Aerospace Information Research Institute (AIR)
Chinese Academy of Sciences (CAS)

Training and practice on produce thematic maps of Nigeria and the way to interpretate the maps

Fuyou Tian

CropWatch team

Aerospace Information Research Institute, CAS
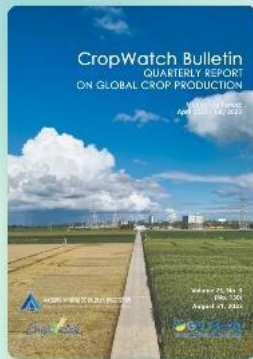
CropWatch Analysis

CropWatch Analysis is **cloud based participatory tool** for the CropWatch teams or invited people from over the world analyzing their CropWatch indicators anywhere. It provides create document, allocate and manage tasks, monitor schedule and publish the document online functions which let people over the world finish their documents together on the cloud platform.

CropWatch Team
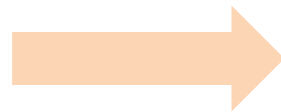
Experts across the world

August 2023 CropWatch Bulletin

August 2023 CropWatch Bulletin is based mainly on current remote sensing inputs in addition to detailed and spatially accurate reference data about crops and their management. Focusing on the months of April to July 2023, chapters cover global, national, and regional level agroclimatic conditions and the condition of crops that were growing during this time. For China, the bulletin presents crop conditions for each of seven key agro-ecological zones, an updated estimate of trade prospects (import/export) of major crops. The focus section reports on the estimate by CropWatch for maize, rice, wheat and soybeans production in 2023, recent disaster events with an impact on agriculture, the possibility of an El Niño conditions event and the impact of drought on world food supply.

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3. Thematic map (for every CropWatch Bulletin analyst)

After approved by the super admin, you are able to access "CropWatch Pro" from home page of cloud2023.cropwatch.com.cn.

The "Thematic Map" component is most commonly used to produce the maps for the analysis.

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August 2023 CropWatch Bulletin

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Bulletin →

CropWatch Bulletin
QUARTERLY REPORT
ON GLOBAL CROP PRODUCTION

Volume 23, No.4
(No. 100)
August 31, 2023

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Update Number	All
2	

Users Number	All
1520	

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3. Country analysis (analysis focusing on recent four months, Oct to Jan)

3.1 Data tables

(1) Export data tables

To export the tables for every national Agro-Ecological Zones (AEZs)/ subregions, you can use the following link:

http://60.205.248.104/cropbuilder/view/cropbuilder/selectPage/selectpage.html

Import table

Table name:	Table Subregion for country analysis	
Year:	2024 Episode: 1 Inquire EXPORT to CSV	
Citation:	<iframe src='http://cropwatch.com.cn/cropbuilder/view/cropbuilder/selectPage/index.html?time=1&yea	Please paste this code to editor

Table Subregion for country analysis(2024-1)

code	name	cname	RAIN Current (mm)	RAIN 15YA Departure (%)	TEMP Current (°C)	TEMP 15YA Depa
AFG_central_Sparse_Veg	Central region with sparse vegetation	中部植被稀疏区	51	-53	3.4	3.0
AFG_Dry	Dry region	干旱区	48	-44	9.9	2.6
AFG_Mixed_Dry_Irrigated	Mixed dry farming and irrigated cultivation region	雨养和灌溉农业混合区	139	-25	5.5	2.4
AFG_Mixed_Farming_Graze	Mixed dry farming and grazing region	雨养农业与畜牧业混合区	54	-45	8.6	2.9
AGO_Arid	Arid Zone	干旱区	452	10	25.6	0.8
AGO_Desert	Central Plateau	沙漠地带	651	-39	20.5	1.2
AGO_humid	Humid zone	湿润带	1190	-8	22.9	0.8
AGO_semiarid	Semi-Arid Zone	半干旱区	417	-33	25.8	1.6
AGO_subhumid	Sub-humid zone	亚湿润带	829	-18	23.2	0.9

Table: Table Subregion for country analysis

Year: 2024;

Episode: 1;

After you inquire the agroclimatic and agronomic indicators for each AEZs, you are required to import such information in your country analysis as following table templates.

The CropWatch team will provide a comprehensive table for each country, integrating all the data required for national and sub-national analysis, which will help improve the efficiency of the analysis. The table is as follows:

Six parts of the table:

① Region name (Abbreviated country name)

② National agroclimatic and agronomic indicators

③ Agroclimatic indicators for sub-national regions (English)

④ Agronomic indicators for sub-national regions (English)

⑤ Agroclimatic indicators for sub-national regions (Chinese)
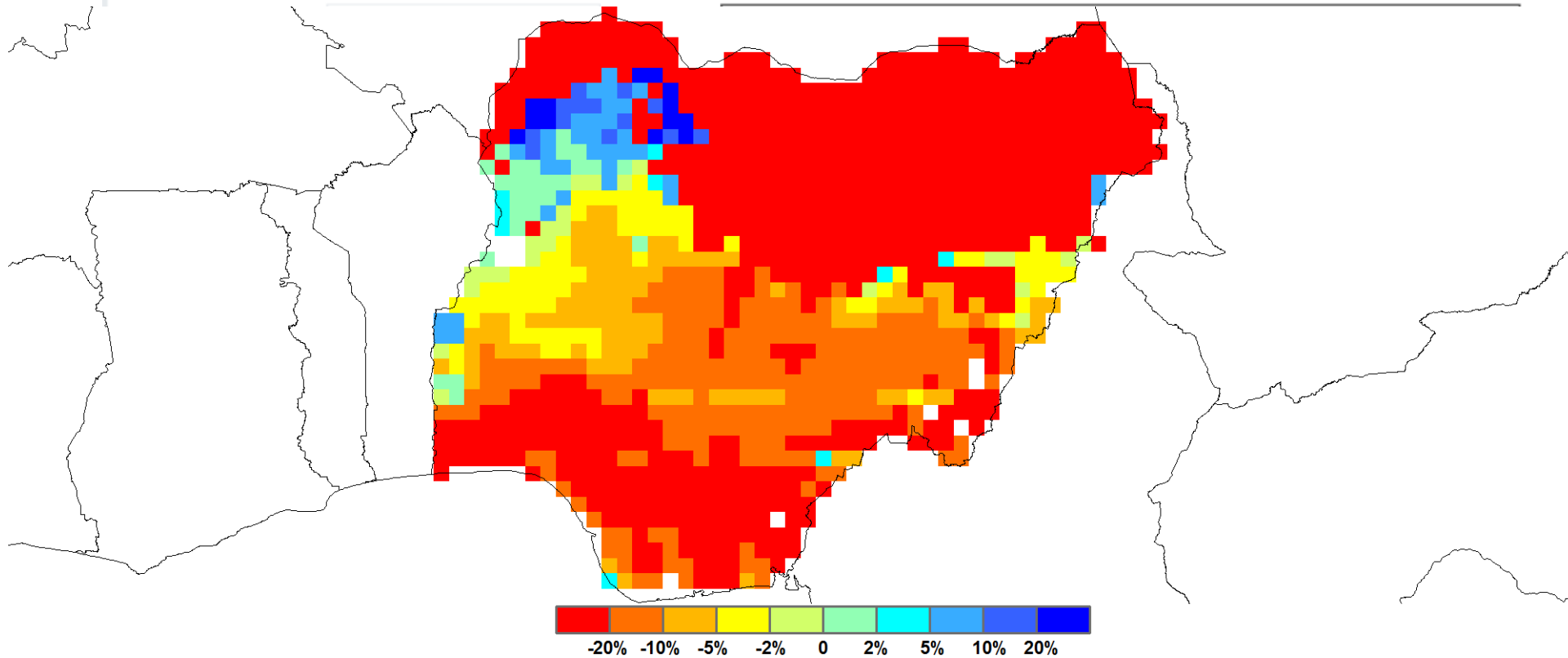
⑥ Agronomic indicators for sub-national regions (Chinese)

(1) Phenology

Start Month: October, End Month: January

Region name: Region name can be changed to other key country

Produce Thematic Map

Settings

(2) NDVI profile

For each country, **the country analysts shall produce both country profiles and profiles for each AEZs**.

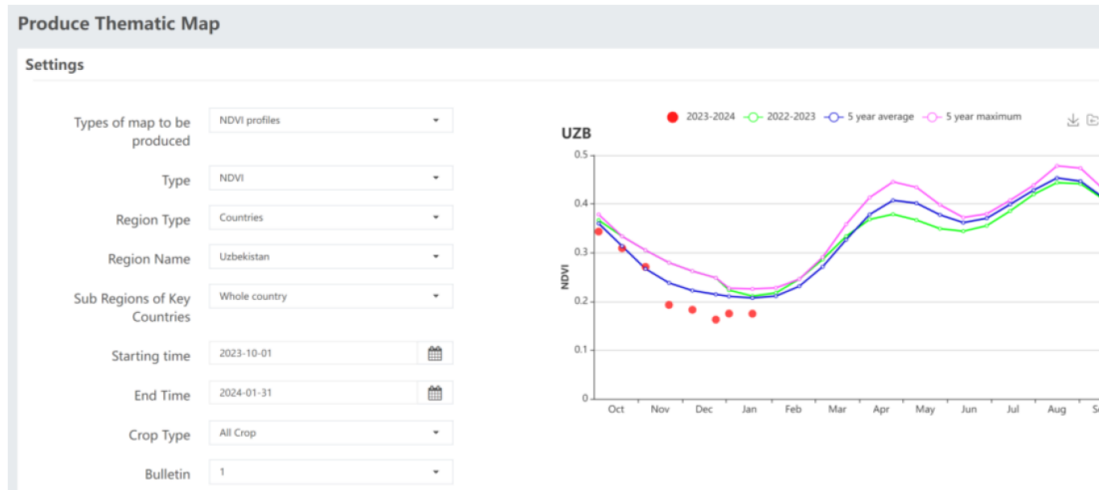Starting time: 2023-10-01, End time: 2024-01-31

Type: NDVI;

Region Type: Countries

Region name: Region name can be changed to other key country

Sub Regions of key countries: Whole country

Bulletin: 1

NDVI profile should also be produced for AEZs for each country, **however for those AEZs with few agriculture output, you can ignore them (please focus on the important AEZs).**

Starting time: 2023-10-01, End time: 2024-01-31

Type: NDVI;

Region Type: Countries

Region name: Region name can be changed to other key country

Sub Regions of key countries: AEZs can be chosen in specific country

NOTE: Subnational NDVI profiles are mandatory; If abnormal pattern happens in some subnational regions, rainfall or temperature profiles can also be added;

Bulletin: 1

All the profiles (NDVI profiles, rainfall profiles and temperature profiles) should be stored into database manually (See the graph below). Users can also download the map to local disk.

(3) Rainfall profile

For each country, the country analysts shall produce national rainfall profiles. Rainfall profiles for AEZs is optional.

Start time: 2023-10-01, End time: 2024-01-31
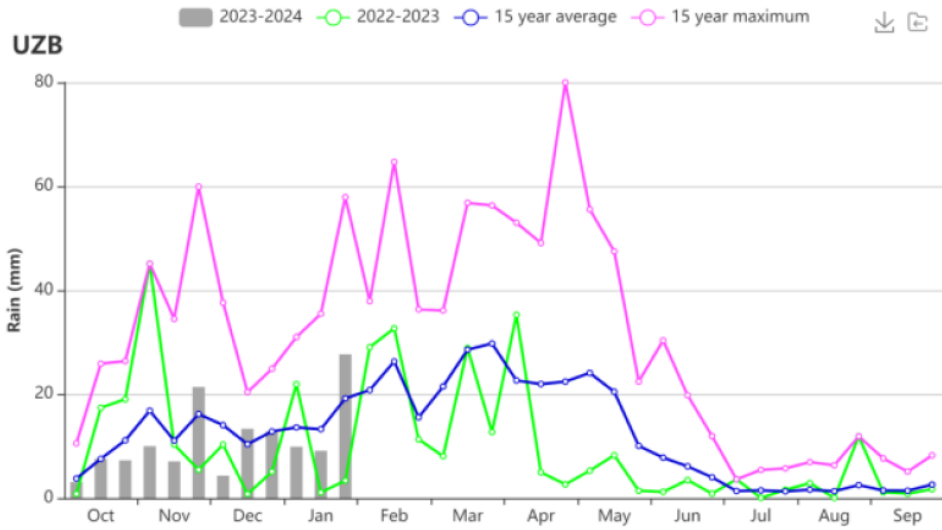
Type: Rainfall index;

Crop type: All crop;

Bulletin: 1

(4) Temperature profile

For each country, the country analysts shall produce national temperature profiles. Temperature profiles for AEZs is optional.

Start time: 2023-10-01, End time: 2024-01-31

Type: Temperature index;

Crop type: All crop;

Bulletin: 1

(5) VCIx

Settings are as follows:

Start time: 2023-10-01, End time: 2024-01-31

Type: Maximum VCI;

Bulletin: 1;

(6) NDVI departure clustering

Settings are as follows:

Starting time: 2023-10-01, End time: 2024-01-31

Calculate type: Departure;

Bulletin: 1;

Percent of the area(%)
- 5.9%
- 3.9%
- 51.2%
- 35%
- 4%

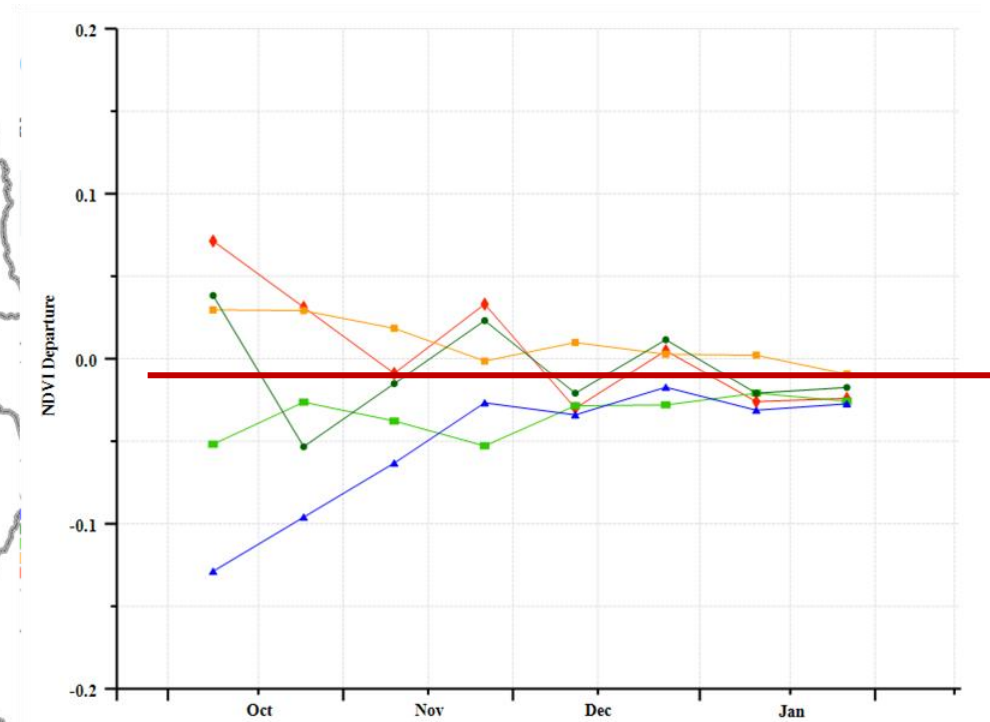|	
Starting time	2023-10-01
End Time	2024-01-31
Calculate type	Departure
Bulletin	1
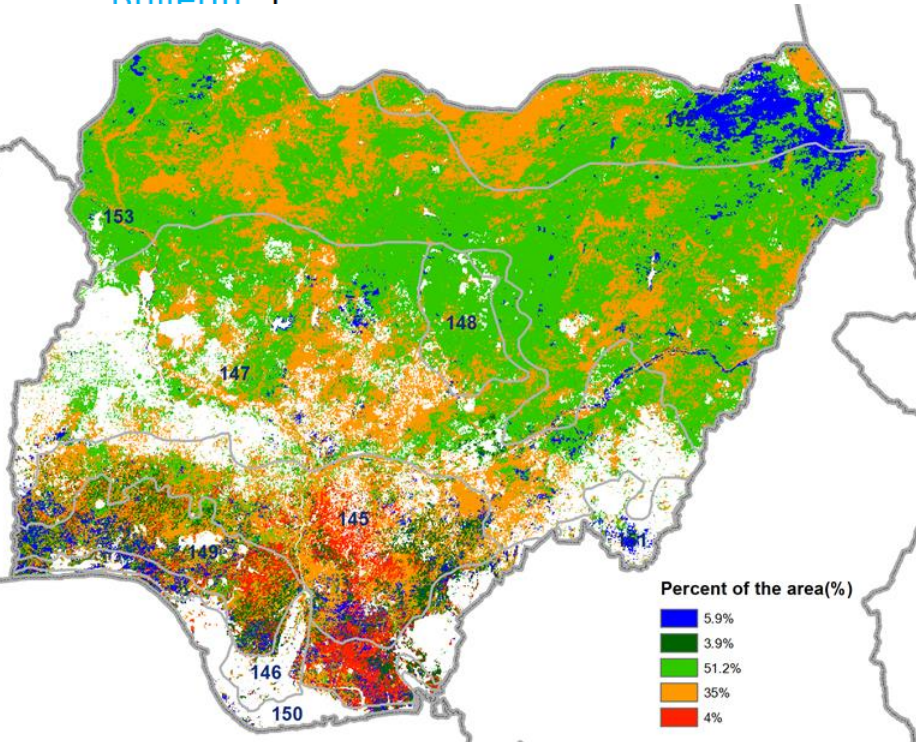
During this period, the sowing of winter wheat was completed in October. After germination and establishment, wheat enters winter dormancy due to the freezing temperatures and snow cover typical of Canadian winters.

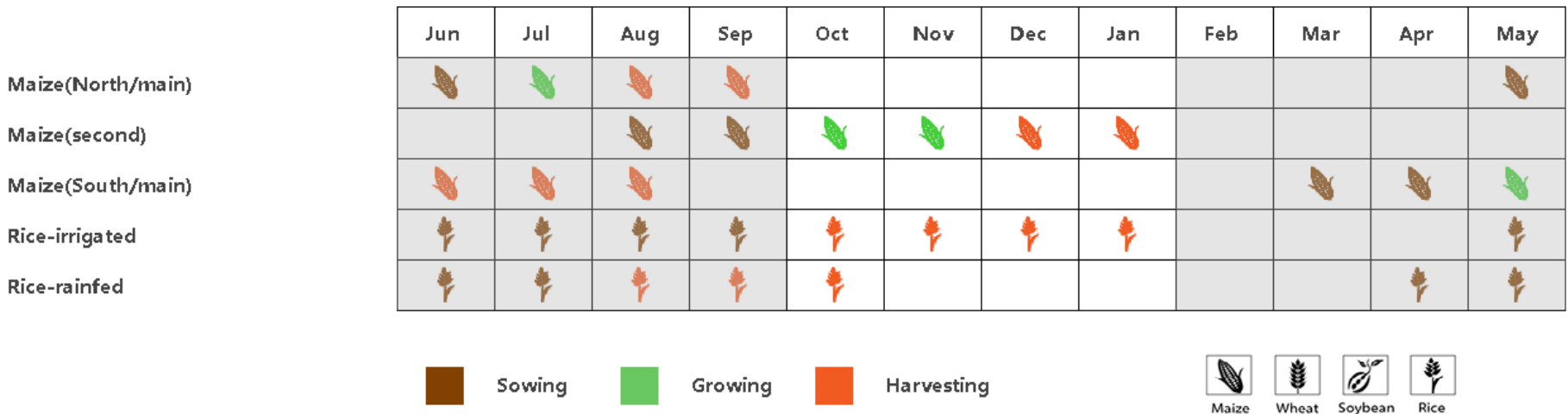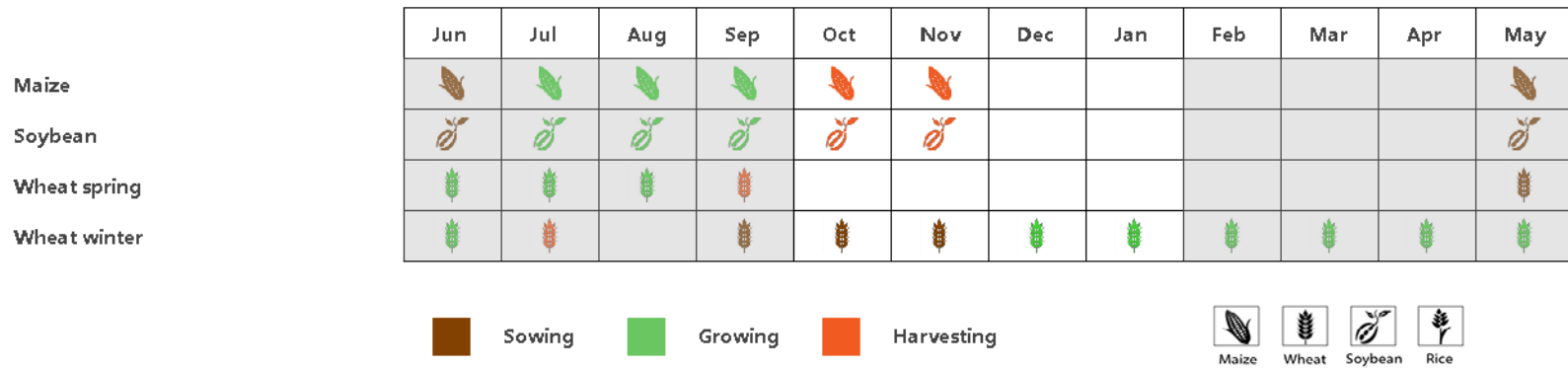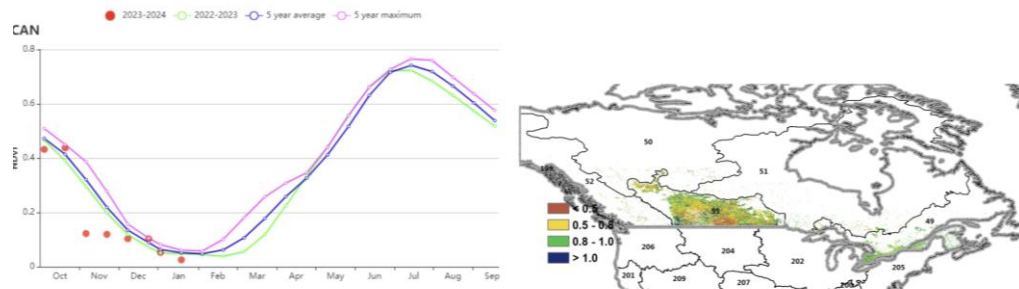Compared to the 15-year average, Canada experienced below-average rainfall (RAIN: -11%), above average temperature (TEMP: +2°C), and slightly below average radiation (RADPAR: -3%) during the period between October 2023 and January 2024. These agroclimatic conditions, as captured by CropWatch indicators, have led to an increase in potential biomass (BIOMSS: +9%). Winter wheat is mainly grown in Ontario and Quebec. Some winter wheat is grown in the Saskatchewan, Alberta, and Manitoba provinces as well. According to the NDVI profile, the conditions for winter crops were mainly below average during this monitoring period. The Cropped Arable Land Fraction (CALF) was lower than the 5-year average by -11%, indicating a reduction in the area of cropped arable land. The Maximum Vegetation Condition Index (VCIx) was 0.80, which is close to the normal range, suggesting that vegetation conditions were near average. The Crop Production Index (CPI) was 0.85, indicating that crop production was slightly below the expected level. **Overall, the conditions for winter wheat and other crops in Canada were slightly below average due to the prolonged precipitation deficit that has been affecting the Prairies. Conditions during spring green-up will be important for Canada's 2024 cereal production.**
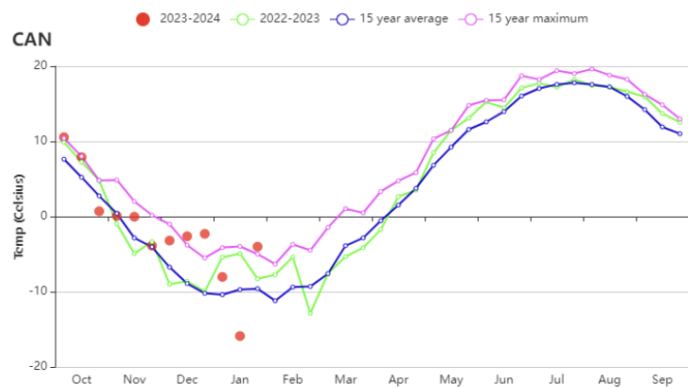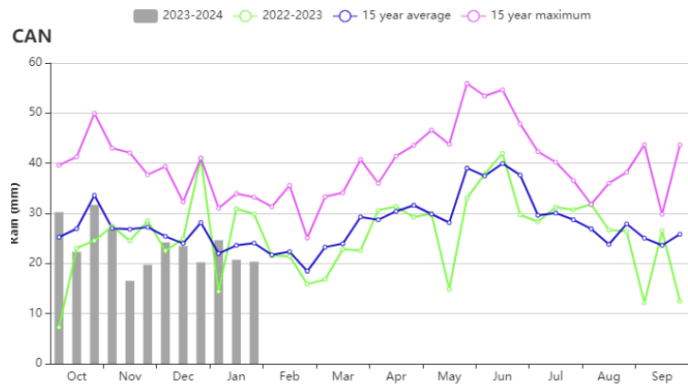
Regional analysis

The **Prairies** (the area identified as 53 in the NDVI clustering map) and the **St. Lawrence Basin** (49, covering Ontario and Quebec) are the main agricultural areas.

The **Saint Lawrence basin** (AEZ code 49) is the main winter wheat production region. There was a noticeable decrease in rainfall with 7% below the 15-year average (15YA). Despite this, the temperature was significantly higher than the average, with an average temperature of 0.8°C, marking a departure of +1.7°C from the 15YA. Radiation levels were slightly below average with a -4% departure from the 15YA. Leading to an 11% increase in potential Biomass in this region.
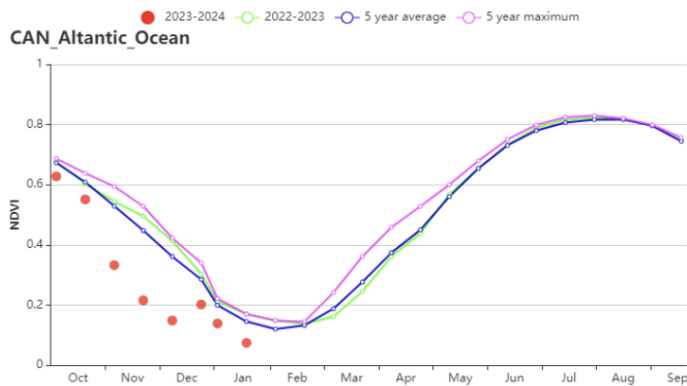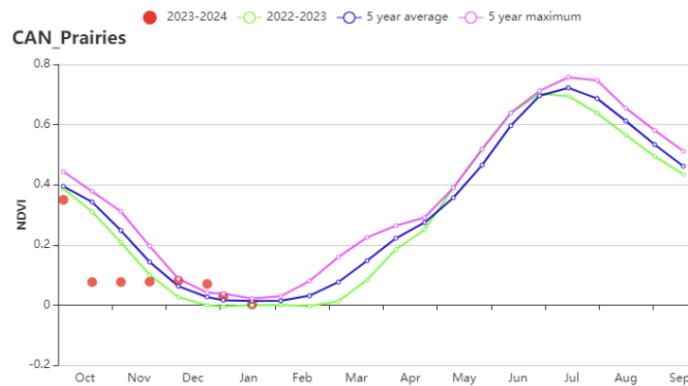
In the **Prairies** (AEZ code 53), mainly summer crops are grown. The rainfall was considerably below the 15-year average by 23%. Average temperatures were 2.3°C above the 15YA. Radiation was slightly below the 15YA by 1%. The potential biomass production was increased by 3%.

CPI Time Series in Bulletin 1 :
Canada

(i) CPI time series figures

Table 3.15. Canada's agroclimatic indicators by sub-national regions, current season's values and departure from 15YA,   October 2023-January 2024

Region	RAIN		TEMP		RADPAR		BIOMSS	
	Current(mm)	Departure from 15YA(%)	Current(°C)	Departure from 15YA(°C)	Current(MJ/m2)	Departure from 15YA(%)	Current(gDM/m2)	Departure from 15YA(%)
Saint Lawrence basin	428	-7	0.8	1.7	306	-4	393	11
Prairies	124	-23	-2.6	2.3	286	-1	268	3

Table 3.16. Canada agronomic indicators by sub-national regions, current season's values and departure, October 2023-January 2024

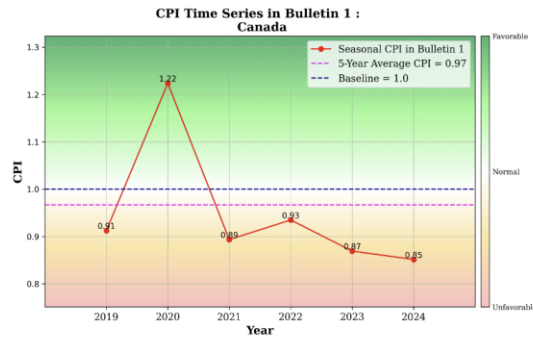| Region	CALF		Maximum VCI	CPI
	Current(%)	Departure from 5YA(%)	Current	Current
Saint Lawrence basin	97	-1	0.87	0.96
Prairies	29	-21	0.77	0.81

(f) Rainfall time series   (g) Temperature time series

(h) Crop condition development graph based on NDVI (Canadian Prairies region (left) and Saint Lawrence basin region (right))