

Annex A. Agroclimatic indicators and BIOMSS

Table A.1 April 2022 – July 2022 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 15YA dep. (%)
C01	Equatorial central Africa	524	-14	22.3	0.0	1173	2	951	-5
C02	East African highlands	455	-41	19.2	0.4	1235	4	771	-19
C03	Gulf of Guinea	538	-11	27.2	0.1	1181	-1	1061	-5
C04	Horn of Africa	137	-57	21.0	0.5	1213	4	581	-21
C05	Madagascar (main)	294	18	19.4	-0.1	891	-5	716	5
C06	Southwest Madagascar	82	21	21.1	-0.1	960	-2	415	-3
C07	North Africa-Mediterranean	71	-29	21.9	1.2	1551	-1	594	-3
C08	Sahel	346	13	30.0	0.0	1292	-1	848	7
C09	Southern Africa	128	14	17.4	0.0	985	-3	444	6
C10	Western Cape (South Africa)	165	-27	12.1	-1.1	698	2	439	-18
C11	British Columbia to Colorado	343	5	9.3	-0.7	1363	-2	669	-4
C12	Northern Great Plains	364	-3	16.5	-0.1	1321	-2	885	-3
C13	Corn Belt	434	-2	15.9	0.1	1240	0	980	0
C14	Cotton Belt to Mexican Nordeste	385	-15	24.3	1.2	1427	2	1018	-6
C15	Sub-boreal America	429	19	9.2	-1.1	1087	-7	789	0
C16	West Coast (North America)	264	46	14.7	-0.6	1434	-4	632	3
C17	Sierra Madre	530	-29	21.2	0.5	1499	2	884	-11
C18	SW U.S. and N. Mexican highlands	162	-14	20.4	0.4	1584	0	659	-7
C19	Northern South and Central America	1111	2	24.2	-0.1	1247	1	1271	0
C20	Caribbean	607	5	25.7	-0.1	1445	2	1294	5
C21	Central-northern Andes	406	-30	14.0	0.2	1082	3	510	-15
C22	Nordeste (Brazil)	195	-13	24.4	0.6	1085	3	686	-4
C23	Central eastern Brazil	107	-63	22.4	1.3	1054	9	478	-34
C24	Amazon	489	-24	24.3	0.4	1106	4	943	-12
C25	Central-north Argentina	121	-34	15.0	-0.5	732	1	404	-15
C26	Pampas	354	-12	14.3	-0.2	648	1	620	-9
C27	Western Patagonia	821	10	6.5	-0.8	470	0	540	-5

C28	Semi-arid Southern Cone	94	-17	9.3	-0.8	719	1	292	-6
C29	Caucasus	217	-30	16.3	0.0	1485	1	649	-13
C30	Pamir area	250	-30	18.5	1.4	1586	2	669	-9
C31	Western Asia	134	26	23.2	0.5	1547	0	654	2
C32	Gansu-Xinjiang (China)	271	5	16.6	0.4	1424	-1	649	-4
C33	Hainan (China)	988	9	25.6	-1.0	1341	1	1482	7
C34	Huanghuaihai (China)	344	1	22.9	0.9	1361	3	873	-3
C35	Inner Mongolia (China)	230	4	16.5	0.3	1382	0	715	0
C36	Loess region (China)	261	-8	17.9	0.8	1443	6	766	-3
C37	Lower Yangtze (China)	1059	-6	22.1	0.2	1135	5	1300	-3
C38	Northeast China	447	35	15.2	-0.3	1252	-1	923	10
C39	Qinghai-Tibet (China)	974	-14	11.5	1.2	1211	3	717	-2
C40	Southern China	1322	0	22.5	-0.1	1158	3	1393	-2
C41	Southwest China	817	-9	18.6	0.2	1106	4	1153	-1
C42	Taiwan (China)	1116	23	24.3	-1.2	1197	-6	1244	3
C43	East Asia	577	9	14.9	0.5	1212	1	971	4
C44	Southern Himalayas	884	-16	27.2	0.8	1302	5	1072	-3
C45	Southern Asia	681	-15	29.8	0.3	1279	4	1006	-3
C46	Southern Japan and the southern fringe of the Korea peninsula	871	3	19.0	1.2	1210	2	1217	3
C47	Southern Mongolia	152	-24	7.9	-0.1	1488	0	534	-5
C48	Punjab to Gujarat	569	46	32.5	0.2	1434	0	947	17
C49	Maritime Southeast Asia	1206	-2	24.6	0.2	1156	4	1439	3
C50	Mainland Southeast Asia	1112	-4	26.4	-0.3	1269	5	1454	3
C51	Eastern Siberia	353	10	10.0	0.0	1125	-1	783	5
C52	Eastern Central Asia	298	9	11.1	0.3	1309	1	746	6
C53	Northern Australia	504	34	24.0	0.5	1078	1	924	12
C54	Queensland to Victoria	277	39	12.6	0.0	592	-8	575	16
C55	Nullarbor to Darling	244	4	13.8	-0.3	596	-5	585	6
C56	New Zealand	444	21	9.4	0.5	440	0	676	7
C57	Boreal Eurasia	334	-1	9.7	-0.1	1088	1	709	-1
C58	Ukraine to Ural mountains	320	4	13.2	-0.9	1134	-2	821	1
C59	Mediterranean Europe and Türkiye	130	-40	18.0	0.9	1510	3	619	-13
C60	W. Europe (non Mediterranean)	246	-32	15.2	0.8	1276	4	717	-15
C61	Boreal America	317	-9	6.5	0.3	1043	4	601	-1
C62	Ural to Altai mountains	387	37	13.7	0.3	1212	0	842	15

C63	Australian desert	134	-7	14.9	-0.4	668	-2	451	-3
C64	Sahara to Afghan deserts	46	42	28.4	0.5	1618	-1	576	-2
C65	Sub-arctic America	131	4	-3.4	0.3	1196	-2	278	3

Table A.2 April 2022 – July 2022 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 15YA Departure (%)
ARG	Argentina	240	-8	12.8	-0.5	632	0	460	-10
AUS	Australia	276	39	13.7	0.0	631	-7	582	15
BGD	Bangladesh	1297	-17	28.9	0.2	1316	5	1449	-1
BRA	Brazil	244	-39	22.6	0.9	1048	6	641	-22
KHM	Cambodia	1161	9	26.3	-0.6	1244	6	1601	5
CAN	Canada	422	9	9.9	-0.7	1141	-3	771	1
CHN	China	797	-4	19.6	0.2	1207	3	1000	-1
EGY	Egypt	2	-75	24.2	0.6	1585	-1	374	-21
ETH	Ethiopia	521	-34	19.9	0.4	1275	4	824	-16
FRA	France	249	-37	16.3	1.8	1372	10	753	-14
DEU	Germany	253	-28	14.3	0.5	1243	4	716	-14
IND	India	702	-14	30.1	0.5	1315	4	985	1
IDN	Indonesia	1146	-2	24.5	0.2	1125	4	1399	4
IRN	Iran	70	-27	21.9	0.5	1644	1	579	-6
KAZ	Kazakhstan	333	38	15.7	0.3	1306	-1	794	14
MEX	Mexico	513	-18	23.9	0.5	1503	2	904	-8
MMR	Myanmar	1079	-22	25.7	0.5	1211	3	1267	-6
NGA	Nigeria	509	-14	27.9	0.2	1207	0	978	-5
PAK	Pakistan	314	18	27.1	1.5	1553	0	792	11
PHL	Philippines	1601	18	25.7	-0.2	1297	0	1560	5
POL	Poland	246	-26	14.2	-0.3	1179	2	733	-14
ROU	Romania	175	-52	16.8	0.6	1361	3	668	-24
RUS	Russia	353	14	12.8	-0.5	1152	-2	835	7
SYR	Syria	10	-86	24.9	1.0	1650	2	559	-13
ZAF	South Africa	117	36	12.3	-0.3	859	-3	380	12
THA	Thailand	1079	14	26.2	-0.5	1255	5	1490	7
TUR	Türkiye	151	-36	16.4	0.1	1518	2	618	-14
GBR	United Kingdom	279	-27	12.1	0.8	994	1	695	-12
UKR	Ukraine	200	-35	15.5	-0.6	1238	0	673	-19
USA	United States	366	-7	19.1	0.5	1370	0	878	-3
UZB	Uzbekistan	135	-3	23.2	0.8	1559	0	667	-2
VNM	Vietnam	1128	0	24.5	-0.4	1263	5	1472	3
AFG	Afghanistan	88	-52	20.7	1.3	1642	2	585	-8
AGO	Angola	171	-10	19.4	-0.3	1207	0	501	-4
BLR	Belarus	338	6	13.2	-1.0	1104	-1	833	-1
HUN	Hungary	116	-55	18.3	0.9	1361	3	592	-27
ITA	Italy	300	-21	18.5	1.6	1450	3	784	-4
KEN	Kenya	272	-57	20.0	0.6	1156	3	710	-22
LKA	Sri Lanka	1072	15	26.6	-0.2	1244	-3	1244	4
MAR	Morocco	74	-22	21.0	0.9	1557	-2	586	-1
MNG	Mongolia	257	-5	10.7	0.2	1394	2	684	0
MOZ	Mozambique	173	32	19.9	-0.1	933	-4	583	11
ZMB	Zambia	87	24	18.1	0.0	1128	-1	395	3
KGZ	Kyrgyzstan	564	14	10.6	-0.3	1495	2	709	3

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 Oct- Jan.

Table A.3 Argentina, April 2022 – July 2022 agroclimatic indicators and biomass (by province)

	RAIN Current (mm)	RAIN 15YA Departure (%)	TEMP Current (°C)	TEMP 15YA Departure(°C)	RADPAR Current (MJ/m²)	RADPAR 15YA Departure (%)	BIOMSS Current (gDM/m²)	BIOMSS 15YA Departure (%)
Buenos Aires	138	-36	11.0	-0.5	604	5	371	-24
Chaco	441	41	15.6	-0.9	562	-10	748	12
Cordoba	60	-50	12.6	-0.3	716	5	269	-24
Corrientes	640	37	14.9	-0.7	543	-10	923	14
Entre Rios	322	-5	13.0	-0.8	604	1	587	-7
La Pampa	83	-38	11.0	-0.5	640	7	297	-18
Misiones	542	-11	16.3	-0.1	669	1	927	-1
Santiago Del Estero	140	-19	14.6	-0.9	664	-3	422	-8
San Luis	44	-49	11.0	-0.5	731	5	223	-24
Salta	145	-28	13.7	-0.2	783	-2	452	-10
Santa Fe	211	-15	13.8	-0.8	607	-3	480	-12
Tucuman	93	-21	11.9	-0.3	824	-1	361	-6

Table A.4 Australia, April 2022 – July 2022 agroclimatic indicators and biomass (by state)

	RAIN Current (mm)	RAIN 15YA Departure (%)	TEMP Current (°C)	TEMP 15YA Departure(°C)	RADPAR Current (MJ/m²)	RADPAR 15YA Departure (%)	BIOMSS Current (gDM/m²)	BIOMSS 15YA Departure (%)
New South Wales	272	52	12.0	0.0	613	-9	568	25
South Australia	179	-15	13.3	-0.3	537	-3	477	-11
Victoria	258	-3	10.8	0.0	453	-5	559	-1
W. Australia	226	4	15.0	-0.2	654	-4	579	6

Table A.5 Brazil, April 2022 – July 2022 agroclimatic indicators and biomass (by state)

	RAIN Current (mm)	RAIN 15YA Departure (%)	TEMP Current (°C)	TEMP 15YA Departure (°C)	RADPAR Current (MJ/m²)	RADPAR 15YA Departure (%)	BIOMSS Current (gDM/m²)	BIOMSS 15YA Departure (%)
Ceara	312	-19	25.8	0.5	1147	-1	938	-4
Goiás	1	-100	23.7	2.2	1171	9	230	-63
Mato Grosso Do Sul	49	-82	22.1	1.5	981	14	416	-41
Mato Grosso	35	-85	24.4	1.0	1168	8	426	-40
Minas Gerais	36	-83	20.4	1.3	1052	13	356	-41
Parana	199	-61	17.4	0.9	830	11	586	-33
Rio Grande Do Sul	695	21	14.5	-0.3	604	-6	970	10
Santa	436	-26	14.5	0.2	701	2	809	-10

	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 (%)
Catarina								
Sao Paulo	52	-83	20.2	1.6	955	13	370	-48

Table A.6 Canada, April 2022 – July 2022 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 15YA Departure (%)
Alberta	367	6	9.8	-1.0	1215	-4	781	0
Manitoba	586	59	10.4	-1.6	1083	-10	884	5
Saskatchewan	370	11	10.7	-1.3	1177	-5	819	2

Table A.7 India, April 2022 – July 2022 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 15YA Departure (%)
Andhra Pradesh	370	-24	30.9	0.3	1237	2	851	-7
Assam	2160	-12	24.7	-0.1	1076	1	1474	-2
Bihar	453	-46	32.8	1.2	1409	7	966	-10
Chhattisgarh	508	-26	30.7	0.4	1294	5	915	-7
Daman and Diu	996	-6	29.4	0.1	1452	1	1080	-2
Delhi	363	33	33.9	0.6	1478	2	967	16
Gujarat	628	-5	30.9	-0.2	1403	1	980	4
Goa	1471	-30	27.0	0.4	1260	2	1268	2
Himachal Pradesh	231	-62	23.5	2.5	1515	4	671	-23
Haryana	359	46	34.0	0.9	1485	3	914	15
Jharkhand	435	-37	31.3	0.8	1340	6	939	-7
Kerala	1320	-20	25.2	-0.3	1233	4	1392	-5
Karnataka	570	-18	27.2	0.3	1176	4	940	-2
Meghalaya	2249	6	24.3	-0.5	1082	-2	1459	-2
Maharashtra	790	-3	29.9	0.4	1275	2	1007	2
Manipur	1455	-19	22.2	0.2	1156	4	1411	0
Madhya Pradesh	663	5	31.7	0.4	1367	6	1024	10
Mizoram	1514	-6	24.0	-0.4	1243	2	1521	1
Nagaland	2113	4	20.4	-1.2	990	-9	1370	-1
Orissa	576	-22	30.3	0.4	1296	6	972	-8
Puducherry	633	-41	29.5	-0.2	1325	3	1059	-6
Punjab	378	27	34.0	1.5	1495	3	857	2
Rajasthan	681	111	32.9	-0.2	1406	1	990	31
Sikkim	646	-1	21.3	4.1	1435	7	896	8
Tamil Nadu	282	-41	29.1	0.7	1223	1	808	-15
Tripura	1633	-6	27.2	-0.2	1248	2	1622	2
Uttarakhand	103	-82	26.6	3.3	1566	10	632	-25
Uttar Pradesh	378	-29	33.9	1.1	1437	5	907	-1
West Bengal	855	-26	30.7	0.7	1366	7	1174	-5

Table A.8 Kazakhstan, April 2022 – July 2022 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	262	27	15.5	0.7	1283	2	762	12
Karagandinskaya	190	-1	15.6	1.3	1383	3	690	4
Kustanayskaya	316	46	14.8	-0.3	1177	-6	830	19
Pavlodarskaya	308	43	15.8	0.8	1297	3	831	19
Severo kazachstanskaya	321	27	14.4	0.7	1170	0	802	10
Vostochno kazachstanskaya	374	31	14.5	0.8	1426	3	836	14
Zapadno kazachstanskaya	259	36	16.9	-1.1	1229	-8	806	14

Table A.9 Russia, April 2022 – July 2022 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.	429	35	11.8	-1.0	1060	-9	893	10
Chelyabinskaya Oblast	376	36	12.3	-0.7	1083	-7	863	14
Gorodovikovsk	174	-40	18.4	-0.2	1283	-4	689	-22
Krasnodarskiy Kray	305	-17	14.4	-0.2	1267	1	799	-6
Kurganskaya Oblast	399	54	12.8	-0.2	1078	-4	889	22
Kirovskaya Oblast	410	31	10.8	-1.0	962	-8	867	11
Kurskaya Oblast	342	16	13.7	-1.0	1149	-3	888	8
Lipetskaya Oblast	341	19	13.6	-1.1	1155	-2	899	12
Mordoviya Rep.	353	13	12.4	-1.3	1052	-8	874	6
Novosibirskaya Oblast	351	22	13.1	0.6	1142	3	839	10
Nizhegorodskaya O.	360	19	11.9	-1.3	1021	-8	883	10
Orenburgskaya Oblast	352	41	14.1	-1.0	1166	-8	884	19
Omskaya Oblast	412	48	13.4	0.8	1081	-1	879	17
Permskaya Oblast	385	19	10.9	-0.7	948	-9	856	8
Penzenskaya Oblast	359	19	13.0	-1.1	1130	-3	901	11
Rostovskaya Oblast	177	-36	17.6	-0.2	1300	-1	691	-18
Ryazanskaya Oblast	367	20	12.9	-1.3	1087	-5	911	11
Stavropolskiy Kray	300	-30	17.0	-0.5	1294	-3	801	-17
Sverdlovskaya Oblast	351	16	11.5	-0.3	1012	-5	844	11
Samarskaya Oblast	453	55	13.5	-1.2	1124	-7	987	22
Saratovskaya Oblast	337	30	14.8	-1.0	1220	-3	893	15

	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 (%)
Tambovskaya Oblast	333	16	13.7	-1.1	1185	-1	883	10
Tyumenskaya Oblast	371	37	12.5	0.3	1032	-3	870	19
Tatarstan Rep.	468	53	12.0	-1.2	1030	-9	927	15
Ulyanovskaya Oblast	418	38	12.9	-1.1	1074	-8	929	14
Udmurtiya Rep.	407	35	11.2	-1.0	961	-10	877	12
Volgogradskaya O.	189	-19	16.6	-0.6	1275	-2	694	-8
Voronezhskaya Oblast	279	-4	14.8	-0.8	1247	1	823	0

Table A.10 United States, April 2022 – July 2022 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 15YA Departure (%)
Arkansas	452	-1	23.5	1.1	1377	0	1038	-7
California	97	1	17.3	0.0	1610	-1	542	-3
Idaho	276	15	10.9	-1.2	1419	-4	653	-3
Indiana	455	-3	18.6	0.2	1290	-2	1117	2
Illinois	482	2	18.9	0.0	1270	-4	1134	3
Iowa	441	1	17.3	-0.2	1254	-3	1042	1
Kansas	327	-9	22.2	1.0	1396	-1	918	-7
Michigan	367	-7	14.0	0.2	1215	-2	909	-2
Minnesota	414	1	14.0	-0.6	1184	-4	937	0
Missouri	459	7	20.7	0.4	1329	-2	1089	2
Montana	294	-12	11.4	-1.1	1368	-1	753	-7
Nebraska	243	-32	19.4	1.1	1420	2	830	-13
North Dakota	412	13	13.3	-1.2	1258	-2	919	4
Ohio	406	-5	17.8	0.3	1275	-1	1051	0
Oklahoma	391	2	24.6	1.6	1398	-1	982	-3
Oregon	352	55	11.7	-1.2	1309	-6	717	13
South Dakota	287	-22	16.7	0.2	1375	2	835	-11
Texas	220	-38	27.0	2.1	1466	2	831	-14
Washington	422	68	11.6	-1.6	1234	-8	766	17
Wisconsin	398	-6	14.4	-0.1	1199	-3	950	-1

Table A.11 China, April 2022 – July 2022 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 15YA Departure (%)
Anhui	636	-18	22.9	0.9	1261	9	1145	-4
Chongqing	718	-19	20.4	0.4	1148	9	1220	-2
Fujian	1287	-2	21.5	0.1	1079	2	1317	-6
Gansu	328	-8	14.4	0.5	1378	5	774	-1
Guangdong	1635	6	24.1	-0.1	1158	2	1471	-4
Guangxi	1435	2	22.8	-0.3	1122	4	1446	-2
Guizhou	838	-23	18.7	-0.2	1002	5	1212	-5
Hebei	233	-4	19.8	0.4	1399	1	777	0

	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 (%)
Heilongjiang	351	10	14.8	-0.3	1260	1	891	7
Henan	352	-11	23.3	1.1	1363	7	907	-6
Hubei	652	-19	21.5	0.7	1243	10	1195	-3
Hunan	1126	-2	21.6	0.1	1080	3	1370	0
Jiangsu	469	-27	23.1	1.4	1303	9	1040	-7
Jiangxi	1203	-8	22.0	-0.2	1061	0	1380	-4
Jilin	535	50	15.5	-0.3	1261	-2	981	11
Liaoning	554	66	16.9	-0.3	1238	-5	961	12
Inner Mongolia	243	9	15.8	0.2	1357	0	723	2
Ningxia	142	-19	17.3	0.5	1500	6	631	-6
Shaanxi	427	-6	18.7	0.8	1391	9	887	1
Shandong	400	23	22.4	0.7	1351	1	861	-5
Shanxi	203	-16	18.2	0.8	1448	5	712	-5
Sichuan	895	5	17.5	0.4	1131	1	1085	1
Yunnan	953	-4	17.9	-0.2	1073	0	1171	0
Zhejiang	849	-22	21.1	0.3	1131	7	1289	-3