

Annex A. Agroclimatic indicators and BIOMSS

Table A.1 July 2019 - Oct 2019 agroclimatic indicators and biomass by global Monitoring and Reporting Unit (MRU)

| 65 Global MRUs | | RAIN Current (mm) | RAIN 15YA dep. (%) | TEMP Current (°C) | TEMP 15YA dep. (°C) | RADPAR Current(MJ/m ²) | RADPAR 15YA dep. (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA dep. (%) |
|----------------|------------------------------------|-------------------------|-----------------------------|-------------------------|------------------------------|---------------------------------------|----------------------------|--|------------------------------|
| C01 | Equatorial central Africa | 769 | 3 | 22.5 | -0.3 | 1220 | 2 | 624 | 2 |
| C02 | East African highlands | 892 | 11 | 16.9 | -0.3 | 1178 | 0 | 492 | 0 |
| C03 | Gulf of Guinea | 1090 | 12 | 24.5 | -0.3 | 1079 | 1 | 719 | 2 |
| C04 | Horn of Africa | 144 | 67 | 22.3 | 0.1 | 1277 | 1 | 623 | 6 |
| C05 | Madagascar (main) | 164 | -2 | 20.1 | 0.6 | 1146 | 3 | 535 | 4 |
| C06 | Southwest Madagascar | 37 | 2 | 22.8 | 0.5 | 1227 | 1 | 531 | 12 |
| C07 | North Africa-Mediterranean | 80 | -7 | 23.2 | -0.1 | 1353 | 1 | 608 | 5 |
| C08 | Sahel | 647 | 23 | 26.8 | -0.8 | 1195 | 0 | 790 | 7 |
| C09 | Southern Africa | 73 | 1 | 19.8 | 0.2 | 1260 | 4 | 450 | 1 |
| C10 | Western Cape (South Africa) | 193 | -10 | 13 | 0.4 | 989 | 5 | 351 | 7 |
| C11 | British Columbia to Colorado | 321 | 14 | 10.6 | -1.4 | 1126 | 0 | 402 | -2 |
| C12 | Northern Great Plains | 409 | 59 | 17.4 | -1.4 | 1087 | -3 | 547 | -6 |
| C13 | Corn Belt | 416 | 15 | 17.7 | 0 | 1056 | 2 | 515 | 3 |
| C14 | Cotton Belt to Mexican Nordeste | 505 | 14 | 24.7 | 0.6 | 1223 | 2 | 774 | 6 |
| C15 | Sub-boreal America | 340 | 8 | 10.8 | -1 | 831 | -3 | 300 | -8 |
| C16 | West Coast (North America) | 132 | -6 | 17.5 | -0.7 | 1283 | 0 | 410 | -6 |
| C17 | Sierra Madre | 1637 | 35 | 19.1 | 0 | 1230 | 2 | 613 | 2 |
| C18 | SW U.S. and N. Mexican highlands | 299 | 8 | 21.1 | -0.3 | 1334 | 3 | 645 | 0 |
| C19 | Northern South and Central America | 1188 | -8 | 24.2 | 0.3 | 1267 | 5 | 802 | 5 |
| C20 | Caribbean | 869 | 12 | 26 | -0.1 | 1392 | 6 | 930 | 5 |
| C21 | Central-northern Andes | 406 | -11 | 12.9 | -0.2 | 1210 | 1 | 340 | -4 |
| C22 | Nordeste (Brazil) | 79 | -11 | 24.5 | 0.2 | 1240 | 2 | 691 | 7 |
| C23 | Central eastern Brazil | 212 | -13 | 23.5 | 0.2 | 1150 | 2 | 565 | 6 |
| C24 | Amazon | 431 | 10 | 25.7 | -0.1 | 1213 | 3 | 698 | 3 |
| C25 | Central-north Argentina | 113 | -18 | 17 | -0.8 | 1053 | 1 | 415 | -6 |
| C26 | Pampas | 358 | -17 | 14.7 | -0.5 | 904 | 3 | 344 | -2 |
| C27 | Western Patagonia | 547 | -25 | 6.4 | -0.1 | 762 | 5 | 183 | 7 |
| C28 | Semi-arid Southern Cone | 63 | -40 | 10.6 | -0.2 | 1039 | 2 | 230 | -11 |

| | | | | | | | | | |
|-----|---------------------------------|------|-----|------|------|------|----|-----|-----|
| C29 | Caucasus | 164 | -22 | 17.9 | -0.3 | 1261 | 2 | 437 | -2 |
| C30 | Pamir area | 243 | 50 | 17.5 | 0.1 | 1401 | 0 | 390 | 0 |
| C31 | Western Asia | 70 | 34 | 23.7 | 0.3 | 1340 | 0 | 310 | 8 |
| C32 | Gansu-Xinjiang (China) | 159 | -5 | 17 | 0.6 | 1192 | 1 | 541 | 4 |
| C33 | Hainan (China) | 1097 | -18 | 25.8 | 0.3 | 1260 | 6 | 846 | 7 |
| C34 | Huanghuaihai (China) | 320 | -26 | 22.9 | 0.8 | 1106 | 4 | 601 | -1 |
| C35 | Inner Mongolia (China) | 242 | 8 | 16.3 | 0.3 | 1102 | 0 | 496 | -1 |
| C36 | Loess region (China) | 338 | -6 | 16.9 | 0 | 1095 | 2 | 512 | 2 |
| C37 | Lower Yangtze (China) | 705 | -13 | 23.5 | 0.4 | 1149 | 8 | 679 | 5 |
| C38 | Northeast China | 446 | 36 | 15.8 | 0.1 | 995 | -1 | 438 | -5 |
| C39 | Qinghai-Tibet (China) | 1150 | 7 | 11 | 0.1 | 980 | -2 | 300 | -1 |
| C40 | Southern China | 1172 | -2 | 22.9 | 0.2 | 1151 | 6 | 660 | 2 |
| C41 | Southwest China | 836 | 0 | 19 | 0.1 | 974 | 1 | 503 | 0 |
| C42 | Taiwan (China) | 1068 | -8 | 25.7 | 0.2 | 1166 | 0 | 726 | 0 |
| C43 | East Asia | 686 | 4 | 16.9 | 0.3 | 941 | 0 | 427 | -1 |
| C44 | Southern Himalayas | 1433 | 7 | 23.9 | 0 | 1062 | 0 | 629 | 4 |
| C45 | Southern Asia | 1742 | 47 | 25.2 | -0.4 | 967 | -9 | 636 | -6 |
| C46 | Southern Japan and Korea | 1112 | 16 | 22 | 0.4 | 995 | -3 | 589 | -2 |
| C47 | Southern Mongolia | 79 | 31 | 14.9 | 1.1 | 1207 | 0 | 492 | 4 |
| C48 | Punjab to Gujarat | 1203 | 100 | 28.8 | -0.4 | 1101 | -5 | 719 | 21 |
| C49 | Maritime Southeast Asia | 919 | -21 | 24 | 0.1 | 1218 | 8 | 757 | 5 |
| C50 | Mainland Southeast Asia | 1283 | -8 | 25.1 | 0.2 | 1139 | 5 | 753 | 6 |
| C51 | Eastern Siberia | 350 | -3 | 11.2 | 0.2 | 837 | 3 | 312 | 4 |
| C52 | Eastern Central Asia | 331 | 31 | 10.3 | 0.2 | 968 | 0 | 340 | 0 |
| C53 | Northern Australia | 79 | -58 | 22.9 | -0.5 | 1298 | 5 | 503 | -18 |
| C54 | Queensland to Victoria | 120 | -40 | 13.2 | 0.3 | 979 | 6 | 345 | 3 |
| C55 | Nullarbor to Darling | 173 | -27 | 13.3 | 0.5 | 932 | 10 | 355 | 15 |
| C56 | New Zealand | 382 | 1 | 8.2 | 0.2 | 694 | 2 | 180 | 1 |
| C57 | Boreal Eurasia | 376 | -5 | 10.1 | -0.5 | 728 | 2 | 256 | 0 |
| C58 | Ukraine to Ural mountains | 283 | 4 | 13.6 | -0.9 | 803 | -2 | 332 | -11 |
| C59 | Mediterranean Europe and Turkey | 144 | -13 | 19.5 | 0 | 1257 | 1 | 560 | 7 |
| C60 | W. Europe (non Mediterranean) | 318 | -2 | 16.1 | 0.5 | 964 | 4 | 439 | 6 |
| C61 | Boreal America | 476 | 0 | 9.1 | 1.3 | 682 | 11 | 215 | 20 |
| C62 | Ural to Altai mountains | 247 | 6 | 13.4 | 0.4 | 901 | 3 | 385 | 5 |
| C63 | Australian desert | 53 | -52 | 14.8 | 0.4 | 1030 | 6 | 400 | 6 |
| C64 | Sahara to Afghan deserts | 25 | 41 | 29.4 | 0.6 | 1467 | -1 | 271 | 30 |
| C65 | Sub-arctic America | 180 | 7 | 0.2 | 1.7 | 627 | -1 | 127 | 14 |

Table A.2 July 2019 - Oct 2019 agroclimatic indicators and biomass by country

| Country code | Country name | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure(°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|--------------|----------------|-------------------|-------------------------|-------------------|-------------------------|-------------------------------------|---------------------------|--------------------------------------|--------------------------|
| ARG | Argentina | 200 | -20 | 13.6 | -0.8 | 931 | 1 | 318 | -7 |
| AUS | Australia | 121 | -38 | 14 | 0.3 | 1004 | 7 | 351 | 4 |
| BGD | Bangladesh | 1915 | 0 | 26.8 | 0.1 | 1094 | 0 | 744 | 2 |
| BRA | Brazil | 275 | -5 | 23.6 | 0.1 | 1161 | 2 | 592 | 5 |
| KHM | Cambodia | 1181 | -8 | 25.4 | 0 | 1115 | 3 | 750 | 3 |
| CAN | Canada | 362 | 8 | 11.9 | -0.9 | 897 | -1 | 329 | -5 |
| CHN | China | 692 | -4 | 20.1 | 0.3 | 1078 | 4 | 539 | 1 |
| EGY | Egypt | 38 | 923 | 25.8 | 0.3 | 1396 | 0 | 151 | -24 |
| ETH | Ethiopia | 977 | 9 | 17.4 | -0.3 | 1189 | 0 | 502 | -1 |
| FRA | France | 314 | 3 | 17 | 1 | 1027 | 4 | 482 | 10 |
| DEU | Germany | 314 | -2 | 15.1 | 0.4 | 880 | 1 | 384 | 3 |
| IND | India | 1616 | 40 | 25.5 | -0.3 | 995 | -7 | 644 | 1 |
| IDN | Indonesia | 728 | -29 | 24 | 0 | 1227 | 8 | 742 | 4 |
| IRN | Iran | 55 | 19 | 22.9 | 0.4 | 1426 | -1 | 244 | 8 |
| KAZ | Kazakhstan | 185 | 11 | 15.5 | 0.3 | 1026 | 1 | 442 | 4 |
| MEX | Mexico | 1188 | 16 | 22.7 | 0.4 | 1284 | 3 | 727 | 3 |
| MMR | Myanmar | 1487 | -3 | 23.7 | 0.2 | 1060 | 5 | 664 | 5 |
| NGA | Nigeria | 1029 | 8 | 24.8 | -0.4 | 1068 | -2 | 714 | 3 |
| PAK | Pakistan | 430 | 98 | 27.4 | -0.2 | 1334 | -3 | 694 | 29 |
| PHL | Philippines | 1580 | -9 | 24.8 | 0 | 1204 | 3 | 793 | 3 |
| POL | Poland | 267 | -7 | 15.5 | 0.3 | 870 | 3 | 387 | 1 |
| ROU | Romania | 163 | -35 | 17.5 | 0.6 | 1105 | 6 | 515 | 4 |
| RUS | Russia | 307 | 9 | 12.8 | -0.6 | 815 | -2 | 332 | -6 |
| ZAF | South Africa | 56 | -52 | 15.1 | 0.5 | 1185 | 6 | 362 | -6 |
| THA | Thailand | 948 | -17 | 25.3 | 0.3 | 1170 | 7 | 773 | 7 |
| TUR | Turkey | 95 | -30 | 18.6 | -0.2 | 1310 | 2 | 444 | -4 |
| GBR | United Kingdom | 524 | 17 | 12.9 | 0 | 680 | 4 | 257 | 6 |
| UKR | Ukraine | 166 | -21 | 16.6 | -0.1 | 1002 | 6 | 470 | 3 |
| USA | United States | 424 | 24 | 20.1 | -0.2 | 1161 | 1 | 595 | 1 |
| UZB | Uzbekistan | 24 | -17 | 22.8 | 0.4 | 1388 | 1 | 266 | -2 |
| VNM | Vietnam | 1310 | -5 | 24 | 0.1 | 1164 | 6 | 739 | 5 |
| AFG | Afghanistan | 55 | 75 | 19.5 | 0.6 | 1460 | 0 | 152 | 3 |
| AGO | Angola | 229 | 62 | 21.3 | -0.2 | 1356 | 1 | 403 | 0 |
| BLR | Belarus | 254 | -9 | 13.9 | -0.4 | 804 | 2 | 328 | -6 |
| HUN | Hungary | 160 | -26 | 18.8 | 0.7 | 1070 | 5 | 560 | 8 |
| ITA | Italy | 343 | 5 | 19.8 | 0.7 | 1164 | 1 | 614 | 9 |
| KEN | Kenya | 447 | 52 | 19.4 | -0.2 | 1210 | 5 | 612 | 4 |
| LKA | Sri Lanka | 1518 | 48 | 25.7 | -0.4 | 1158 | -5 | 777 | -2 |
| MAR | Morocco | 63 | -27 | 22.1 | -0.7 | 1403 | 3 | 581 | -3 |
| MNG | Mongolia | 334 | 47 | 10 | 0.2 | 1050 | -1 | 347 | -2 |
| MOZ | Mozambique | 65 | -10 | 22.2 | -0.1 | 1194 | 3 | 615 | -1 |
| ZMB | Zambia | 14 | -17 | 21.5 | 0 | 1396 | 1 | 384 | 15 |

Note: Departures are expressed in relative terms (percentage) for all variables, except for temperature, for which absolute departure in degrees Celsius is given. Zero means no change from the average value; relative departures are calculated as $(C-R)/R*100$, with C=current value and R=reference value, which is the fifteen-year average (15YA) for the same period between July and October.

Table A.3 Argentina, July - Oct 2019 agroclimatic indicators and biomass (by province)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure(°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|---------------------|-------------------------|----------------------------------|-------------------------|----------------------------|---|------------------------------------|--|-----------------------------------|
| Buenos Aires | 168 | -35 | 11 | -0.6 | 869 | 4 | 274 | 1 |
| Chaco | 212 | -24 | 16.8 | -1.3 | 939 | 3 | 377 | -13 |
| Cordoba | 98 | -24 | 13.7 | -0.6 | 1007 | 1 | 335 | -4 |
| Corrientes | 416 | -10 | 15.6 | -0.9 | 856 | 0 | 317 | -17 |
| Entre Rios | 362 | 1 | 13 | -1.3 | 819 | -5 | 287 | -15 |
| La Pampa | 66 | -61 | 11.9 | -0.4 | 940 | 6 | 309 | 5 |
| Misiones | 403 | -36 | 17.1 | -0.2 | 949 | 8 | 404 | -1 |
| Santiago Del Estero | 114 | -24 | 16.8 | -0.9 | 1030 | 2 | 375 | -12 |
| San Luis | 42 | -61 | 12.4 | -0.4 | 1025 | 4 | 324 | 2 |
| Salta | 145 | -6 | 15.8 | -0.5 | 1106 | -2 | 404 | -10 |
| Santa Fe | 235 | -8 | 14.4 | -1.3 | 899 | -2 | 325 | -13 |
| Tucuman | 70 | -16 | 13.8 | 0 | 1139 | -3 | 319 | -15 |

Table A.4 Australia, July - Oct 2019 agroclimatic indicators and biomass (by state)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure(°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|-----------------|-------------------------|----------------------------------|-------------------------|----------------------------|---|------------------------------------|--|-----------------------------------|
| New South Wales | 77 | -56 | 13 | 0.4 | 1034 | 7 | 361 | 6 |
| South Australia | 161 | -19 | 13.2 | 0.1 | 834 | 1 | 328 | 6 |
| Victoria | 244 | -14 | 10.4 | -0.1 | 745 | 2 | 252 | 5 |
| W. Australia | 159 | -28 | 14.1 | 0.4 | 967 | 10 | 346 | 11 |

Table A.5 Brazil, July - Oct 20192019 agroclimatic indicators and biomass (by state)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|--------------------|-------------------------|----------------------------------|-------------------------|-----------------------------|---|------------------------------------|--|-----------------------------------|
| Ceara | 57 | -6 | 26.6 | -0.1 | 1383 | 1 | 852 | 10 |
| Goiias | 197 | -10 | 25 | 0.5 | 1240 | 2 | 441 | -3 |
| Mato Grosso Do Sul | 150 | -48 | 24 | 0.7 | 1095 | 2 | 658 | 19 |
| Mato Grosso | 238 | 13 | 26.2 | 0.1 | 1196 | 3 | 506 | 2 |
| Minas Gerais | 252 | 0 | 21 | 0.2 | 1129 | 1 | 545 | 1 |
| Parana | 358 | -34 | 18.5 | 0.7 | 1039 | 7 | 528 | 20 |
| Rio Grande Do Sul | 587 | -9 | 14.9 | -0.3 | 879 | 4 | 333 | -4 |
| Santa Catarina | 468 | -28 | 15.4 | 0.4 | 890 | 4 | 370 | 8 |
| Sao Paulo | 227 | -36 | 21 | 0.5 | 1081 | 3 | 595 | 17 |

Table A.6 Canada, July - Oct 2019 2019 agroclimatic indicators and biomass (by province)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|--------------|-------------------------|----------------------------------|-------------------------|-----------------------------|---|------------------------------------|--|-----------------------------------|
| Alberta | 291 | 17 | 10.5 | -1.6 | 891 | -7 | 318 | -14 |
| Manitoba | 394 | 39 | 12.9 | -1 | 884 | -3 | 379 | -4 |
| Saskatchewan | 272 | 16 | 11.9 | -1.7 | 913 | -4 | 364 | -10 |

Table A.7 India, July - Oct 2019 2019 agroclimatic indicators and biomass (by state)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|------------------|-------------------------|----------------------------------|-------------------------|-----------------------------|---|------------------------------------|--|-----------------------------------|
| Andhra Pradesh | 1462 | 77 | 25.8 | -0.8 | 989 | -10 | 663 | -9 |
| Assam | 2668 | 11 | 25.2 | 0 | 915 | -5 | 602 | -4 |
| Bihar | 1587 | 29 | 27 | -0.4 | 1065 | -6 | 717 | -2 |
| Chhattisgarh | 1734 | 47 | 25 | -0.2 | 964 | -10 | 636 | -5 |
| Daman and Diu | 2098 | 26 | 27.2 | -0.1 | 1096 | -4 | 750 | 12 |
| Delhi | 529 | -9 | 29 | 0 | 1190 | 2 | 751 | 13 |
| Gujarat | 1865 | 89 | 27.3 | -0.4 | 960 | -11 | 638 | 10 |
| Goa | 4210 | 43 | 25.5 | -0.1 | 1015 | -11 | 687 | -10 |
| Himachal Pradesh | 900 | -10 | 17.7 | -0.3 | 1190 | 0 | 483 | 6 |
| Haryana | 461 | -10 | 29.1 | 0 | 1191 | 2 | 749 | 18 |
| Jharkhand | 1586 | 31 | 25.3 | -0.1 | 1058 | -6 | 696 | -3 |
| Kerala | 3119 | 56 | 24.3 | -0.1 | 950 | -12 | 617 | -12 |
| Karnataka | 1492 | 42 | 23.2 | -0.1 | 823 | -13 | 533 | -12 |
| Meghalaya | 2346 | -16 | 24 | 0.7 | 929 | 4 | 591 | 8 |
| Maharashtra | 1849 | 63 | 24.3 | -0.3 | 885 | -11 | 588 | -4 |
| Manipur | 2017 | 4 | 21 | -0.1 | 869 | -2 | 489 | -3 |
| Madhya Pradesh | 1688 | 68 | 25.3 | -0.1 | 944 | -10 | 620 | 5 |
| Mizoram | 1882 | -3 | 22.8 | 0.1 | 1037 | 6 | 628 | 6 |
| Nagaland | 2723 | 25 | 20.7 | -0.2 | 868 | -2 | 481 | -2 |
| Orissa | 1916 | 39 | 25.5 | -0.4 | 988 | -11 | 655 | -9 |
| Puducherry | 801 | 5 | 28.5 | -0.7 | 1141 | 0 | 779 | 0 |
| Punjab | 601 | 4 | 28.4 | -0.7 | 1196 | 2 | 774 | 13 |
| Rajasthan | 1159 | 119 | 28.7 | -0.3 | 1108 | -4 | 696 | 25 |
| Sikkim | 756 | -20 | 15.8 | 0.2 | 1137 | 8 | 408 | 7 |
| Tamil Nadu | 1158 | 50 | 26.2 | -0.8 | 1040 | -6 | 688 | -5 |
| Tripura | 1359 | -25 | 26 | 0.2 | 1084 | 5 | 731 | 6 |
| Uttarakhand | 920 | -14 | 19.8 | 0.2 | 1149 | 3 | 475 | 2 |
| Uttar Pradesh | 1051 | 12 | 27.7 | 0 | 1082 | -4 | 694 | 3 |
| West Bengal | 1998 | 14 | 26.9 | -0.1 | 1103 | -3 | 745 | -2 |

Table A.8 Kazakhstan, July - Oct 2019 2019 agroclimatic indicators and biomass (by oblast)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 15YA Departure (%) |
|------------------------------|-------------------------|----------------------------------|-------------------------|-----------------------------|---|------------------------------------|--|------------------------------------|
| Akmolinskaya | 190 | 23 | 14.6 | 0.4 | 943 | 1 | 388 | -6 |
| Karagandinskaya | 121 | -12 | 14.5 | 1 | 1057 | 4 | 419 | 1 |
| Kustanayskaya | 223 | 40 | 14.9 | -0.1 | 897 | -1 | 435 | 4 |
| Pavlodarskaya | 136 | -25 | 15.4 | 1.1 | 962 | 6 | 444 | 9 |
| Severo kazachstanskaya | 234 | 9 | 13.5 | 0.4 | 838 | 2 | 348 | -1 |
| Vostochno kazachstanskaya | 213 | -3 | 14.1 | 0.5 | 1111 | 3 | 446 | 2 |
| Zapadno kazachstanskaya | 141 | 16 | 16.9 | -1.4 | 971 | -3 | 497 | -2 |

Table A.9 Russia, July - Oct 2019 2019 agroclimatic indicators and biomass (by oblast, kray and republic)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 15YA Departure (%) |
|--------------------------|-------------------------|----------------------------------|-------------------------|--------------------------------|---|------------------------------------|--|------------------------------------|
| Bashkortostan Rep. | 399 | 40 | 11.3 | -1.5 | 698 | -13 | 265 | -22 |
| Chelyabinskaya Oblast | 310 | 26 | 12.2 | -0.6 | 786 | -1 | 326 | -4 |
| Gorodovikovsk | 294 | 57 | 19.2 | -1.2 | 1061 | 0 | 584 | 3 |
| Krasnodarskiy Kray | 262 | -18 | 15 | 0.1 | 976 | 4 | 427 | 7 |
| Kurganskaya Oblast | 267 | 10 | 12.6 | -0.1 | 769 | 2 | 331 | 3 |
| Kirovskaya Oblast | 401 | 24 | 10 | -1.9 | 555 | -20 | 186 | -36 |
| Kurskaya Oblast | 214 | -12 | 14.3 | -0.6 | 916 | 7 | 381 | -1 |
| Lipetskaya Oblast | 214 | -13 | 14 | -0.9 | 852 | 2 | 343 | -12 |
| Mordoviya Rep. | 284 | -2 | 12.5 | -1.2 | 752 | -5 | 286 | -19 |
| Novosibirskaya Oblast | 211 | -22 | 13 | 1.2 | 840 | 10 | 362 | 18 |
| Nizhegorodskaya O. | 390 | 27 | 11.6 | -1.7 | 645 | -14 | 234 | -29 |
| Orenburgskaya Oblast | 234 | 25 | 14.1 | -1.3 | 846 | -8 | 385 | -11 |
| Omskaya Oblast | 251 | 2 | 12.8 | 0.9 | 800 | 8 | 345 | 14 |
| Permskaya Oblast | 513 | 55 | 9.9 | -1.5 | 514 | -24 | 177 | -37 |
| Penzenskaya Oblast | 271 | 3 | 13 | -1.1 | 798 | -4 | 316 | -15 |
| Rostovskaya Oblast | 184 | 1 | 18.1 | -0.9 | 1041 | 1 | 507 | -5 |
| Ryazanskaya Oblast | 299 | 7 | 13.1 | -1.2 | 765 | -3 | 300 | -17 |
| Stavropolskiy Kray | 262 | -7 | 18.8 | -0.6 | 1104 | 4 | 589 | 2 |
| Sverdlovskaya Oblast | 326 | 8 | 10.8 | -0.5 | 646 | -6 | 250 | -10 |
| Samarskaya Oblast | 245 | -1 | 13.4 | -1.4 | 785 | -8 | 322 | -19 |
| Saratovskaya Oblast | 190 | -1 | 15.1 | -1.1 | 908 | -2 | 410 | -9 |

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|-----------------------------|-------------------------|----------------------------------|-------------------------|--------------------------------|---|------------------------------------|--|-----------------------------------|
| Tambovskaya Oblast | 227 | -3 | 14.2 | -0.9 | 853 | -1 | 359 | -10 |
| Tyumenskaya Oblast | 296 | 14 | 11.9 | 0.2 | 745 | 6 | 309 | 8 |
| Tatarstan Rep. | 354 | 19 | 11.7 | -1.6 | 678 | -11 | 252 | -24 |
| Ulyanovskaya Oblast | 247 | -13 | 12.8 | -1.3 | 781 | -4 | 306 | -16 |
| Udmurtiya Rep. | 442 | 45 | 10.5 | -1.7 | 569 | -19 | 198 | -33 |
| Volgogradskaya O. | 170 | 8 | 16.8 | -1 | 996 | 1 | 469 | -5 |
| Voronezhskaya Oblast | 200 | -3 | 15.2 | -0.9 | 933 | 3 | 376 | -15 |

Table A.10 United States, July - Oct 2019 2019 agroclimatic indicators and biomass (by state)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|---------------------|-------------------------|----------------------------------|-------------------------|--------------------------------|---|------------------------------------|--|-----------------------------------|
| Arkansas | 470 | 25 | 23.7 | 0.2 | 1206 | 2 | 757 | 7 |
| California | 20 | -67 | 19.7 | -0.6 | 1441 | 2 | 387 | -9 |
| Idaho | 158 | 17 | 13.4 | -1.9 | 1226 | -2 | 512 | 2 |
| Indiana | 364 | 18 | 20 | 0.3 | 1139 | 2 | 640 | 5 |
| Illinois | 484 | 57 | 20 | -0.3 | 1112 | -2 | 629 | 0 |
| Iowa | 451 | 49 | 18.4 | -0.8 | 1072 | -5 | 581 | -4 |
| Kansas | 400 | 25 | 22.1 | -0.5 | 1196 | 0 | 730 | 2 |
| Michigan | 429 | 35 | 16.5 | -0.2 | 994 | 0 | 479 | 0 |
| Minnesota | 460 | 60 | 15.3 | -1.3 | 944 | -8 | 441 | -12 |
| Missouri | 504 | 57 | 21.3 | -0.2 | 1163 | 0 | 682 | 2 |
| Montana | 324 | 91 | 13 | -2.5 | 1112 | -4 | 479 | -10 |
| Nebraska | 418 | 67 | 18.6 | -1.7 | 1158 | -2 | 635 | -5 |
| North Dakota | 474 | 108 | 14.8 | -2.1 | 970 | -8 | 461 | -13 |
| Ohio | 343 | 12 | 19.6 | 0.8 | 1133 | 5 | 628 | 9 |
| Oklahoma | 475 | 51 | 24.4 | -0.2 | 1228 | 1 | 768 | 4 |
| Oregon | 188 | 15 | 14.3 | -1.4 | 1153 | -3 | 501 | 5 |
| South Dakota | 515 | 127 | 16.4 | -2.8 | 1051 | -8 | 524 | -16 |
| Texas | 405 | 11 | 26.3 | 0.4 | 1272 | 3 | 818 | 7 |
| Washington | 243 | 24 | 14.6 | -1.4 | 1065 | -5 | 510 | 9 |
| Wisconsin | 401 | 43 | 16.1 | -0.6 | 990 | -4 | 480 | -4 |

Table A.11 China, July - Oct 2019 2019 agroclimatic indicators and biomass (by province)

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|------------------|-------------------------|----------------------------------|-------------------------|--------------------------------|---|------------------------------------|--|-----------------------------------|
| Anhui | 332 | -52 | 23.7 | 0.8 | 1138 | 12 | 666 | 10 |
| Chongqing | 796 | 0 | 21.1 | 0.1 | 1008 | 0 | 573 | -2 |
| Fujian | 936 | -2 | 22.7 | 0.1 | 1166 | 8 | 717 | 8 |
| Gansu | 334 | -20 | 13.8 | -0.1 | 1079 | 6 | 452 | 6 |
| Guangdong | 1195 | -4 | 25 | 0.2 | 1233 | 7 | 756 | 1 |
| Guangxi | 1193 | 5 | 23.9 | 0.2 | 1161 | 3 | 686 | -3 |
| Guizhou | 903 | 6 | 19.5 | 0.2 | 999 | 4 | 540 | 5 |
| Hebei | 286 | -1 | 19.8 | 0.6 | 1111 | 1 | 548 | -2 |

| | RAIN Current (mm) | RAIN 15YA Departure (%) | TEMP Current (°C) | TEMP 15YA Departure (°C) | RADPAR Current (MJ/m ²) | RADPAR 15YA Departure (%) | BIOMSS Current (gDM/m ²) | BIOMSS 5YA Departure (%) |
|---------------------------|-------------------------|----------------------------------|-------------------------|-----------------------------|---|------------------------------------|--|-----------------------------------|
| Heilongjiang | 465 | 67 | 14.9 | -0.3 | 952 | -3 | 416 | -7 |
| Henan | 288 | -36 | 23.1 | 0.9 | 1088 | 4 | 606 | 1 |
| Hubei | 358 | -48 | 22.6 | 1 | 1123 | 9 | 634 | 6 |
| Hunan | 643 | -13 | 23.3 | 0.6 | 1167 | 10 | 680 | 6 |
| Jiangsu | 379 | -47 | 23.6 | 0.4 | 1112 | 9 | 665 | 8 |
| Jiangxi | 721 | -7 | 24 | 0.4 | 1177 | 9 | 692 | 3 |
| Jilin | 446 | 17 | 16.6 | 0.6 | 1052 | 2 | 486 | 2 |
| Liaoning | 400 | 1 | 18.7 | 0.6 | 1062 | 2 | 514 | -4 |
| Inner Mongolia | 242 | 20 | 15.5 | 0.2 | 1065 | -1 | 470 | -2 |
| Ningxia | 168 | -24 | 16.5 | -0.1 | 1165 | 5 | 551 | 4 |
| Shaanxi | 519 | 2 | 17.7 | -0.2 | 1022 | -2 | 522 | -2 |
| Shandong | 404 | -8 | 22.2 | 0.5 | 1102 | 3 | 584 | -4 |
| Shanxi | 323 | 1 | 16.7 | 0.1 | 1102 | 2 | 509 | 1 |
| Sichuan | 941 | 6 | 17.3 | -0.1 | 902 | -6 | 425 | -7 |
| Yunnan | 993 | 3 | 17.5 | 0.2 | 970 | 7 | 448 | 7 |
| Zhejiang | 1036 | 15 | 22.1 | -0.3 | 1047 | 2 | 630 | 1 |