

## Electronic annex 1

## Bouillon et al. Organic matter sources, fluxes and greenhouse gas exchange in the Oubangui River (Congo River basin)

| Site     | Date       | Discharge (m <sup>3</sup> s <sup>-1</sup> ) | water temperature (°C) | %O <sub>2</sub> | conductivity (µS cm <sup>-1</sup> ) | pH (NBS scale) | TSM (mg L <sup>-1</sup> ) | δ <sup>13</sup> C-DIC (‰) | POC (mg L <sup>-1</sup> ) | PN (mg L <sup>-1</sup> ) | POC/PN (atom) | %POC/TSM |
|----------|------------|---|------------------------|-----------------|-------------------------------------|----------------|---------------------------|---------------------------|---------------------------|--------------------------|---------------|----------|
| Oubangui | 20/03/2010 | 724   | 30.0                   | 96.0            | 62.8                                | 7.99           | 2.4                       | -9.3                      | 0.416                     | 0.063                    | 6.6           | 17.7     |
| Oubangui | 03/04/2010 | 682   | 30.9                   | 93.4            | 62.8                                | 7.78           | 2.4                       | -9.7                      | 0.567                     | 0.085                    | 6.7           | 23.6     |
| Oubangui | 15/04/2010 | 696   | 29.8                   | 86.0            | 65.7                                | 7.63           | 6.3                       | -10.3                     | 0.506                     | 0.072                    | 7.1           | 8.1      |
| Oubangui | 29/04/2010 | 570   | 31.5                   | 94.2            | 72.2                                | 7.98           | 2.4                       | -9.1                      | 0.618                     | 0.078                    | 7.9           | 25.7     |
| Oubangui | 06/05/2010 | 577   | 30.1                   | 94.1            | 70.1                                | 8.21           | 6.3                       | -9.1                      | 1.104                     | 0.122                    | 9.1           | 17.6     |
| Oubangui | 16/05/2010 | 745   | 30.1                   | 92.4            | 72.8                                | 7.82           | 3.6                       | -9.4                      | 0.758                     | 0.107                    | 7.1           | 21.1     |
| Oubangui | 29/05/2010 | 1521  | 30.3                   | 88              | 57.5                                | 7.57           | 14.4                      | -9.1                      | 1.276                     | 0.195                    | 6.6           | 8.9      |
| Oubangui | 14/07/2010 | 2518  | 28.6                   | 81.6            | 39.1                                | 7.10           | 23.2                      | -12.2                     | 1.601                     | 0.154                    | 10.4          | 6.9      |
| Oubangui | 31/07/2010 | 3171  | 27.9                   | 84.2            | 35.9                                | 7.01           | 27.1                      | -13.3                     | 1.528                     | 0.185                    | 8.3           | 5.6      |
| Oubangui | 05/08/2010 | 3432  | 28.5                   | 84.2            | 35.5                                | 6.96           | 32.0                      | -13.8                     | 1.632                     | 0.204                    | 8.0           | 5.1      |
| Oubangui | 15/08/2010 | 3832  | 27.9                   | 82.5            | 34.2                                | 6.93           | 22.1                      | -14.4                     | 1.691                     | 0.165                    | 10.2          | 7.6      |
| Oubangui | 27/08/2010 | 5065  | 28.0                   | 82.9            | 34.1                                | 6.85           | 30.7                      | -14.9                     | 1.572                     | 0.150                    | 10.5          | 5.1      |
| Oubangui | 07/09/2010 | 6336  | 27.1                   | 77.1            | 32.1                                | 6.80           | 33.1                      | -14.8                     | 1.601                     | 0.154                    | 10.4          | 4.8      |
| Oubangui | 18/09/2010 | 8544  | 28.2                   | 94.2            | 32.5                                | 6.67           | 33.2                      | -15.7                     | 1.785                     | 0.167                    | 10.7          | 5.4      |
| Oubangui | 23/09/2010 | 8130  | 28.1                   | 74.4            | 33.6                                | 6.72           | 26.9                      | -15.0                     | 1.428                     | 0.133                    | 10.7          | 5.3      |
| Oubangui | 09/10/2010 | 8400  | 28.3                   | 70.4            | 33.5                                | 6.80           | 23.2                      | -14.2                     | 1.339                     | 0.121                    | 11.0          | 5.8      |
| Oubangui | 20/10/2010 | 7746  | 28.2                   | 71.5            | 34.2                                | 6.81           | 23.2                      | -14.1                     | 1.320                     | 0.133                    | 9.9           | 5.7      |
| Oubangui | 30/10/2010 | 8346  | 27.8                   | 77.5            | 32.8                                | 6.83           | 22.5                      | -13.8                     | 1.504                     | 0.126                    | 11.9          | 6.7      |
| Oubangui | 10/11/2010 | 8346  | 27.6                   | 78.9            | 32.8                                | 6.84           | 23.2                      | -13.9                     | 1.327                     | 0.117                    | 11.4          | 5.7      |
| Oubangui | 20/11/2010 | 6750  | 27.2                   | 80.1            | 34.2                                | 6.92           | 20.8                      | -14.0                     | 1.191                     | 0.107                    | 11.1          | 5.7      |
| Oubangui | 27/11/2010 | 6149  | 27.8                   | 85.5            | 35.1                                | 6.95           | 19.9                      | -13.2                     | 1.329                     | 0.119                    | 11.2          | 6.7      |
| Oubangui | 04/12/2010 | 5346  | 28.6                   | 82.0            | 35.3                                | 6.97           | 18.3                      | -12.9                     | 1.174                     | 0.110                    | 10.6          | 6.4      |
| Oubangui | 30/12/2010 | 2434  | 27.7                   | 83.1            | 38.1                                | 7.41           | 14.7                      | -10.3                     | 1.134                     | 0.166                    | 6.8           | 7.7      |
| Oubangui | 05/01/2011 | 2077  | 26.8                   | 81.2            | 39.5                                | 7.33           | 12.3                      | -10.3                     | 0.764                     | 0.118                    | 6.5           | 6.2      |
| Oubangui | 29/01/2011 | 1248  | 27.5                   | 90.3            | 46.3                                | 7.67           | 4.4                       | -8.6                      | 0.435                     | 0.069                    | 6.3           | 9.9      |
| Oubangui | 05/02/2011 | 1100  | 28.3                   | 84.3            | 49.3                                | 7.77           | 3.6                       | -9.0                      | 0.320                     | 0.067                    | 4.7           | 8.9      |
| Oubangui | 26/02/2011 | 731   | 29.5                   | 93.0            | 59.9                                | 7.87           | 3.2                       | -9.1                      | 0.370                     | 0.064                    | 5.8           | 11.6     |
| Oubangui | 17/03/2011 | 485.5                                       | 30.7                   | 84.4            | 62.7                                | 8.24           | 2.4                       | -8.8                      | 0.569                     | 0.067                    | 8.5           | 23.7     |

## Electronic annex 1 (continued)

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| Site     | Date       | $\delta^{15}\text{N-PN}$ (‰) | $\delta^{13}\text{C-POC}$ (‰) | DOC (mg L <sup>-1</sup> ) | $\delta^{13}\text{C-DOC}$ (‰) | S8    | A8   | S:V  | C:V  | (Ad:Al)v | (Ad:Al)s | TA (mmol L <sup>-1</sup> ) | DIC (mmol L <sup>-1</sup> ) | pCO <sub>2</sub> (ppm) | N <sub>2</sub> O (nmol L <sup>-1</sup> ) | CH <sub>4</sub> (nmol L <sup>-1</sup> ) |
|----------|------------|------------------------------|-------------------------------|---------------------------|-------------------------------|-------|------|------|------|----------|----------|----------------------------|-----------------------------|------------------------|--|---|
| Oubangui | 20/03/2010 | 3.3                          | -28.1                         | 2.39                      |                               | 5.07  | 0.23 | 0.77 | 0.27 | 1.78     | 1.22     | 0.526                      | 0.533                       | 384                    | 6.7                                      | 107.8                                   |
| Oubangui | 03/04/2010 | 2.7                          | -29.5                         | 2.81                      | -27.2                         | 7.22  | 0.26 | 0.86 | 0.25 | 2.03     | 1.23     | 0.510                      | 0.525                       | 603                    | 6.4                                      | 207.9                                   |
| Oubangui | 15/04/2010 | 4.1                          | -26.7                         | 2.46                      | -27.6                         | 7.27  | 0.30 | 0.91 | 0.30 | 2.20     | 1.06     | 0.549                      | 0.574                       | 898                    | 7.1                                      | 173.1                                   |
| Oubangui | 29/04/2010 | 3.5                          | -29.1                         | 2.41                      | -27.4                         | 4.90  | 0.20 | 0.83 | 0.40 | 2.20     | 0.99     | 0.582                      | 0.590                       | 435                    | 6.5                                      | 205.6                                   |
| Oubangui | 06/05/2010 | 3.9                          | -27.0                         | 2.42                      | -27.5                         | 6.95  | 0.29 | 0.87 | 0.56 | 2.10     | 1.17     | 0.580                      | 0.580                       | 248                    | 6.3                                      | 250.4                                   |
| Oubangui | 16/05/2010 | 4.7                          | -29.0                         | 2.83                      | -27.8                         | 7.12  | 0.25 | 0.84 | 0.35 | 1.77     | 1.03     | 0.600                      | 0.615                       | 638                    | 6.2                                      | 279.5                                   |
| Oubangui | 29/05/2010 | 4.4                          | -28.4                         | 3.73                      | -27.7                         | 15.33 | 0.41 | 0.82 | 0.19 | 1.44     | 1.00     | 0.459                      | 0.483                       | 885                    | 6.8                                      | 275.9                                   |
| Oubangui | 14/07/2010 | 4.5                          | -26.4                         | 5.28                      | -27.7                         | 33.58 | 0.64 | 0.84 | 0.16 | 1.22     | 0.86     | 0.305                      | 0.356                       | 1670                   | 7.4                                      | 165.7                                   |
| Oubangui | 31/07/2010 | 4.5                          | -27.2                         | 5.47                      | -27.5                         | 37.27 | 0.68 | 0.84 | 0.21 | 1.23     | 0.88     | 0.302                      | 0.366                       | 2044                   | 9.0                                      | 122.1                                   |
| Oubangui | 05/08/2010 | 4.7                          | -27.0                         | 5.44                      | -27.7                         | 42.95 | 0.79 | 0.85 | 0.21 | 1.10     | 0.86     | 0.273                      | 0.337                       | 2059                   | 9.6                                      | 121.8                                   |
| Oubangui | 15/08/2010 | 4.3                          | -27.1                         | 6.02                      | -28.4                         | 43.19 | 0.72 | 0.83 | 0.21 | 1.27     | 0.88     | 0.275                      | 0.344                       | 2206                   | 8.1                                      | 113.6                                   |
| Oubangui | 27/08/2010 | 4.6                          | -26.7                         | 7.01                      | -28.7                         | 47.42 | 0.68 | 0.87 | 0.21 | 1.27     | 0.93     | 0.27                       | 0.353                       | 2658                   | 8.2                                      | 115.8                                   |
| Oubangui | 07/09/2010 | 4.4                          | -26.4                         | 8.59                      | -30.2                         | 50.58 | 0.59 | 0.86 | 0.21 | 1.32     | 0.92     | 0.251                      | 0.338                       | 2713                   | 8.4                                      | 92.4                                    |
| Oubangui | 18/09/2010 | 4.9                          | -26.0                         | 8.89                      | -29.8                         | 60.16 | 0.68 | 0.83 | 0.15 | 1.10     | 0.80     | 0.253                      | 0.370                       | 3730                   | 7.9                                      | 113.6                                   |
| Oubangui | 23/09/2010 | 4.7                          | -25.8                         | 9.48                      | -30.4                         | 56.85 | 0.60 | 0.88 | 0.18 | 1.09     | 0.88     | 0.27                       | 0.382                       | 3569                   | 8.1                                      | 98.1                                    |
| Oubangui | 09/10/2010 | 4.8                          | -25.9                         | 11.53                     | -31.8                         | 72.18 | 0.63 | 0.85 | 0.19 | 1.00     | 0.78     | 0.234                      | 0.314                       | 2560                   | 8.8                                      | 83.1                                    |
| Oubangui | 20/10/2010 | 4.1                          | -25.8                         | 10.88                     | -31.6                         | 58.98 | 0.54 | 0.90 | 0.20 | 1.28     | 0.90     | 0.281                      | 0.376                       | 3030                   | 8.2                                      | 92.4                                    |
| Oubangui | 30/10/2010 | 4.1                          | -26.4                         | 5.28                      | -28.5                         | 38.92 | 0.74 | 0.91 | 0.20 | 1.16     | 0.92     | 0.272                      | 0.358                       | 2741                   | 8.3                                      | 93.3                                    |
| Oubangui | 10/11/2010 | 4.2                          | -25.9                         | 5.09                      | -28.6                         | 36.07 | 0.71 | 0.83 | 0.18 | 1.03     | 0.80     | 0.284                      | 0.373                       | 2798                   | 8.5                                      | 91.2                                    |
| Oubangui | 20/11/2010 | 4.3                          | -26.0                         | 4.99                      | -28.7                         | 38.29 | 0.77 | 0.90 | 0.20 | 1.12     | 0.86     | 0.305                      | 0.385                       | 2498                   | 8.3                                      | 86.1                                    |
| Oubangui | 27/11/2010 | 3.9                          | -26.5                         | 4.67                      | -29.0                         |       |      |      |      |          |          | 0.308                      | 0.382                       | 2352                   | 8.1                                      | 80.5                                    |
| Oubangui | 04/12/2010 | 3.9                          | -26.9                         | 4.98                      | -29.0                         | 33.23 | 0.67 | 0.84 | 0.17 | 1.16     | 0.87     | 0.301                      | 0.370                       | 2235                   | 8.2                                      | 92.8                                    |
| Oubangui | 30/12/2010 | 5.7                          | -28.4                         | 4.54                      | -29.9                         |       |      |      |      |          |          | 0.349                      | 0.378                       | 936                    | 7.9                                      | 91.2                                    |
| Oubangui | 05/01/2011 | 4.3                          | -28.8                         | 4.20                      | -30.5                         | 18.24 | 0.43 | 0.83 | 0.20 | 1.39     | 0.94     | 0.38                       | 0.419                       | 1210                   | 7.9                                      | 84.6                                    |
| Oubangui | 29/01/2011 | 5.4                          | -30.5                         | 3.24                      | -30.6                         |       |      |      |      |          |          | 0.432                      | 0.451                       | 629                    | 7.6                                      | 76.0                                    |
| Oubangui | 05/02/2011 | 5.9                          | -30.2                         | 3.88                      | -31.2                         |       |      |      |      |          |          | 0.457                      | 0.472                       | 535                    | 7.6                                      | 89.4                                    |
| Oubangui | 26/02/2011 | 4.9                          | -30.6                         | 3.23                      | -30.7                         | 5.67  | 0.18 | 0.81 | 0.28 | 1.90     | 1.23     | 0.53                       | 0.542                       | 499                    | 7.2                                      | 74.5                                    |
| Oubangui | 17/03/2011 | 3.5                          | -28.8                         | 1.72                      | -27.1                         | 5.39  | 0.31 | 0.77 | 0.24 | 2.12     | 1.15     | 0.571                      | 0.570                       | 227                    | 7.0                                      | 143.7                                   |