**CO2 and corresponding CO2 exchange rate per unit surface area [Rate] for each COSCAT using the Takahashi et al. [2009]’s parametrization of the gas transfer velocity [TK09], Wanninkhof [1992]’s parametrization of the gas transfer velocity [WK92] and Ho et al. [2006]’s parametrization of the gas transfer velocity [HO06]. The integration methods, confidence, surface area and average yearly ice cover are also. [Method] corresponds to the spatial integration method (1, 2, 3 or 4) and [Season] correspond to the temporal integration method (monthly, seasonally or annually).**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COSCAT** | **MARCATS** | **Method** | **Season** | **Confidence** | **Surface** | **Ice Cover** | **TK09** | **Rate** | **WK92** | **Rate** | **HO06** | **Rate** |
|  |  |  |  |  | **106 km2** | **%** | **109 gC yr-1** | **mol C m-2 yr-1** | **109 gC yr-1** | **mol C m-2 yr-1** | **109 gC yr-1** | **mol C m-2 yr-1** |
| 1 | 20 | 2 | y | \*\* | 28 | 0 | 264 | 0.77 | 315 | 0.92 | 258 | 0.75 |
| 2 | 20 | 4 | y |  | 111 | 0 | 788 | 0.59 | 939 | 0.71 | 769 | 0.58 |
| 3 | 20 | 2 | y | \*\* | 58 | 0 | 501 | 0.72 | 597 | 0.85 | 489 | 0.70 |
| 4 | 28 | 3 | y | \* | 100 | 0 | 239 | 0.20 | 285 | 0.24 | 233 | 0.19 |
| 5 | 27 | 2 | y | \*\* | 14 | 0 | 89 | 0.53 | 106 | 0.63 | 87 | 0.51 |
| 6 | 27 | 3 | s | \* | 44 | 0 | 1127 | 2.15 | 1344 | 2.56 | 1100 | 2.10 |
| 7 | 26 | 4 | y |  | 24 | 0 | 276 | 0.95 | 330 | 1.13 | 270 | 0.92 |
| 8 | 26 | 3 | y | \* | 47 | 0 | 538 | 0.95 | 642 | 1.13 | 525 | 0.92 |
| 9 | 25 | 2 | y | \*\* | 39 | 0 | -203 | -0.44 | -242 | -0.52 | -198 | -0.43 |
| 10 | 25 | 2 | y | \*\* | 32 | 0 | -124 | -0.33 | -148 | -0.39 | -121 | -0.32 |
| 11 | 25 | 3 | y | \* | 61 | 0 | 449 | 0.62 | 535 | 0.73 | 438 | 0.60 |
| 12 | 25 | 1 | s | \*\*\* | 123 | 0 | -1785 | -1.21 | -2128 | -1.44 | -1741 | -1.18 |
| 13 | 24 | 2 | m | \*\* | 308 | 0 | -5103 | -1.38 | -6084 | -1.64 | -4978 | -1.35 |
| 14 | 23 | 4 | y |  | 81 | 0 | -50 | -0.05 | -60 | -0.06 | -49 | -0.05 |
| 15 | 23 | 4 | y |  | 35 | 0 | -21 | -0.05 | -25 | -0.06 | -21 | -0.05 |
| 16 | 23 | 3 | y | \* | 48 | 0 | -147 | -0.26 | -175 | -0.31 | -144 | -0.25 |
| 17 | 23 | 2 | y | \*\* | 33 | 0 | 98 | 0.25 | 117 | 0.29 | 95 | 0.24 |
| 18 | 23 | 4 | y |  | 88 | 0 | -54 | -0.05 | -64 | -0.06 | -52 | -0.05 |
| 19 | 22 | 2 | y | \*\* | 82 | 0 | 2223 | 2.25 | 2651 | 2.69 | 2169 | 2.20 |
| 20 | 22 | 2 | y | \*\* | 83 | 0 | 5143 | 5.15 | 6132 | 6.14 | 5016 | 5.02 |
| 21 | 22 | 2 | s | \*\* | 55 | 0 | -146 | -0.22 | -174 | -0.26 | -143 | -0.22 |
| 401 | 19 | 1 | m | \*\*\* | 240 | 0 | 552 | 0.19 | 658 | 0.23 | 538 | 0.19 |
| 402 | 17 | 1 | m | \*\*\* | 521 | 0 | -8037 | -1.29 | -9582 | -1.53 | -7839 | -1.25 |
| 403 | 17 | 1 | m | \*\*\* | 593 | 0 | -9129 | -1.28 | -10884 | -1.53 | -8905 | -1.25 |
| 404 | 18 | 1 | m | \*\*\* | 245 | 1 | 58 | 0.02 | 69 | 0.02 | 56 | 0.02 |
| 405 | 18 | 2 | y | \*\* | 108 | 13 | 2287 | 2.03 | 2726 | 2.42 | 2231 | 1.98 |
| 406 | 18 | 1 | m | \*\*\* | 30 | 13 | -100 | -0.32 | -119 | -0.38 | -98 | -0.31 |
| 407 | 16 | 1 | m | \*\*\* | 172 | 2 | -3342 | -1.66 | -3985 | -1.98 | -3260 | -1.62 |
| 408 | 44 | 2 | y | \*\* | 784 | 30 | -21424 | -3.24 | -25544 | -3.87 | -20898 | -3.16 |
| 409 | 44 | 4 | y |  | 79 | 67 | -1009 | -3.24 | -1203 | -3.87 | -984 | -3.16 |
| 414 | 20 | 4 | y |  | 70 | 0 | 500 | 0.59 | 596 | 0.71 | 488 | 0.58 |
| 415 | 20 | 2 | y | \*\* | 42 | 0 | 794 | 1.57 | 947 | 1.87 | 775 | 1.53 |
| 416 | 20 | 4 | y |  | 115 | 0 | 818 | 0.59 | 975 | 0.71 | 798 | 0.58 |
| 417 | 20 | 3 | y | \* | 27 | 0 | 249 | 0.76 | 297 | 0.90 | 243 | 0.74 |
| 418 | 20 | 2 | m | \*\* | 75 | 0 | -162 | -0.18 | -193 | -0.21 | -158 | -0.17 |
| 419 | 19 | 1 | s | \*\*\* | 44 | 0 | -429 | -0.82 | -511 | -0.97 | -418 | -0.80 |
| 501 | 14 | 3 | y | \* | 66 | 68 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| 502 | 14 | 2 | y | \*\* | 306 | 78 | -1079 | -1.37 | -1287 | -1.63 | -1053 | -1.33 |
| 503 | 15 | 2 | m | \*\* | 178 | 37 | -7467 | -5.51 | -8903 | -6.57 | -7284 | -5.38 |
| 504 | 15 | 1 | m | \*\*\* | 92 | 3 | -4505 | -4.22 | -5372 | -5.03 | -4395 | -4.11 |
| 505 | 14 | 3 | s | \* | 243 | 44 | -3321 | -2.03 | -3960 | -2.42 | -3239 | -1.98 |
| 801 | 3 | 1 | m | \*\*\* | 33 | 0 | 132 | 0.33 | 157 | 0.39 | 129 | 0.32 |
| 802 | 3 | 2 | s | \*\* | 102 | 0 | 121 | 0.10 | 144 | 0.12 | 118 | 0.10 |
| 803 | 3 | 3 | y | \* | 10 | 0 | -7 | -0.07 | -9 | -0.08 | -7 | -0.06 |
| 804 | 2 | 3 | y | \* | 23 | 0 | 46 | 0.17 | 55 | 0.20 | 45 | 0.16 |
| 805 | 2 | 3 | y | \* | 71 | 0 | 360 | 0.42 | 430 | 0.51 | 351 | 0.41 |
| 806 | 2 | 3 | s | \* | 57 | 0 | -104 | -0.15 | -125 | -0.18 | -102 | -0.15 |
| 807 | 2 | 1 | m | \*\*\* | 28 | 0 | 262 | 0.77 | 312 | 0.92 | 255 | 0.75 |
| 808 | 2 | 1 | m | \*\*\* | 36 | 0 | -698 | -1.61 | -833 | -1.92 | -681 | -1.57 |
| 809 | 1 | 1 | s | \*\*\* | 114 | 0 | 344 | 0.25 | 410 | 0.30 | 336 | 0.25 |
| 810 | 1 | 1 | s | \*\*\* | 209 | 0 | -5352 | -2.15 | -6381 | -2.56 | -5220 | -2.09 |
| 811 | 1 | 1 | m | \*\*\* | 140 | 0 | -1767 | -1.05 | -2107 | -1.26 | -1724 | -1.03 |
| 812 | 42 | 1 | s | \*\*\* | 433 | 10 | 847 | 0.18 | 1010 | 0.22 | 827 | 0.18 |
| 813 | 42 | 1 | s | \*\*\* | 146 | 38 | -710 | -0.66 | -847 | -0.79 | -693 | -0.64 |
| 814 | 13 | 2 | y | \*\* | 196 | 60 | -3318 | -3.56 | -3956 | -4.24 | -3237 | -3.47 |
| 815 | 13 | 2 | y | \*\* | 174 | 65 | -1857 | -2.51 | -2214 | -3.00 | -1812 | -2.45 |
| 816 | 13 | 4 | y |  | 774 | 72 | -7978 | -3.10 | -9513 | -3.69 | -7783 | -3.02 |
| 821 | 11 | 4 | y |  | 181 | 42 | -2168 | -1.72 | -2585 | -2.05 | -2115 | -1.68 |
| 822 | 11 | 4 | y |  | 98 | 10 | -1829 | -1.72 | -2181 | -2.05 | -1784 | -1.68 |
| 823 | 13 | 4 | y |  | 34 | 35 | -832 | -3.10 | -992 | -3.69 | -811 | -3.02 |
| 824 | 11 | 4 | y |  | 421 | 4 | -8369 | -1.72 | -9979 | -2.05 | -8164 | -1.68 |
| 825 | 11 | 4 | y |  | 83 | 17 | -1418 | -1.72 | -1691 | -2.05 | -1384 | -1.68 |
| 826 | 11 | 1 | m | \*\*\* | 252 | 1 | -5151 | -1.72 | -6141 | -2.05 | -5024 | -1.68 |
| 827 | 10 | 1 | m | \*\*\* | 358 | 0 | -2410 | -0.56 | -2874 | -0.67 | -2351 | -0.55 |
| 828 | 10 | 1 | m | \*\*\* | 249 | 0 | -312 | -0.10 | -373 | -0.12 | -305 | -0.10 |
| 829 | 8 | 1 | m | \*\*\* | 29 | 0 | 88 | 0.26 | 105 | 0.30 | 86 | 0.25 |
| 830 | 8 | 3 | s | \* | 105 | 0 | 2195 | 1.74 | 2617 | 2.07 | 2141 | 1.70 |
| 831 | 8 | 3 | m | \*\* | 97 | 0 | 532 | 0.46 | 635 | 0.54 | 519 | 0.45 |
| 832 | 9 | 2 | m | \*\* | 189 | 0 | 453 | 0.20 | 540 | 0.24 | 442 | 0.20 |
| 833 | 9 | 1 | s | \*\*\* | 85 | 0 | -658 | -0.65 | -785 | -0.77 | -642 | -0.63 |
| 834 | 9 | 1 | m | \*\*\* | 271 | 0 | -1895 | -0.58 | -2260 | -0.69 | -1849 | -0.57 |
| 1101 | 8 | 4 | y |  | 26 | 0 | 241 | 0.77 | 287 | 0.92 | 235 | 0.75 |
| 1102 | 8 | 2 | m | \*\* | 116 | 0 | 404 | 0.29 | 482 | 0.34 | 394 | 0.28 |
| 1103 | 7 | 4 | y |  | 93 | 0 | 71 | 0.06 | 84 | 0.08 | 69 | 0.06 |
| 1104 | 7 | 3 | y | \* | 295 | 0 | -1500 | -0.42 | -1788 | -0.50 | -1463 | -0.41 |
| 1105 | 7 | 3 | y | \* | 130 | 0 | 1823 | 1.17 | 2174 | 1.39 | 1778 | 1.14 |
| 1106 | 6 | 1 | s | \*\*\* | 83 | 0 | 593 | 0.59 | 707 | 0.71 | 578 | 0.58 |
| 1107 | 6 | 1 | s | \*\*\* | 289 | 0 | 1612 | 0.47 | 1922 | 0.55 | 1572 | 0.45 |
| 1108 | 6 | 1 | s | \*\*\* | 150 | 0 | -1638 | -0.91 | -1953 | -1.09 | -1598 | -0.89 |
| 1109 | 5 | 2 | y | \*\* | 309 | 0 | -6014 | -1.62 | -7170 | -1.94 | -5866 | -1.58 |
| 1110 | 5 | 1 | s | \*\*\* | 724 | 0 | -9434 | -1.09 | -11249 | -1.29 | -9203 | -1.06 |
| 1111 | 5 | 2 | m | \*\* | 200 | 0 | -3267 | -1.36 | -3895 | -1.62 | -3187 | -1.33 |
| 1112 | 4 | 2 | y | \*\* | 31 | 0 | 631 | 1.69 | 752 | 2.02 | 616 | 1.65 |
| 1113 | 4 | 3 | y | \* | 21 | 0 | -31 | -0.12 | -37 | -0.14 | -30 | -0.12 |
| 1114 | 4 | 3 | y | \* | 90 | 0 | 473 | 0.44 | 564 | 0.52 | 461 | 0.43 |
| 1115 | 3 | 4 | y |  | 22 | 0 | 21 | 0.08 | 25 | 0.10 | 21 | 0.08 |
| 1116 | 3 | 3 | y | \* | 31 | 0 | -75 | -0.20 | -89 | -0.24 | -73 | -0.20 |
| 1301 | 20 | 4 | y |  | 24 | 0 | 173 | 0.59 | 206 | 0.71 | 168 | 0.58 |
| 1307 | 44 | 4 | y |  | 479 | 62 | -7162 | -3.24 | -8539 | -3.87 | -6986 | -3.16 |
| 1308 | 44 | 4 | y |  | 386 | 83 | -2631 | -3.24 | -3136 | -3.87 | -2566 | -3.16 |
| 1309 | 43 | 4 | y |  | 212 | 68 | -3653 | -4.53 | -4356 | -5.40 | -3563 | -4.42 |
| 1310 | 43 | 4 | y |  | 311 | 77 | -3970 | -4.53 | -4733 | -5.40 | -3873 | -4.42 |
| 1311 | 43 | 3 | y | \* | 947 | 88 | -5856 | -4.32 | -6982 | -5.15 | -5713 | -4.22 |
| 1312 | 43 | 4 | y |  | 23 | 69 | -388 | -4.53 | -463 | -5.40 | -379 | -4.42 |
| 1313 | 43 | 2 | y | \*\* | 429 | 74 | -6455 | -4.74 | -7696 | -5.65 | -6296 | -4.63 |
| 1314 | 42 | 2 | y | \*\* | 367 | 28 | -7508 | -2.37 | -8951 | -2.83 | -7323 | -2.31 |
| 1315 | 42 | 4 | y |  | 95 | 24 | -709 | -0.82 | -845 | -0.98 | -692 | -0.80 |
| 1316 | 42 | 1 | s | \*\*\* | 43 | 2 | -340 | -0.67 | -405 | -0.80 | -331 | -0.66 |
| 1317 | 41 | 3 | m | \*\* | 584 | 24 | 18097 | 3.40 | 21578 | 4.05 | 17653 | 3.32 |
| 1318 | 41 | 4 | y |  | 260 | 33 | -1852 | -0.89 | -2208 | -1.06 | -1806 | -0.86 |
| 1319 | 41 | 3 | y | \* | 149 | 19 | -1291 | -0.89 | -1539 | -1.06 | -1259 | -0.86 |
| 1320 | 40 | 3 | s | \* | 103 | 6 | -2246 | -1.93 | -2678 | -2.31 | -2191 | -1.89 |
| 1321 | 40 | 1 | s | \*\*\* | 174 | 2 | -3867 | -1.89 | -4611 | -2.25 | -3773 | -1.84 |
| 1322 | 39 | 1 | m | \*\*\* | 98 | 0 | -1425 | -1.21 | -1698 | -1.44 | -1390 | -1.18 |
| 1323 | 39 | 2 | m | \*\* | 126 | 0 | -2037 | -1.35 | -2429 | -1.61 | -1987 | -1.32 |
| 1324 | 39 | 1 | s | \*\*\* | 372 | 0 | -6813 | -1.53 | -8124 | -1.82 | -6646 | -1.49 |
| 1325 | 39 | 4 | y |  | 83 | 0 | -1270 | -1.27 | -1515 | -1.52 | -1239 | -1.24 |
| 1326 | 39 | 2 | s | \*\* | 572 | 0 | -7555 | -1.10 | -9008 | -1.31 | -7370 | -1.07 |
| 1327 | 38 | 2 | y | \*\* | 567 | 0 | -6802 | -1.00 | -8110 | -1.19 | -6635 | -0.98 |
| 1328 | 38 | 4 | y |  | 467 | 0 | -4749 | -0.85 | -5663 | -1.01 | -4633 | -0.83 |
| 1329 | 38 | 4 | y |  | 936 | 0 | -9526 | -0.85 | -11358 | -1.01 | -9292 | -0.83 |
| 1330 | 37 | 4 | y |  | 584 | 0 | 2908 | 0.41 | 3467 | 0.49 | 2836 | 0.40 |
| 1331 | 38 | 3 | y | \* | 183 | 0 | -828 | -0.38 | -988 | -0.45 | -808 | -0.37 |
| 1332 | 38 | 4 | y |  | 167 | 0 | -1704 | -0.85 | -2031 | -1.01 | -1662 | -0.83 |
| 1333 | 37 | 4 | y |  | 3 | 0 | 13 | 0.41 | 15 | 0.49 | 12 | 0.40 |
| 1334 | 32 | 3 | y | \* | 119 | 0 | 415 | 0.29 | 495 | 0.35 | 405 | 0.28 |
| 1335 | 32 | 3 | y | \* | 359 | 0 | -1809 | -0.42 | -2157 | -0.50 | -1765 | -0.41 |
| 1336 | 31 | 3 | y | \* | 141 | 0 | -325 | -0.19 | -387 | -0.23 | -317 | -0.19 |
| 1337 | 31 | 4 | y |  | 89 | 0 | -205 | -0.19 | -244 | -0.23 | -200 | -0.19 |
| 1338 | 30 | 3 | s | \* | 86 | 0 | 640 | 0.62 | 763 | 0.74 | 624 | 0.61 |
| 1339 | 30 | 4 | y |  | 173 | 0 | 1295 | 0.62 | 1544 | 0.74 | 1263 | 0.61 |
| 1340 | 30 | 4 | y |  | 83 | 0 | 620 | 0.62 | 740 | 0.74 | 605 | 0.61 |
| 1341 | 27 | 3 | y | \* | 44 | 0 | 40 | 0.08 | 48 | 0.09 | 39 | 0.07 |
| 1344 | 28 | 2 | y | \*\* | 90 | 0 | 91 | 0.08 | 108 | 0.10 | 88 | 0.08 |
| 1401 | 37 | 3 | y | \* | 53 | 0 | 28 | 0.04 | 33 | 0.05 | 27 | 0.04 |
| 1402 | 37 | 3 | s | \* | 51 | 0 | -55 | -0.09 | -66 | -0.11 | -54 | -0.09 |
| 1403 | 37 | 1 | m | \*\*\* | 433 | 0 | -3178 | -0.61 | -3789 | -0.73 | -3100 | -0.60 |
| 1405 | 36 | 1 | m | \*\*\* | 32 | 0 | -345 | -0.91 | -412 | -1.08 | -337 | -0.89 |
| 1406 | 36 | 1 | m | \*\*\* | 48 | 0 | -600 | -1.03 | -715 | -1.23 | -585 | -1.01 |
| 1407 | 36 | 1 | s | \*\*\* | 114 | 0 | -1742 | -1.27 | -2077 | -1.52 | -1699 | -1.24 |
| 1408 | 36 | 2 | y | \*\* | 27 | 0 | -263 | -0.81 | -314 | -0.97 | -257 | -0.79 |
| 1409 | 36 | 1 | m | \*\*\* | 93 | 0 | -1324 | -1.18 | -1578 | -1.41 | -1291 | -1.15 |
| 1410 | 35 | 1 | m | \*\*\* | 139 | 0 | -1695 | -1.02 | -2021 | -1.21 | -1654 | -0.99 |
| 1411 | 34 | 1 | s | \*\*\* | 160 | 0 | -1122 | -0.58 | -1338 | -0.70 | -1095 | -0.57 |
| 1412 | 34 | 2 | s | \*\* | 293 | 0 | -4861 | -1.38 | -5796 | -1.65 | -4742 | -1.35 |
| 1413 | 33 | 1 | s | \*\*\* | 119 | 0 | -1379 | -0.97 | -1644 | -1.16 | -1345 | -0.95 |
| 1414 | 32 | 2 | s | \*\* | 333 | 0 | 1224 | 0.31 | 1459 | 0.37 | 1194 | 0.30 |
| 1415 | 37 | 3 | y | \* | 933 | 0 | 9005 | 0.80 | 10736 | 0.96 | 8784 | 0.78 |
| 1416 | 37 | 3 | y | \* | 379 | 0 | 3401 | 0.75 | 4055 | 0.89 | 3317 | 0.73 |
| 1501 | 45 | 2 | y | \*\* | 637 | 90 | -9 | -0.01 | -11 | -0.01 | -9 | -0.01 |
| 1502 | 45 | 2 | y | \*\* | 200 | 80 | -968 | -2.07 | -1154 | -2.47 | -944 | -2.02 |
| 1503 | 45 | 2 | y | \*\* | 684 | 81 | -863 | -0.56 | -1029 | -0.67 | -842 | -0.54 |
| 1504 | 45 | 2 | y | \*\* | 564 | 65 | -2186 | -0.92 | -2607 | -1.09 | -2133 | -0.89 |
| 1505 | 45 | 1 | m | \*\*\* | 874 | 68 | -1356 | -0.41 | -1616 | -0.49 | -1322 | -0.40 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |