### Appendix

**Table 1**. *Water flows, δ*13CDIC*, a*14CDIC *and calculated w*ROCK *and δ*13C *soil CO2 values for springs Bijela Rijeka (S1) and Crna Rijeka (S2) from 1979 to 2015. Uncertainty of δ*13C *is ± 0.1 ‰, a*14CDIC *corrected for the sampling date, Z- laboratory number. From 1979 to 2006 14C analyses performed by gas proportional counting (Srdoč et al. 1982; 1987).*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **S1 – Bijela Rijeka spring** | | | | | | | **S2 – Crna Rijeka spring** | | | | | | |
| **Sampling** | ***Q*** | ***δ*13CDIC** | **Z*-*** | ***a*14CDIC** | ***σ*** | ***w*ROCK** | ***δ*13C soil CO2** | ***Q*** | ***δ*13CDIC** | **Z-** | ***a*14CDIC** | ***σ*** | ***w*ROCK** | ***δ*13C soil CO2** |
| **date** | **(m3/s)** | **(‰)** |  | **(pMC)** |  |  | **(‰)** | **(m3/s)** | **(‰)** |  | **(pMC)** |  |  | **(‰)** |
| Sep-79 |  |  | 694 | 75.4 | 0.7 | 0.20 |  |  |  | 692 | 59.2 | 0.6 | 0.38 |  |
| Jul-82 | 0.41 |  | 1024 | 78.8 | 0.8 | 0.17 |  | 0.96 |  |  |  |  |  |  |
| Oct-83 | 0.06 |  | 1159 | 82.7 | 0.9 | 0.13 |  | 0.78 |  | 1141 | 59.2 | 0.6 | 0.37 |  |
| Mar-84 | 0.16 | -12.0 |  |  |  |  |  | 2.07 |  |  |  |  |  |  |
| Apr-84 | 1.34 | -12.2 | 1281 | 84.4 | 0.6 | 0.11 | -23.5 | 3.81 | -11.5 |  |  |  |  |  |
| May-84 | 1.09 | -11.9 |  |  |  |  |  | 4.91 | -12.6 | 1337 | 69.0 | 0.6 | 0.27 | -26.9 |
| Jun-84 | 0.77 | -13.1 |  |  |  |  |  | 2.16 | -12.4 |  |  |  |  |  |
| Jul-84 | 0.57 | -13.0 |  |  |  |  |  | 1.38 | -12.5 |  |  |  |  |  |
| Aug-84 | 0.38 | -12.4 |  |  |  |  |  | 0.91 | -11.6 |  |  |  |  |  |
| Sep-84 | 0.32 | -12.4 |  |  |  |  |  | 1.13 | -13.2 | 1379 | 90.4 | 0.5 | 0.05 | -23.6 |
| Nov-84 | 0.45 | -12.4 |  |  |  |  |  | 4.53 | -12.2 |  |  |  |  |  |
| Dec-84 | 0.43 | -12.6 | 1434 | 80.9 | 0.6 | 0.15 | -24.6 | 2.34 | -13.2 | 1425 | 64.7 | 0.8 | 0.32 | -29.1 |
| Jun-86 | 0.64 |  | 1810 | 78.9 | 0.9 |  |  | 2.47 | -12.9 | 1823 | 69.3 | 0.8 |  |  |
| Sep-86 | 0.25 |  |  |  |  |  |  | 1.10 |  |  |  |  |  |  |
| Nov-86 | 0.42 | -12.5 |  |  |  |  |  | 4.42 |  | 1834 | 60.3 |  | 0.36 |  |
| Dec-86 | 0.30 | -13.9 |  |  |  |  |  | 2.07 | -12.9 | 1848 | 70.4 |  | 0.26 | -27.1 |
| Feb-87 | 0.37 | -12.7 |  |  |  |  |  | 3.88 | -13.2 |  |  |  |  |  |
| Jun-87 | 0.92 | -12.3 |  |  |  |  |  | 1.77 | -12.5 |  |  |  |  |  |
| Jul-89 | 0.67 | -13.3 |  |  |  |  |  | 1.43 | -12.3 |  |  |  |  |  |
| Oct-90 | 0.05 | -13.2 |  |  |  |  |  | 0.45 |  |  |  |  |  |  |
| Sep-04 | 0.21 | -12.1 |  |  |  |  |  | 0.33 | -11.7 |  |  |  |  |  |
| Apr-07 | 0.30 | -12.9 |  |  |  |  |  | 2.19 | -13.4 |  |  |  |  |  |
| Jun-11 | 0.31 | -12.6 | 4742 | 78.9 | 0.4 | 0.17 | -25.0 | 0.69 | -12.2 | 4741 | 60.2 | 0.3 | 0.37 | -29.0 |
| May-15 | 0.83 | -13.0 | 5755 | 80.0 | 0.3 | 0.16 | -25.2 | 1.80 | -12.9 | 5756 | 65.7 | 0.2 | 0.31 | -28.5 |
| Aug-15 | 0.19 | -12.9 | 5903 | 80.5 | 0.3 | 0.15 | -25.0 | 0.67 | -13.2 | 5904 | 59.1 | 0.2 | 0.38 | -31.0 |

**Table 2.** *a*14CDIC *in 1979 and in 1984(corrected for the sampling date) for sampling locations in lakes and tributaries, Z- laboratory number, 14C analyses performed by gas proportional counting (Srdoč et al. 1982; 1987)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Location code** | **Sampling date** | **Z-** | **Sample description** | ***a*14C (pMC)** | **σ** |
| F1 | 11.04.1984 | 1280 | Matica near water gauge | 84.9 | 0.6 |
| F1 | 25.05.1984 | 1336 | Matica at water gauge | 76.6 | 0.6 |
| F3 | 09.10.1979 | 942 | Lake Prošćansko, W bank | 78.7 | 0.7 |
| F6 | 22.03.1979 | 672 | Lake Kozjak, NW bank | 84.5 | 1.1 |
| F8 | 27.09.1979 | 693 | Oweflow from Kozjak to Milanovac (bridges) | 89.0 | 0.7 |
| F10 | 28.09.1979 | 709 | Korana r., below highway bridge | 91.8 | 0.8 |
| T1 | 28.09.1979 | 710 | Rječica r., bridge near the mouth | 88.5 | 0.7 |
| T3 | 28.09.1979 | 708 | Plitvica r., below spring | 85.0 | 0.7 |

**Table 3.** *The set values for a*14C *and δ*13C *of atmospheric CO2 and organic matter in recent and post-bomb periods, calculated correlation lines and calculated values a*14C *and δ*13C *for start point (*SP*) and end point (*EP*)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **MODEL** | | | | | | |
| start point (SP) |  | | | | | assumed |
| start point (SP) |  | | | | | Equation 8 |
| share of atmospheric C in ATM to OM mixture (wATM) |  | | | | | Equation 7 |
| end point (EP) |  | | | | | assumed |
|  | | | | | assumed |
| **VALUES SET FOR THE MODEL** | | | | | | |
| **Values** | | **atmosphere (ATM)** | | **organic matter (OM)** | | |
| *a*14Crecent (pMC) | | 103 ± 0.3 | measured | 110 | assumed | |
| *a*14Cpost-bomb (pMC) | | 130.0 ± 0.5 | measured | 115 | assumed | |
| *δ*13C (‰) | | -8.3 (0.8\*) | approximated | -20.4 (-11.6\*) | assumed | |
| **VALUES CALCULATED FROM THE MODEL** | | | | | | |
| **Values** | **DIC start point (SP)** | | | **DIC end point (EP)** | | |
| *a*14Cpresent (pMC) | | 60.6 | | 106.8 | | |
| *a*14Cpost-bomb (pMC) | | 60.6 | | 121.9 | | |
| *δ*13C (‰) | | -13.6 (-14.6\*) | | -4.9 (-5.9\*) | | |
| *w*ATM (%) | | 47 | | | | |

\*value after correction for *δ*13C fractionation, marked in **Fig. 8**