 | 22200 | 45000 | 49100 | 46800 | 55300 | 37800 |
| 4 | 6800 | 13200 | 22700 | 11900 | 33000 | 30000 | 22400 | 39400 | 39100 | 43100 | 22200 | 23400 |
| 5 | 7900 | 13700 | 18500 | 13300 | 30200 | 28600 | 25900 | 30600 | 26000 | 38500 | 15600 | 8500 |
| 6 | 7500 | 20200 | 20400 | 12700 | 27800 | 26800 | 27400 | 20600 | 14300 | 22000 | 8000 | 3600 |
| 7 | 8800 | 14800 | 18000 | 13900 | 20700 | 20400 | 25600 | 15900 | 12200 | 18300 | 4300 | 2100 |
| 8 | 8900 | 13600 | 14300 | 14700 | 19600 | 15000 | 23500 | 15600 | 9200 | 11800 | 2600 | 1200 |
| 9 | 8200 | 17000 | 12300 | 16100 | 16600 | 11800 | 18600 | 9100 | 5000 | 9800 | 2500 | 1700 |
| 10 | 8600 | 13300 | 12200 | 14500 | 11100 | 9000 | 15700 | 7500 | 3900 | 6500 | 900 | 1400 |
| 11 | 7700 | 12100 | 12100 | 13800 | 9400 | 8300 | 13600 | 2900 | 2600 | 4400 | 1300 | 900 |
| 12 | 8200 | 11600 | 9100 | 12000 | 6800 | 5700 | 10000 | 2000 | 3300 | 3000 | 1500 | 800 |
| 13 | 8100 | 11200 | 8300 | 11100 | 4400 | 5900 | 8500 | 1800 | 2100 | 2500 | 400 | 200 |
| 14 | 9000 | 7900 | 5400 | 10900 | 5800 | 3600 | 8600 | 2000 | 1100 | 2000 | 600 | 200 |
| 15 | 7500 | 6200 | 5600 | 10300 | 3100 | 3400 | 7700 | 1800 | 1700 | 1200 | 500 | 100 |
| 16 | 7300 | 10200 | 6200 | 9700 | 3100 | 3000 | 5800 | 1200 | 900 | 1000 | 500 | 200 |
| 17 | 7000 | 6400 | 3900 | 9000 | 2900 | 2500 | 5800 | 600 | 200 | 400 | 600 | 0 |
| 18 | 7300 | 3700 | 4000 | 8100 | 1900 | 2700 | 3900 | 900 | 200 | 0 | 200 | 0 |
| 19 | 7400 | 3900 | 3800 | 8400 | 1600 | 1700 | 3200 | 800 | 200 | 0 | 300 | 0 |
| 20 | 7500 | 3800 | 2800 | 8200 | 1700 | 1700 | 2200 | 1000 | 200 | 0 | 300 | 0 |

4, Gaojia valley

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rainfall (mm) | 40 | | | 60 | | | 100 | | | 200 | | |
| Diffusion coefficient | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 | 0.001 | 0.005 | 0.01 |
| 1 | 17800 | 23600 | 19000 | 30200 | 35200 | 27400 | 55200 | 87400 | 68600 | 149600 | 549800 | 706600 |
| 2 | 19600 | 15600 | 12200 | 29800 | 24000 | 21600 | 61600 | 74600 | 45600 | 215200 | 449000 | 469200 |
| 3 | 14400 | 9800 | 10800 | 29000 | 13800 | 16000 | 64800 | 105400 | 223800 | 270200 | 235000 | 178200 |
| 4 | 14000 | 10000 | 12200 | 25400 | 14200 | 17800 | 65600 | 232600 | 187800 | 284400 | 123400 | 67800 |
| 5 | 10200 | 10800 | 10400 | 24800 | 14800 | 24000 | 72000 | 168400 | 221000 | 188600 | 65400 | 46200 |
| 6 | 8600 | 9600 | 9800 | 22000 | 14400 | 31200 | 88600 | 148600 | 169400 | 116600 | 51000 | 27200 |
| 7 | 9400 | 10000 | 9200 | 22600 | 19800 | 47800 | 96000 | 155400 | 168000 | 79800 | 22800 | 27000 |
| 8 | 5400 | 9000 | 7200 | 21400 | 42800 | 73200 | 100000 | 118600 | 123200 | 74800 | 20800 | 20000 |
| 9 | 4800 | 9200 | 6800 | 19000 | 47000 | 83000 | 106400 | 97600 | 72600 | 56000 | 19000 | 15400 |
| 10 | 6200 | 9400 | 5800 | 23800 | 53600 | 91400 | 125800 | 72800 | 57600 | 46200 | 13400 | 13400 |
| 11 | 6800 | 9400 | 5000 | 20000 | 69800 | 90000 | 92400 | 56600 | 29400 | 32200 | 13400 | 10600 |
| 12 | 6000 | 7200 | 8200 | 22600 | 69600 | 88400 | 99600 | 41000 | 25600 | 23200 | 11400 | 7800 |
| 13 | 6200 | 5400 | 19600 | 23800 | 93000 | 88200 | 75800 | 30000 | 20400 | 18200 | 9400 | 6000 |
| 14 | 7000 | 9000 | 46000 | 27200 | 78200 | 95200 | 63200 | 23800 | 19200 | 11400 | 8000 | 7400 |
| 15 | 4800 | 8400 | 31800 | 29200 | 70400 | 79000 | 56200 | 22600 | 15200 | 13800 | 6200 | 5000 |
| 16 | 8400 | 13600 | 36200 | 30600 | 72800 | 83600 | 43800 | 18200 | 13600 | 7000 | 6200 | 3200 |
| 17 | 9600 | 11000 | 78800 | 23400 | 72600 | 71400 | 41600 | 16200 | 11200 | 5800 | 4000 | 1000 |
| 18 | 6800 | 27600 | 76400 | 33000 | 63200 | 60000 | 41200 | 12200 | 8800 | 7600 | 4600 | 2400 |
| 19 | 8800 | 38600 | 58400 | 28200 | 52400 | 63600 | 34400 | 10800 | 12800 | 6200 | 800 | 200 |
| 20 | 6800 | 41400 | 80000 | 41600 | 52600 | 56800 | 29800 | 7600 | 9600 | 3400 | 1200 | 600 |