

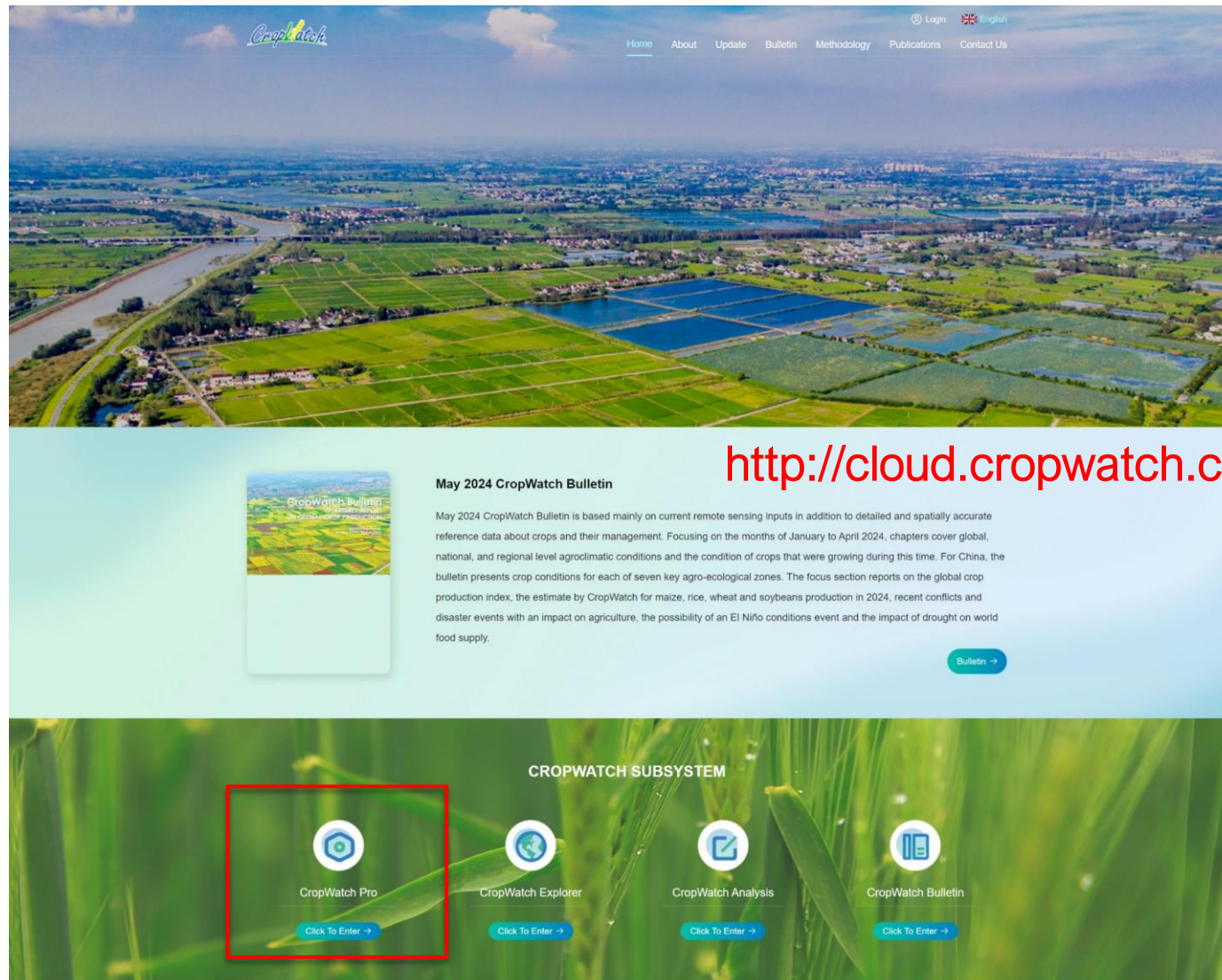


Crop condition monitoring using CropWatch Cloud Platform

Miao Zhang, on behalf of CropWatch Team
AIR, CAS

July, 2024

Where to access to CropWatch Pro

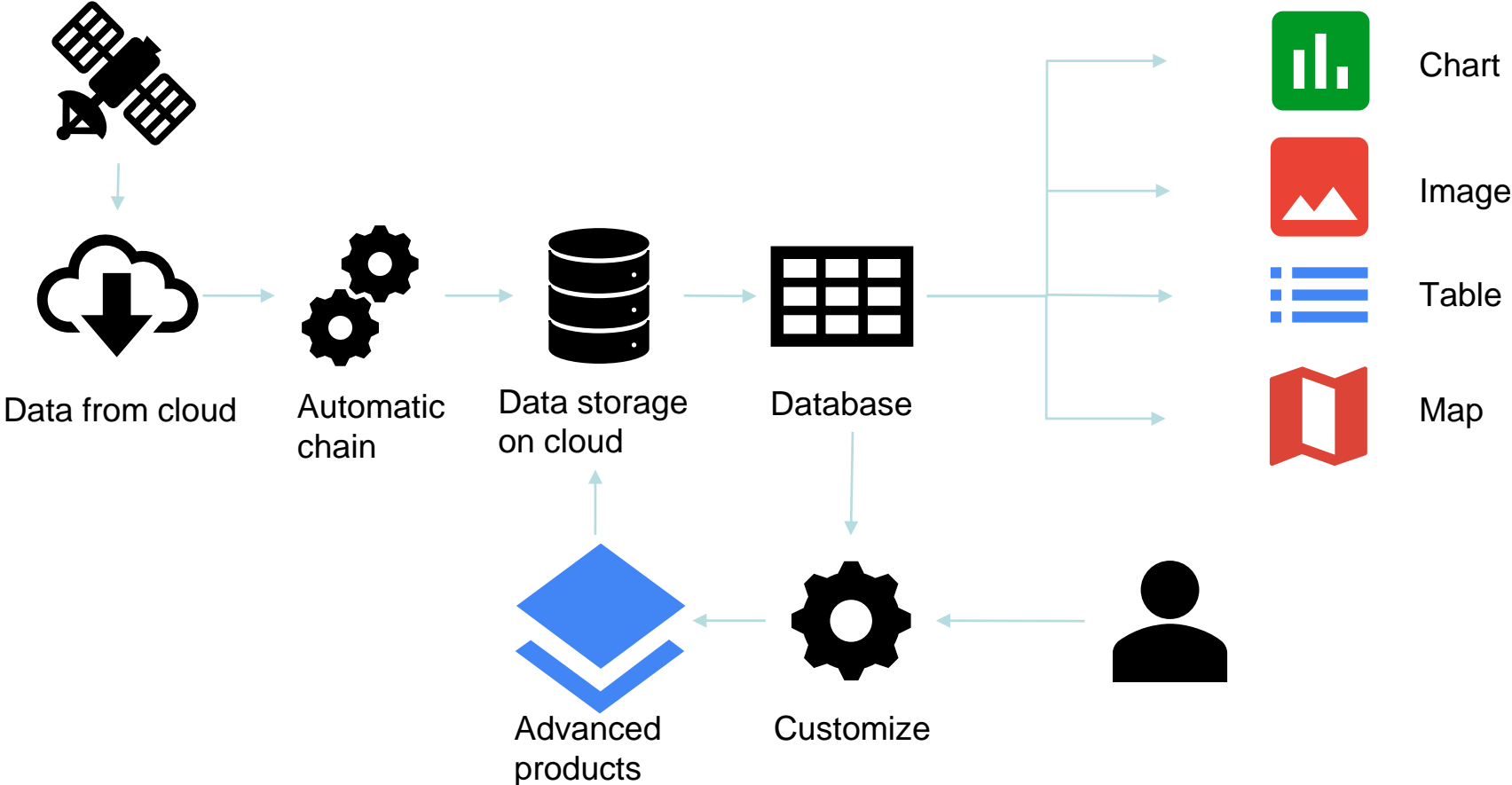


The screenshot displays the CropWatch website interface. At the top, there is a navigation menu with links for Home, About, Update, Bulletin, Methodology, Publications, and Contact Us. The main content area features a large aerial photograph of a rural landscape with a river and green fields. Below this, there is a section for the 'May 2024 CropWatch Bulletin' with a thumbnail image and a brief description. A red box highlights the 'CropWatch Pro' component in the 'CROPWATCH SUBSYSTEM' section, which also includes links for 'CropWatch Explorer', 'CropWatch Analysis', and 'CropWatch Bulletin'.

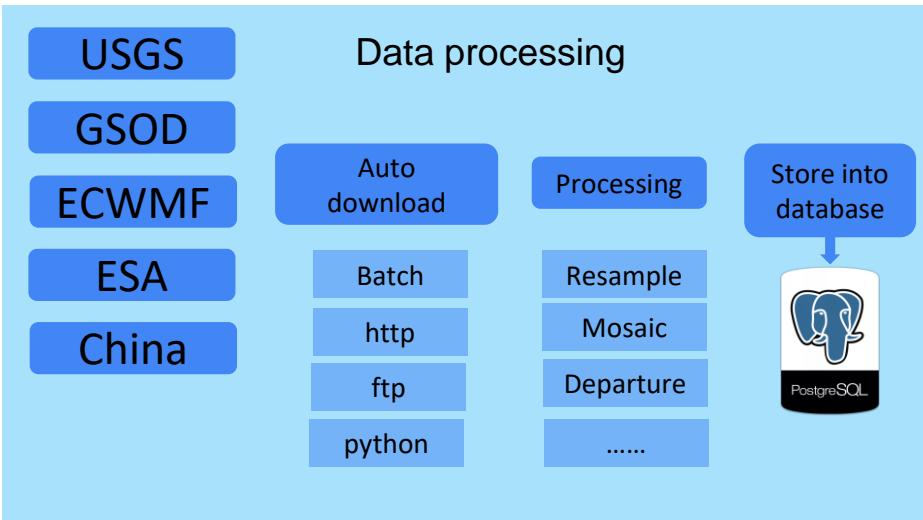
<http://cloud.cropwatch.com.cn/>

After registration and activation, please use 'CropWatch Pro' Component

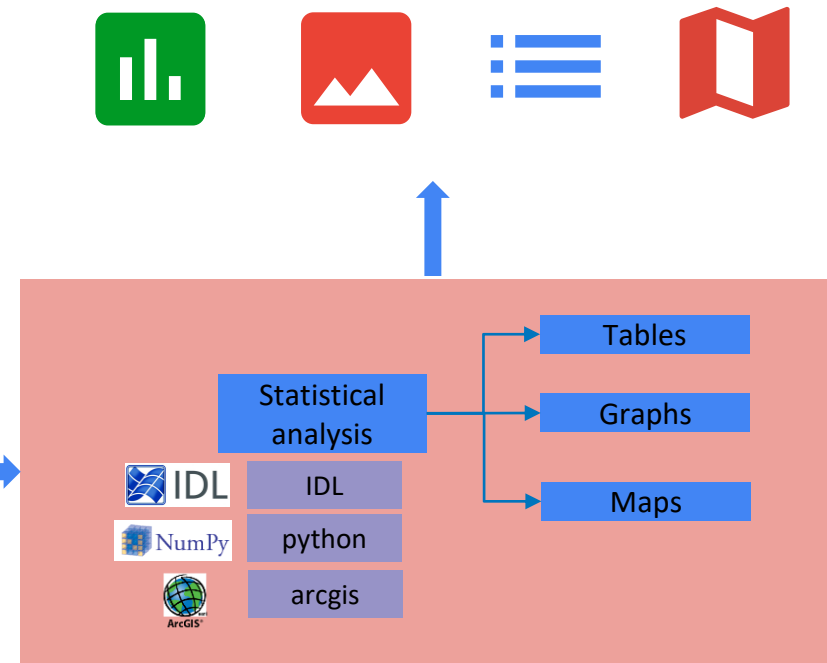
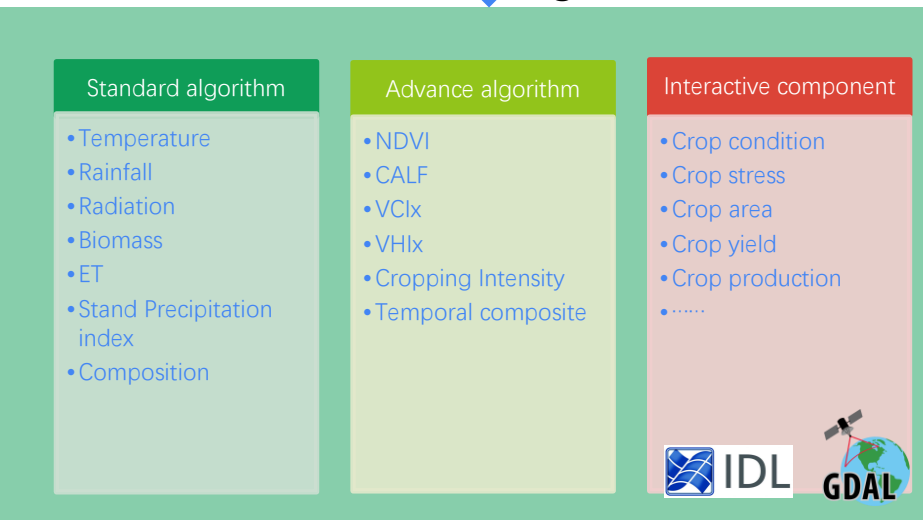
Data flowchart



Architecture



↓ Algorithms



CropWatch Indicators

CropWatch is expanding its agro-climatic and agronomic indicators considering the commonly used indicators from 13 existing global and national systems

| System | Coverage | AgroClimate | Crop condition | | Crop production | | | Independent drought monitor | Food security | Reference | |
|------------------------------|---------------------------|---|--|--|---|---|--|--|---|---|---|
| | | | Status | Stress analysis | Crop types | Crop area | Yield | | | | |
| ASIS ^[26] | Global | P profile & P departure from average; Accumulative P and profiles | NDVI anomaly and profiles and VCI | ASI, weighted VHI over Gaul2 and mean VHI | Cropland and grassland masks | n.a. | n.a. | ASI, drought intensity and frequency | CCBS | https://www.fao.org/giews/ | |
| China CAS & CAAS | CropWatch ^[27] | Global | P, T, PAR and potential biomass anomalies over 15 years and profiles | NDVI anomaly and VCIx over the last five years, NDVI development and clustering | VHI, flooding, diseases and pests | Grains, wheat, maize, rice and soybean | Remote sensing-based crop type mapping; CPTP | Agro-meteo, RS index, Biomass + harvest index | SPL, VCI, TCI, VHI, NDWI, and soil moisture | Supply trend | http://cropwatch.cn |
| | CHARMS | China | Anomaly maps and profiles | NDVI anomaly maps and development | n.a. | Wheat, maize, rice, and soybean | Areal sampling and crop classification | RS index WOFOST model | NDDI, TVDI, and anomaly of actual ET | n.a. | Personnel communication, offline |
| European Union | ASAP ^[28] | Global | SPI1, SPI3, and GWSI | zNDVIc and mNDVI d | SPI, GWSI and zNDVIc anomalies | Crop and rangeland masks | n.a. | Work in progress ^[29] | GWSI, NDVI, and automatic drought warning | CAF threshold | https://mars.jrc.ec.europa.eu/asap/ |
| | MARS ^[30] | Europe & neighbours | SPEI, ASI, Wofost, and PET | VCI, VPI, and CNDVI | AOC maps and warning index | MARS crops | From EUROSTAT with a specific calendar | CoBo & BioMa | WSI and precipitation anomaly | n.a. | |
| USDA NASS, FAS/FPAD & USAID | Crop Explorer | Global | AgroClimate for Crop Explorer | NDVI departure from average, previous year and previous decade | Soil moisture and T thresholds for particular crops | CADRE crops | Unknown | Crop water production functions from CADRE | SPL, P and ET anomalies, heat damage and stress | Balance sheet | https://ipad.fas.usda.gov/cropeplorer/ |
| | NASS, VegScape | USA | P and T departures from normal | NDVI, VCI, RVCI, MVCI, and RMVCI | n.a. | Wheat, corn, soybeans, cotton, and potatoes | June area survey with CDL | Monthly objective yield survey | n.a. | n.a. | https://nassgeodata.gmu.edu/VegScape |
| | FEWS-NET | 30 countries | Rainfall assumptions: average and accumulative | NDVI and NDVI anomaly (%) with 2001-2018 mean, accumulative values and 8-day time series | ESI, actual ET, SMI, and SWI anomalies | n.a. | n.a. | n.a. | WRSI, VHI, and P anomaly | SD and IPC | https://fews.net/ |
| | GLAM ^[31] | Global | P, T and ET departures from normal | | | Cultivated cropland mask | n.a. | n.a. | NDVI, SWI, and P anomaly | n.a. | https://glam.nasaharvest.org/ |
| Crop Monitor ^[32] | Global | Anomalies of P and T sums | | | Crop-specific masks | n.a. | n.a. | n.a. | n.a. | https://cropmonitor.org/ | |
| WFP Seasonal Explorer | Global | P accumulation, anomalies and ranking since 1981 | NDVI percentage average; development of NDVI and average | n.a. | Cropland and rangeland mask | n.a. | n.a. | P anomaly, NDVI percentage average and T ranking | n.a. | https://dataviz.wfp.org/seasonal_explorer/reports | |
| OZ-wheat ^[33-37] | Australia | n.a. | n.a. | n.a. | Wheat, sorghum | n.a. | n.a. | Crop stress index model | Simulated crop stress with meteorological data | n.a. | |
| AAFS ^[33-37] | Australia | Seasonal P & T and their comparisons to average; P percentiles | NDVI anomaly | VHI provided by FAO ASIS | Up to 158 commodities | From ABS | Statistical forecasting methods | RSMP | Balance sheets | | |
| PAK-SCMS | Pakistan | Monthly P v. previous year, maximum and minimum T v. last two years | NDVI, anomaly maps and profiles | Water supply, pests, and nitrogen | Rice, wheat, cotton, sugarcane | Crop classification | Remote sensing-based statistical model | Anomaly of precipitation; water supply situation | n.a. | https://suparco.gov.pk/crop-management/ | |
| FASAL | India | Anomaly map | VI anomaly map and development | n.a. | Rice, wheat, potato, rapeseed/mustard | Crop classification with in situ samples | Remote sensing-based statistical model | n.a. | n.a. | | |
| VEGA ^[38] | Russia | Maps and profiles of cumulated P | NDVI anomaly map and development, MVCI, RVCI, and NDVI normalized on GDD | n.a. | Cropland, winter crops, summer crops, clean fallows | Remote sensing-based crop type mapping | Remote sensing-based statistical model | Comparison with cumulated average precipitation | n.a. | http://vega.geoglam.ru/?lang=eng | |
| CALMS ^[39] | Canada | Agro-climatic models | NDVI anomaly map and development | Soil moisture and anomaly maps | Spring wheat, barley, canola | Crop classification with in situ samples | Statistical forecast with NDVI, WDI, and GDD | SM and SM anomaly | n.a. | | |

Abbreviations: AAFS=Australian Agricultural Forecasting System; ABS=Australia Bureau of Statistics; AgroClimate for Crop Explorer=percent of normal P at the 5-day, weekly and monthly scales, average, maximum and minimum T and departure from normal, extreme maximum and minimum T, snow depth and cover; AOC=areas of concern indicating excessive or deficit rain, radiation deficit, heat wave, temperature accumulation surplus or deficit, and fAPAR; ASAP=anomaly hot spots of agricultural production; ASI=Agricultural Stress Index; ASIS=Agricultural Stress Index System of the Food and Agriculture Organization of the United Nations (FAO); BioMa=crop growth modelling platform incorporated with WOFOST, CropSYS, STICS, CaneGro for sugarcane and WARM for rice; CAAS=Chinese Academy of Agricultural Sciences; CADRE=crops=wheat, rice, and coarse grains (corn, barley, sorghum, and oats), oilseeds (soybeans, rapeseed, and palm), and cotton; CADRE=Crop Assessment Data Retrieval & Evaluation; CAF=critical area fraction; CALMS=Canadian Ag-Land Monitoring System; CAS=Chinese Academy of Sciences; CCBS=country cereal balance sheet; CDL=cropland data layers; CHARMS=China agriculture remote sensing monitoring system; CNDVI=accumulated NDVI from the start of the growing season; CoBo=control board with different statistical methods to produce yield forecasts; CPTP=crop-planting proportion and crop type proportion method; ESI=evaporative stress index; ET=evapotranspiration; EVI=enhanced vegetation index; fAPAR=fraction of absorbed photosynthetically active radiation; FAS=Foreign Agricultural Service; FASAL=forecasting agricultural output using space, agrometeorological and land based observations of India; FEWS-NET=famine early warning systems network; GAUL level=Global Administrative Units Layers of the FAO; GDD=growing degree days above 5°C; GLAM=global agricultural monitoring; GWSI=Global Water Requirement Satisfaction Index; IPC=Integrated Food Security Phase Classification; LAI=leaf area index; MARS=monitoring agricultural resources; MARS Crops=wheat, barley, maize, rye, triticale, rapeseed, sugar beet, potato, sunflower, and soybean; mNDVI d=mean of the difference between NDVI and its long-term average over the growing season; MVCI=relative change in NDVI compared to the mean NDVI; NASS=National Agriculture Statistics Service; NDVI=normalized difference vegetation index; NDWI=Normalized Difference Water Index; P=precipitation; PAK-SCMS=Pakistan satellite-based crop monitoring system; PASG=percent of average seasonal greenness; PET=potential evapotranspiration; RMVCI=relative change in NDVI compared to the median NDVI; RSMP=Relative Soil Moisture Percentiles; RVCI=Relative NDVI change compared to the previous year; SD=Scenario Development for Food Security Early Warning; SMI=soil moisture index; SPI=Standard Precipitation Index; SWI=soil water index; T=temperature; USDA=United States Department of Agriculture; VCI=vegetation condition index; VHI=vegetation health index; VPI=vegetation productivity indicator; WDI=water deficit index; WFP=UN World Food Programme; WRSI=crop water requirement satisfaction index; zNDVIc=standardized anomaly of cumulative NDVI over the growing season.

CropWatch Processing

CropWatch Cloud

English Miao

- Rainfall index
- Maximum VCI
- Normalized Difference Vegetation Index
- Crop Condition based on N DVI anomaly
- Temperature Index
- Minimum Vegetation health Index
- Leaf Area Index
- Index Based Crop Development
- Photosynthetic Active Radiation
- Cropped Arable Land Classification
- Fraction of Absorbed PAR
- Crop condition clustering
- Potential Biomass
- Cropping intensity
- Normalized Difference Water Index
- Crop Condition Classification

Selectable Agro-climate, agronomic and PAY indicators

CropWatch Pro

English

Cropped arable land classification

Settings

Starting time: 2018 01 01

End Time: 2018 12 31

Simulate the data for next year

Region: Please select region...

Task Center

| No. | Area | Model | Creating Time | Starting Time | Progress | Status | Operation | Log |
|-----|---------|------------------------------------|---------------------|---------------------|----------|-----------|-----------|-----|
| 1 | jiangsu | Cropped Arable Land Classification | 2017-05-11 07:52:13 | 2017-05-11 07:52:13 | 100% | Finished | Task Log | |
| 2 | china | Index Statistics | 2017-05-11 08:23:46 | 2017-05-11 08:23:46 | 100% | Finished | Task Log | |
| 3 | china | Index Statistics | 2017-05-11 08:23:47 | 2017-05-11 08:23:46 | 100% | Finished | Task Log | |
| 4 | china | Index Statistics | 2017-05-11 08:23:47 | 2017-05-11 08:23:46 | 100% | Cancelled | Task Log | |
| 5 | china | Index Statistics | 2017-05-11 08:23:51 | 2017-05-11 08:23:50 | 100% | Finished | Task Log | |
| 6 | china | Index Statistics | 2017-05-11 08:23:51 | 2017-05-11 08:23:50 | 100% | Finished | Task Log | |
| 7 | china | Index Statistics | 2017-05-11 07:58:24 | 2017-05-11 07:58:24 | 100% | Finished | Task Log | |
| 8 | china | Index Statistics | 2017-05-11 07:58:24 | 2017-05-11 07:58:24 | 100% | Finished | Task Log | |
| 9 | china | Index Statistics | 2017-05-11 07:58:24 | 2017-05-11 07:58:24 | 100% | Finished | Task Log | |
| 10 | china | Index Statistics | 2017-05-11 07:58:24 | 2017-05-11 07:58:24 | 100% | Finished | Task Log | |

Preview Thematic Map

Model Name: Cropped arable land classification

Start Year: 2018

Start day: 01

End year: 2018

End day: 31

Simulate the data for next year: 1

Region: CHINA

Map showing Cropped (green) and Non-cropped (orange) areas in China.

VI Anomaly analysis



Parameter Setting

| No. | User | Model | Creating Time | Starting Time | Progress | Status | Operation | Logs |
|-----|-------------|--------------------------------------|---------------------|---------------------|----------|-----------------|--------------|-----------|
| 1 | zenghongwei | Crop Condition based on NDVI anomaly | 2017-05-11 08:58:41 | 2017-05-11 08:58:41 | 100% | To be processed | Pause/Cancel | Task Logs |
| 2 | zenghongwei | Crop Condition based on NDVI anomaly | 2017-05-11 08:55:30 | 2017-05-11 08:55:40 | 100% | Finished | | Task Logs |
| 3 | zenghongwei | Rainfall Index | 2017-05-11 08:30:39 | 2017-05-11 08:30:40 | 100% | Finished | | Task Logs |
| 4 | zenghongwei | Crop Condition based on NDVI anomaly | 2017-05-11 07:56:15 | 2017-05-11 07:56:20 | 100% | Finished | | Task Logs |
| 5 | miao | Index Statistics | 2017-05-10 18:52:44 | 2017-05-10 19:47:30 | 100% | Finished | | Task Logs |
| 6 | miao | Index Statistics | 2017-05-10 18:52:17 | 2017-05-10 19:47:30 | 100% | Finished | | Task Logs |
| 7 | miao | Index Statistics | 2017-05-10 18:51:47 | | 0% | Cancelled | | Task Logs |
| 8 | miao | Index Statistics | 2017-05-10 18:33:21 | 2017-05-10 19:47:20 | 100% | Finished | | Task Logs |
| 9 | miao | Index Statistics | 2017-05-10 18:32:51 | 2017-05-10 19:47:10 | 100% | Finished | | Task Logs |
| 10 | miao | Index Statistics | 2017-05-10 17:50:52 | 2017-05-10 19:10:20 | 100% | Finished | | Task Logs |

Queue in task list

| No. | User | Model | Creating Time | Starting Time | Progress | Status | Operation | Logs |
|-----|-------------|--------------------------------------|---------------------|---------------------|----------|-----------|-----------|-----------|
| 1 | zenghongwei | Crop Condition based on NDVI anomaly | 2017-05-11 08:58:41 | 2017-05-11 08:58:50 | 100% | Finished | | Task Logs |
| 2 | zenghongwei | Crop Condition based on NDVI anomaly | 2017-05-11 08:55:30 | 2017-05-11 08:55:40 | 100% | Finished | | Task Logs |
| 3 | zenghongwei | Rainfall Index | 2017-05-11 08:30:39 | 2017-05-11 08:30:40 | 100% | Finished | | Task Logs |
| 4 | zenghongwei | Crop Condition based on NDVI anomaly | 2017-05-11 07:56:15 | 2017-05-11 07:56:20 | 100% | Finished | | Task Logs |
| 5 | miao | Index Statistics | 2017-05-10 18:52:44 | 2017-05-10 19:47:30 | 100% | Finished | | Task Logs |
| 6 | miao | Index Statistics | 2017-05-10 18:52:17 | 2017-05-10 19:47:30 | 100% | Finished | | Task Logs |
| 7 | miao | Index Statistics | 2017-05-10 18:51:47 | | 0% | Cancelled | | Task Logs |
| 8 | miao | Index Statistics | 2017-05-10 18:33:21 | 2017-05-10 19:47:20 | 100% | Finished | | Task Logs |
| 9 | miao | Index Statistics | 2017-05-10 18:32:51 | 2017-05-10 19:47:10 | 100% | Finished | | Task Logs |
| 10 | miao | Index Statistics | 2017-05-10 17:50:52 | 2017-05-10 19:10:20 | 100% | Finished | | Task Logs |

Task status updating/finished

Preview thematic product and output to database

Demonstration

[http://process.cropwatch.com.cn/
CropWatch/](http://process.cropwatch.com.cn/CropWatch/)

Agro-climatic Indicator
















Selection the component – Thematic maps



CropWatch Cloud

English



| | | | |
|--|---|---|---|
|  Index Based Yield Model |  CPTP Method for Area Estimation |  Production Outlook Indicator |  Evapotranspiration |
|  Agro-Meteorological Yield Model |  Planted Area Early Warning Indicator |  Supply Situation Indicator |  Minimum Vegetation Health Index (China) |
|  Remote Sensing Based Production |  Agro-Meteorological Suitability Index |  Standardized Precipitation Index |  Thematic Map |
|  Trend Based Production for Minor Producers |  Agro-Climatic Index Composite |  Soil Moisture |  Zonal Statistics |



Agro-climatic Indicator

Rainfall profiles

CropWatch Cloud

Produce Thematic Map

Settings

| | |
|------------------------------|----------------|
| Types of map to be produced | NDVI profiles |
| Type | Rainfall index |
| Region Type | Countries |
| Region Name | Nigeria |
| Sub Regions of Key Countries | Whole country |
| Starting time | 2024-01-01 |
| End Time | 2024-07-03 |
| Crop Type | All Crop |
| Bulletin | 2 |

NGA

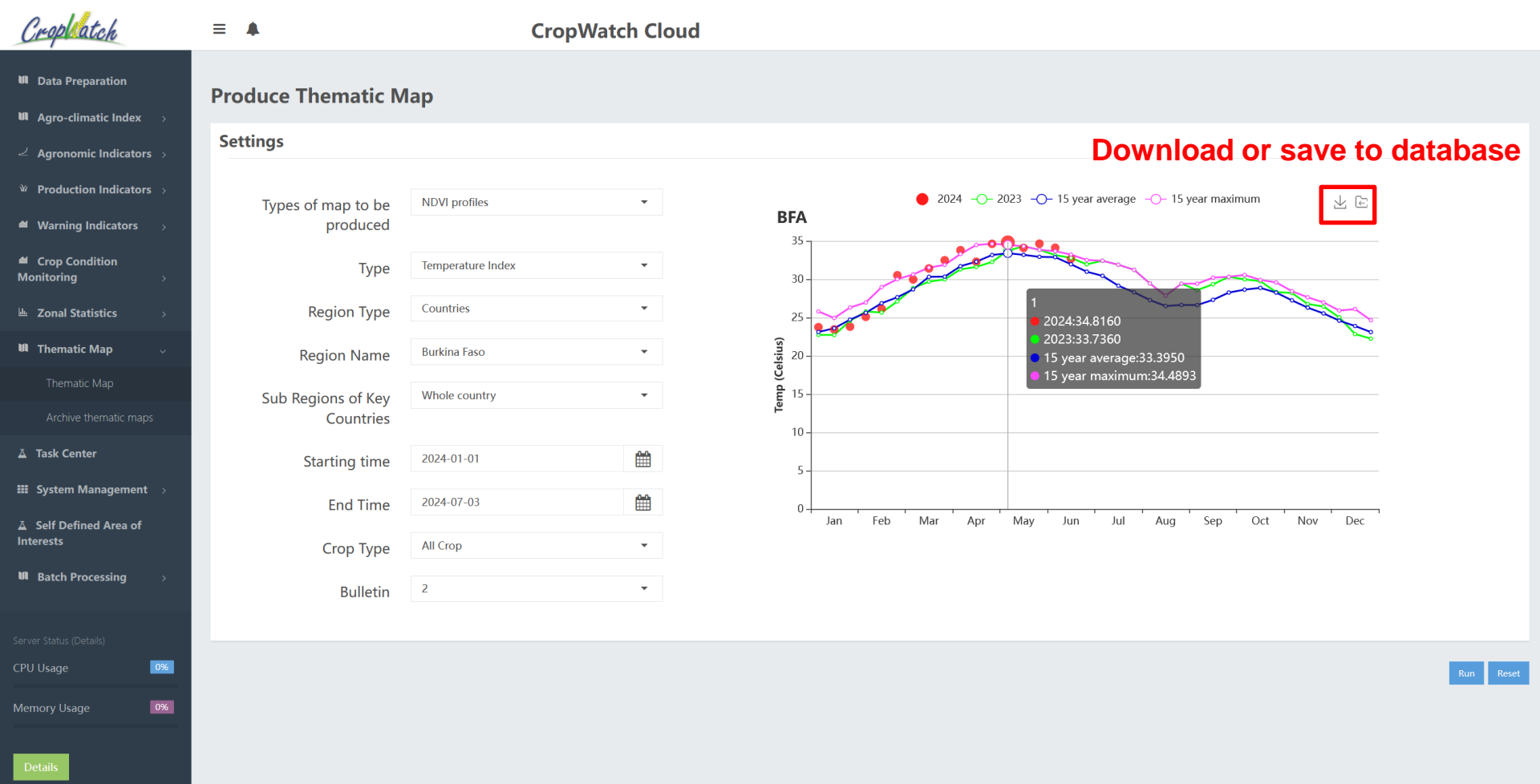
Download or save to database

| Month | 2024 (mm) | 2023 (mm) | 15 year average (mm) | 15 year maximum (mm) |
|-------|-----------|-----------|----------------------|----------------------|
| Jan | 0 | 0 | 0 | 0 |
| Feb | 0 | 0 | 0 | 0 |
| Mar | 0 | 0 | 0 | 0 |
| Apr | 0 | 0 | 0 | 0 |
| May | 0 | 0 | 0 | 0 |
| Jun | 0 | 0 | 0 | 0 |
| Jul | 0 | 0 | 0 | 0 |
| Aug | 0 | 0 | 0 | 0 |
| Sep | 0 | 0 | 0 | 0 |
| Oct | 0 | 0 | 0 | 0 |
| Nov | 0 | 0 | 0 | 0 |
| Dec | 0 | 0 | 0 | 0 |

Run Reset

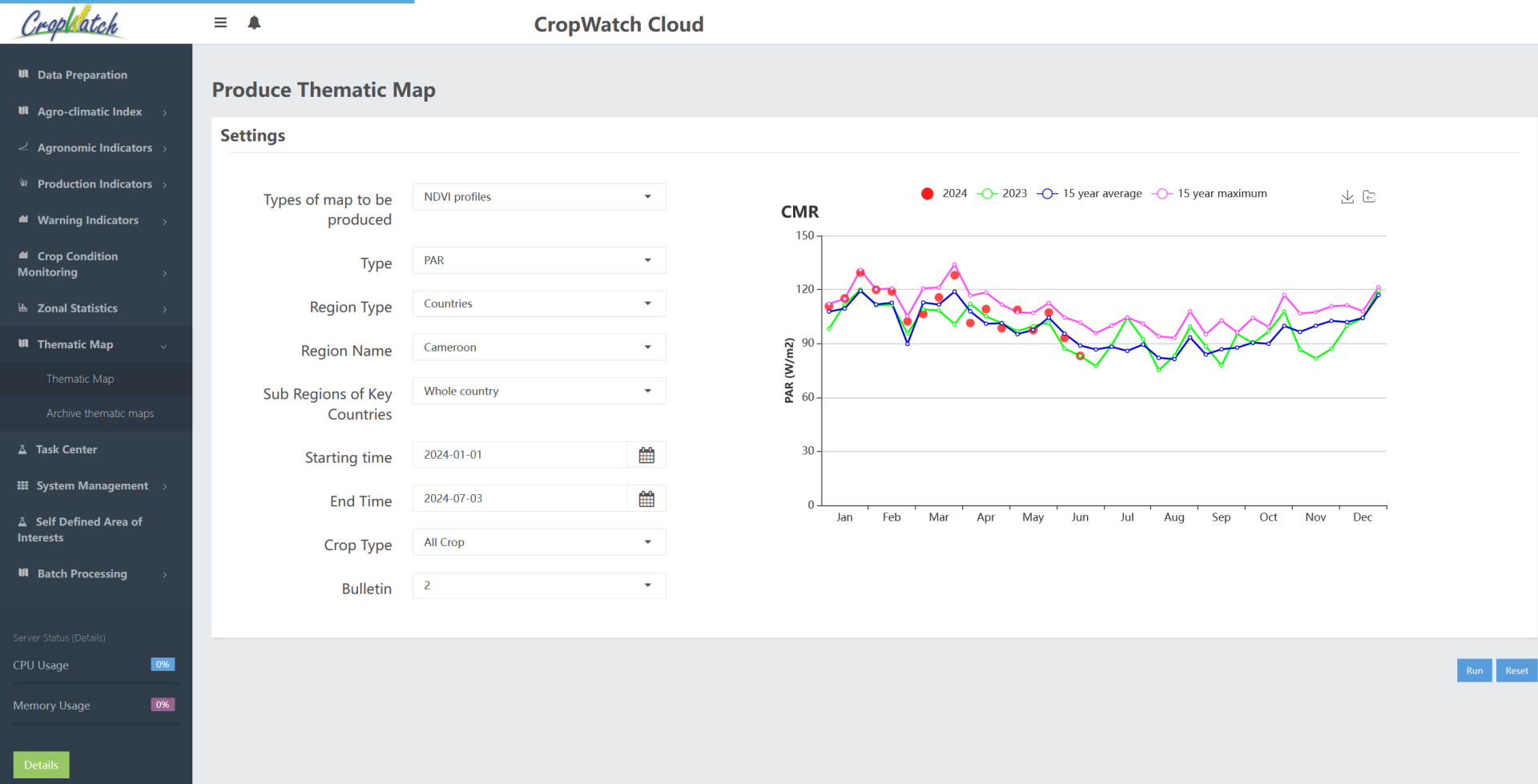
Agro-climatic Indicator

Temperature profiles



Agro-climatic Indicator

Photosynthetic Active Radiation profiles



Agro-climatic Indicator

Potential Biomass Accumulation

CropWatch Cloud

Produce Thematic Map

Settings

| | |
|------------------------------|-------------------|
| Types of map to be produced | Raster |
| Type | Biomass departure |
| Region Type | Countries |
| Region Name | Niger |
| Sub Regions of Key Countries | Whole country |
| Starting time | 2024-01-01 |
| End Time | 2024-04-30 |
| Bulletin | 2 |

Legend: -20% -10% -5% -2% 0 2% 5% 10% 20%

Run Reset

Server Status (Details)
CPU Usage: 0%
Memory Usage: 0%
Details

Agro-climatic Indicator

Standard Precipitation index

The screenshot displays the CropWatch Cloud web application interface. The top navigation bar includes the CropWatch logo, a menu icon, a notification bell, the text 'CropWatch Cloud', a language selector set to 'English', and a user profile icon for 'miao'. A left sidebar contains a navigation menu with options: Data Preparation, Agro-climatic Index, Agronomic Indicators, Production Indicators, Warning Indicators, Crop Condition Monitoring, Zonal Statistics, Thematic Map (selected), Task Center, System Management, Self Defined Area of Interests, and Batch Processing. At the bottom of the sidebar, server status is shown: CPU Usage at 0% and Memory Usage at 0%, with a 'Details' button.

The main content area is titled 'Produce Thematic Map' and contains a 'Settings' panel with the following configuration:

- Types of map to be produced: Raster
- Type: Standardized Precipitation Index
- Region Type: Countries
- Region Name: Liberia
- Sub Regions of Key Countries: Whole country
- Time: 2024-06-20
- Time scale: Month
- Bulletin: 2

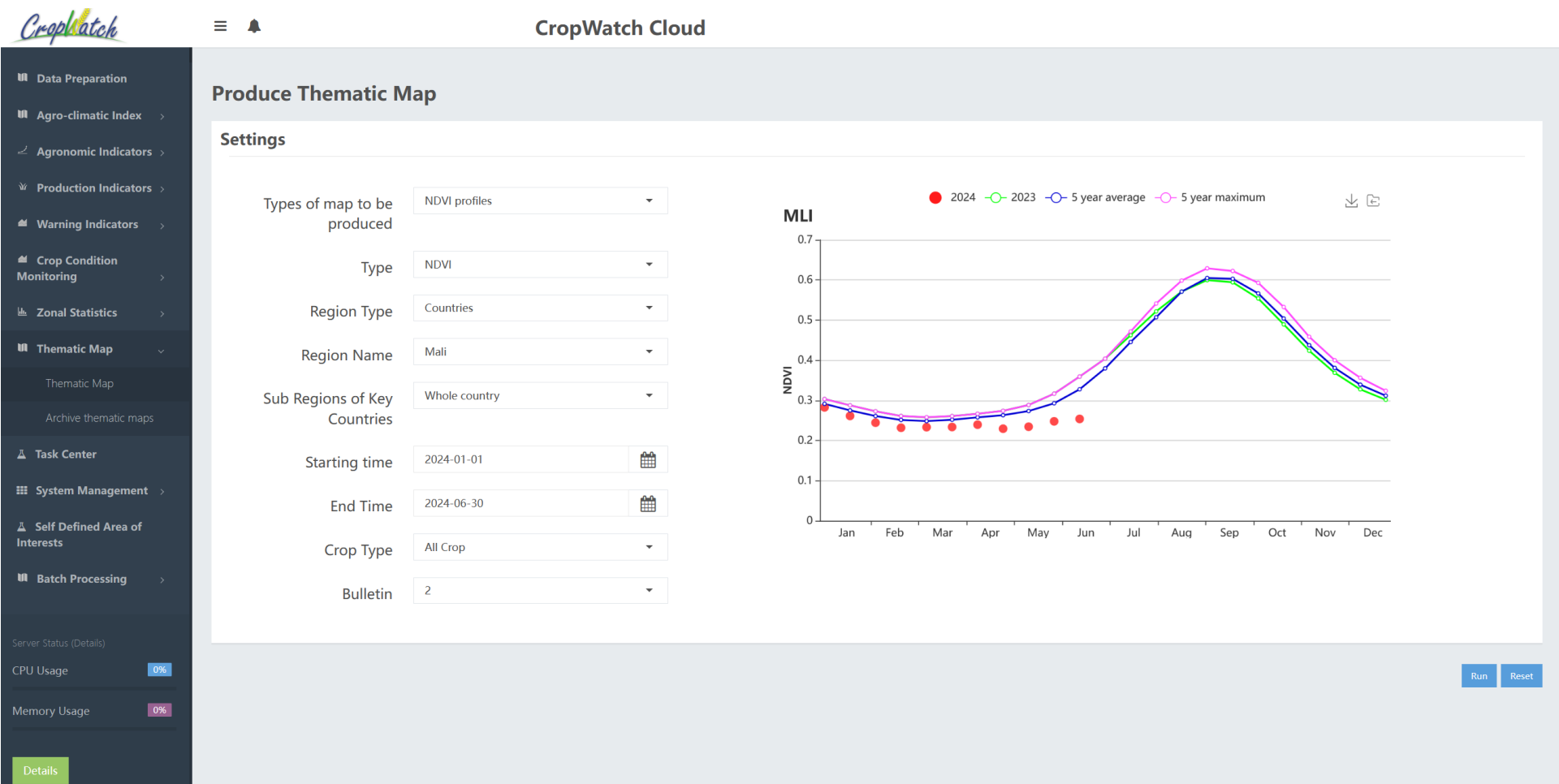
To the right of the settings is a map of Liberia, color-coded according to the Standardized Precipitation Index. A legend below the map defines the color scale: Extreme Drought (red), Severe Drought (orange), Moderate Drought (yellow), Normal (light green), Moderate Wet (cyan), Severe Wet (dark blue), and Extreme Wet (blue).

On the far right, a 'Model description' sidebar features a small world map with a legend.

At the bottom right of the main content area, there are 'Run' and 'Reset' buttons.

Agronomic Indicator

Crop condition monitoring based on NDVI profiles



Agronomic Indicator

Crop condition monitoring based on maximum vegetation index

CropWatch Cloud

Produce Thematic Map

Settings

| | |
|------------------------------|---------------|
| Types of map to be produced | Raster |
| Type | Maximum VCI |
| Region Type | Countries |
| Region Name | Lao PDR |
| Sub Regions of Key Countries | Whole country |
| Starting time | 2022-07-01 |
| End Time | 2022-10-30 |
| Bulletin | 4 |

Legend:

- < 0.5
- 0.5 - 0.8
- 0.8 - 1.0
- > 1.0

Run Reset

Server Status (Details)
CPU Usage 0%

Crop condition assessment



CropWatch Cloud

Crop Condition based on NDVI anomaly

Settings

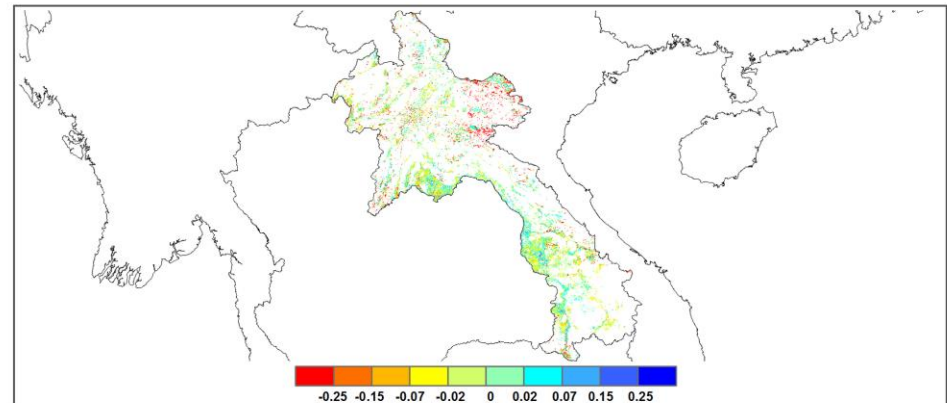
| | |
|----------------|----------------------------|
| Indicator Type | NDVI |
| Region Type | Countries |
| Region Name | Lao PDR |
| Time | 2022-10-10 |
| Reference Year | Previous 5 year' s average |

Run Reset

专题图生产

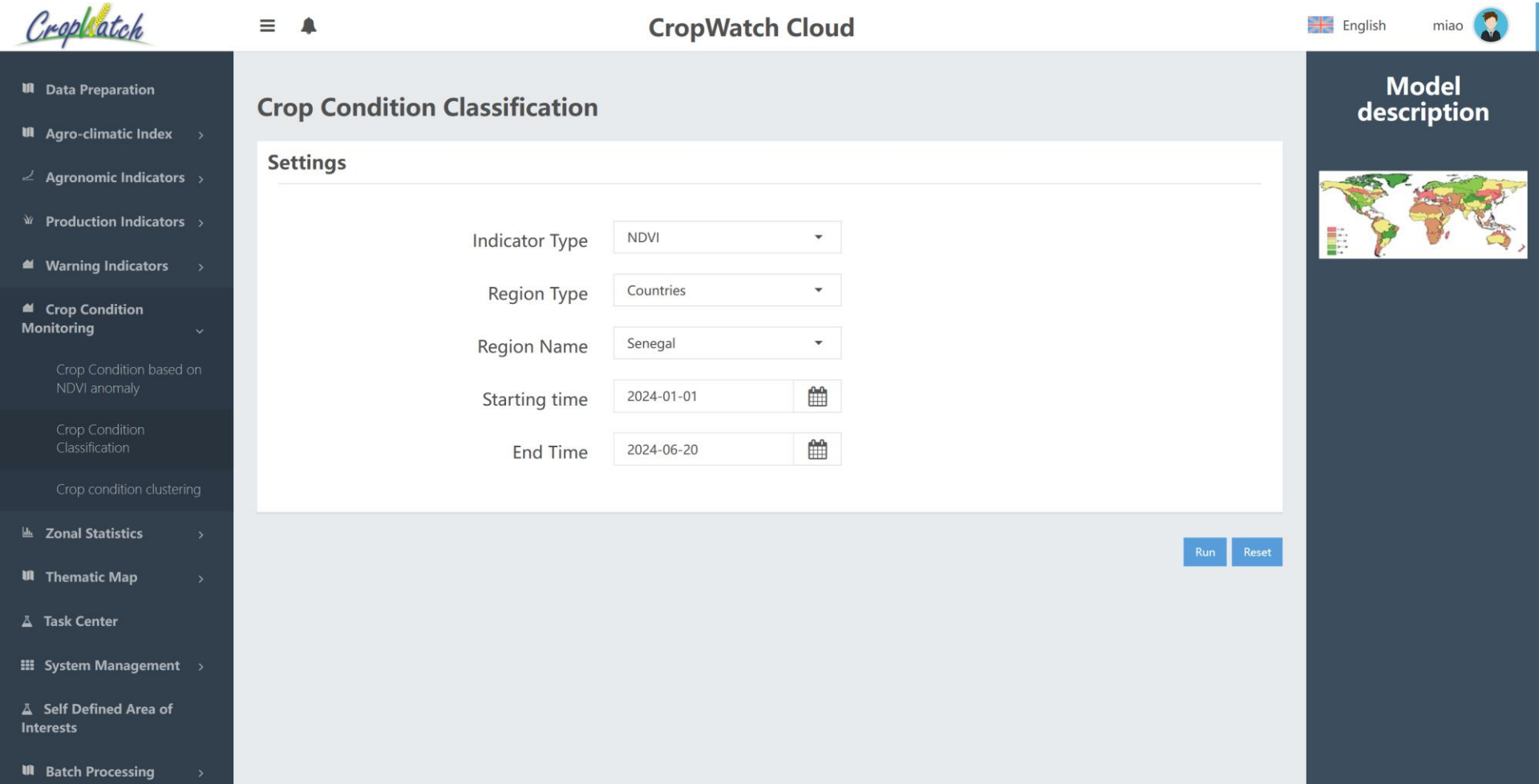
Preview Thematic Map

| | |
|--------------------|--------------------------------------|
| Model Name | Crop Condition based on NDVI anomaly |
| Indicator Type | Ndvi |
| Region Type | Country |
| Region Name | LAO |
| Start Year | 2022 |
| Start day | 273 |
| End year | 2022 |
| End day | 273 |
| Reference Year:[1] | 1 |



Crop condition assessment

Crop Condition based on NDVI departure classification



The screenshot displays the CropWatch Cloud web application interface. The top navigation bar includes the CropWatch logo, a menu icon, a notification bell, the text "CropWatch Cloud", a language selector set to "English", and a user profile icon for "miao".

The main content area is titled "Crop Condition Classification" and features a "Settings" section with the following configuration options:

- Indicator Type: NDVI
- Region Type: Countries
- Region Name: Senegal
- Starting time: 2024-01-01
- End Time: 2024-06-20

At the bottom right of the settings area, there are "Run" and "Reset" buttons.

The left sidebar contains a navigation menu with the following items:

- Data Preparation
- Agro-climatic Index
- Agronomic Indicators
- Production Indicators
- Warning Indicators
- Crop Condition Monitoring (selected)
- Crop Condition based on NDVI anomaly
- Crop Condition Classification
- Crop condition clustering
- Zonal Statistics
- Thematic Map
- Task Center
- System Management
- Self Defined Area of Interests
- Batch Processing

The right sidebar is titled "Model description" and contains a world map with a color-coded legend, likely representing different crop condition or NDVI anomaly levels.

Crop condition assessment

Crop Condition based on NDVI departure classification

The screenshot displays the CropWatch Cloud interface. On the left is a dark sidebar with navigation options: Data Preparation, Agro-climatic Index, Agronomic Indicators, Production Indicators, Warning Indicators, Crop Condition Monitoring, Zonal Statistics, Thematic Map, Task Center, System Management, Self Defined Area of Interests, and Batch Processing. The main content area is titled 'CropWatch Cloud' and '专题图生产' (Thematic Map Production). It features a 'Preview Thematic Map' section with a configuration panel and a stacked bar chart.

Configuration Panel:

- Model Name: Crop Condition Classificat
- Indicator Type: Ndvi
- Region Type: Country
- Region Name: NGA
- Starting time: 2024
- Start day: 1
- End Time: 2024
- End day: 161

Stacked Bar Chart:

The chart shows the percentage distribution of crop condition assessments across 161 days in 2024. The Y-axis represents the percentage from 0% to 100%. The X-axis shows dates from 001/2024 to 161/2024. The legend indicates five categories: Above Average (blue), Slightly above average (light blue), Average (green), Slightly below average (yellow), and Below Average (orange).

| Date | Above Average | Slightly above average | Average | Slightly below average | Below Average |
|----------|---------------|------------------------|---------|------------------------|---------------|
| 001/2024 | 5% | 0% | 90% | 5% | 0% |
| 017/2024 | 5% | 0% | 90% | 5% | 0% |
| 033/2024 | 10% | 0% | 85% | 5% | 0% |
| 049/2024 | 10% | 0% | 85% | 5% | 0% |
| 065/2024 | 0% | 0% | 85% | 10% | 0% |
| 081/2024 | 10% | 0% | 85% | 5% | 0% |
| 097/2024 | 5% | 0% | 90% | 5% | 0% |
| 113/2024 | 15% | 0% | 80% | 5% | 0% |
| 129/2024 | 20% | 10% | 70% | 0% | 0% |
| 145/2024 | 15% | 20% | 65% | 0% | 0% |
| 161/2024 | 10% | 10% | 75% | 5% | 0% |

On the right side, there is a 'Description of raster thematic map' section with a world map showing global crop condition assessments.

Crop condition assessment



CropWatch Cloud



- Data Preparation
- Agro-climatic Index >
- Agronomic Indicators >
- Production Indicators >
- Warning Indicators >
- Crop Condition Monitoring >
- Zonal Statistics >
- Thematic Map >
- Task Center
- System Management >
- Self Defined Area of Interests
- Batch Processing >

Server Status (Details)

CPU Usage 0%

Memory Usage 0%

Details

Crop condition clustering

Settings

Crop Condition based on NDVI departure clustering

| | | |
|----------------|------------|---|
| Indicator Type | NDVI | ▼ |
| Region Type | Countries | ▼ |
| Region Name | Nigeria | ▼ |
| Starting time | 2024-01-01 | |
| End Time | 2024-06-20 | |
| Calculate type | Departure | ▼ |

Run

Reset

Crop condition assessment

Crop Condition based on NDVI departure clustering

CropWatch Cloud

English miao

专题图生产

Preview Thematic Map

| | |
|----------------|---------------------------|
| Model Name | Crop condition clustering |
| Indicator Type | Ndvi |
| Region Type | Country |
| Region Name | NGA |
| Start Year | 2024 |
| Start day | 1 |
| End year | 2024 |
| End day | 161 |
| Calculate type | departure |

Percent of the area(%)

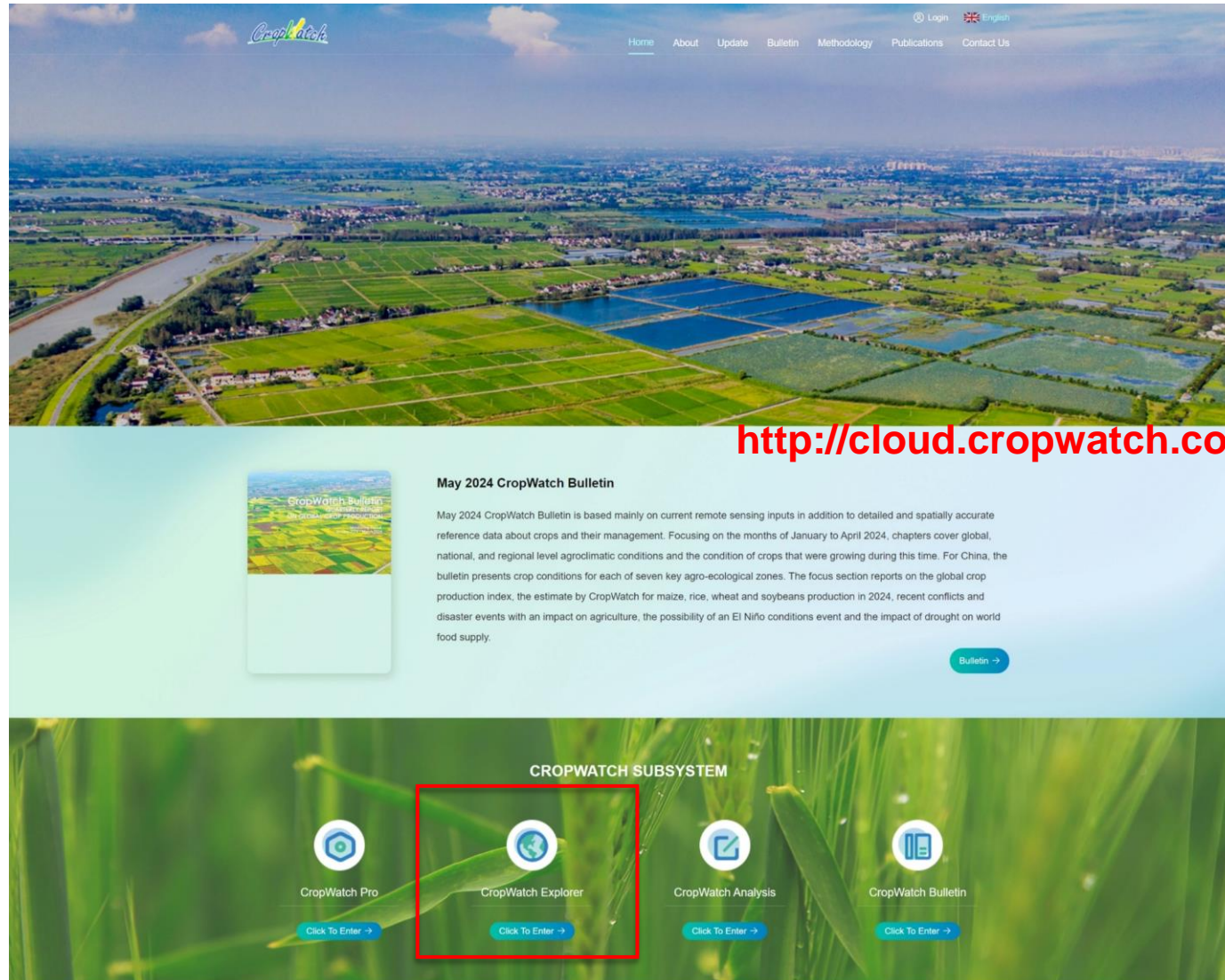
- 0-10%
- 10-20%
- 20-30%
- 30-40%
- 40-50%

NDVI departure

Jan Feb Mar Apr May Jun

Description of raster thematic map

Interactive monitoring of crop condition



The image shows a screenshot of the CropWatch website. At the top, there is a navigation menu with links for Home, About, Update, Bulletin, Methodology, Publications, and Contact Us. The main content area features a large aerial photograph of a rural landscape with a river and green fields. Below this, there is a section for the "May 2024 CropWatch Bulletin" with a thumbnail image and a brief description. A red box highlights the "CropWatch Explorer" component in the "CROPWATCH SUBSYSTEM" navigation menu.

<http://cloud.cropwatch.com.cn/>

May 2024 CropWatch Bulletin

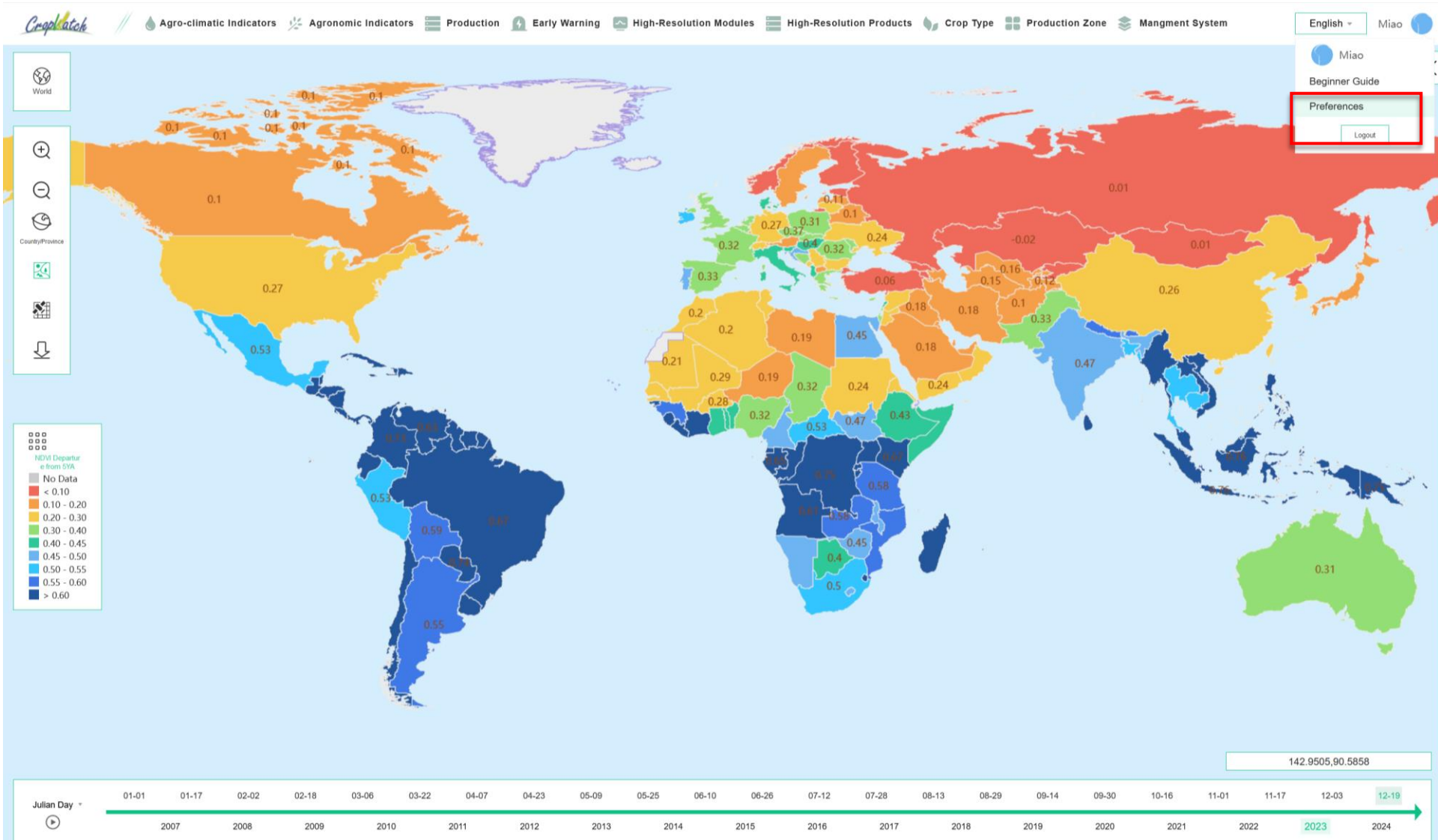
May 2024 CropWatch Bulletin is based mainly on current remote sensing inputs in addition to detailed and spatially accurate reference data about crops and their management. Focusing on the months of January to April 2024, chapters cover global, national, and regional level agroclimatic conditions and 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. The focus section reports on the global crop production index, the estimate by CropWatch for maize, rice, wheat and soybeans production in 2024, recent conflicts and disaster events with an impact on agriculture, the possibility of an El Niño conditions event and the impact of drought on world food supply.

CROPWATCH SUBSYSTEM

- CropWatch Pro
- CropWatch Explorer**
- CropWatch Analysis
- CropWatch Bulletin

Access to 'CropWatch Explorer' Component

System configuration



System configuration

The screenshot displays the CropWatch system configuration interface. At the top, a navigation bar includes categories like 'Agro-climatic Indicators', 'Agronomic Indicators', 'Production', 'Early Warning', 'High-Resolution Modules', 'High-Resolution Products', 'Crop Type', 'Production Zone', and 'Mangment System'. A language dropdown is set to 'English' and the user is identified as 'Miao'. A world map in the background shows NDVI departure values, with a legend on the left ranging from '< 0.10' to '> 0.60'. A 'Preferences' dialog box is open in the center, listing various indicators and modules with checkboxes. A red text overlay 'Select all and confirm' is positioned over the 'Early Warning' section. At the bottom, a 'Julian Day' timeline shows the current date as 12-19, 2023. A numerical ID '82.5265,90.5858' is visible in the bottom right corner.

Preferences

Agro-climatic Indicators

- Precipitation
- AVG TEMP
- PAR
- Potential Biomass
- SPI II

Agronomic Indicators

- NDVI
- VCix
- CALF
- CI
- LAI
- FPAR
- VHI II
- ET II

Production

- Crop Production
- Cropped Area
- Crop Yield
- Maize
- Rice
- Wheat
- Soybean

High-Resolution Modules

- Field Segment
- Crop Classification
- Wheat-barley classification
- Cropping Intensity
- Rice Mapping
- Crop Yield Prediction
- Irrigation mapping
- Crop Classification - US
- Crop Condition

Early Warning

- CPI
- Cropped Area Warning II
- ASI II

High-Resolution Products

- Crop Types in Northeast China
- Global CPIS
- Paddy Rice in SA and SEA
- Global Irrigation Fraction
- Global Cropland (2019-2021)
- Global Cropland on the Earth
- Global Cropping Intensity
- Wheat & Barley (France)

Note: Indicators with 'II' is Coming Soon!

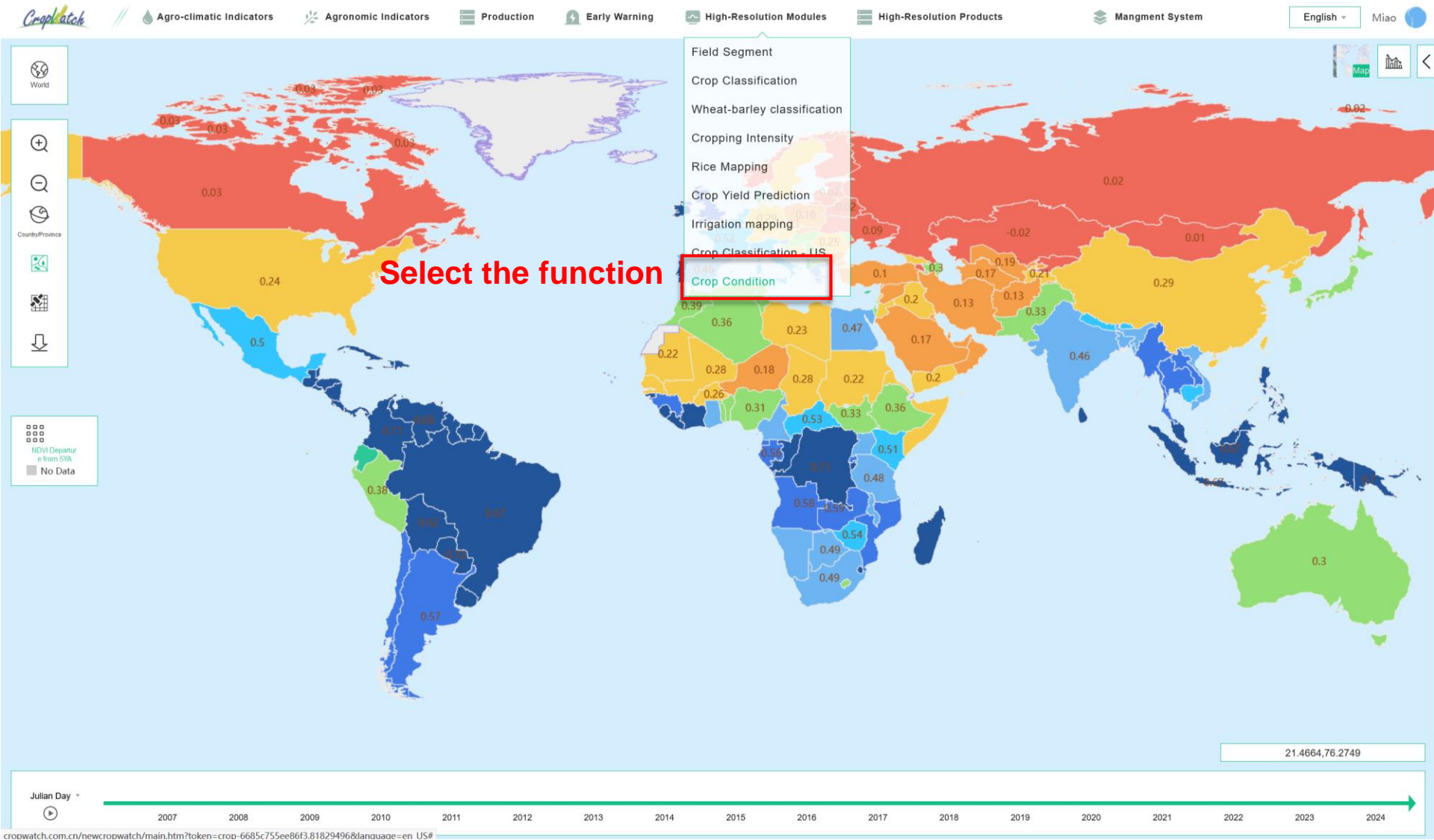
Cancel Confirm

82.5265,90.5858

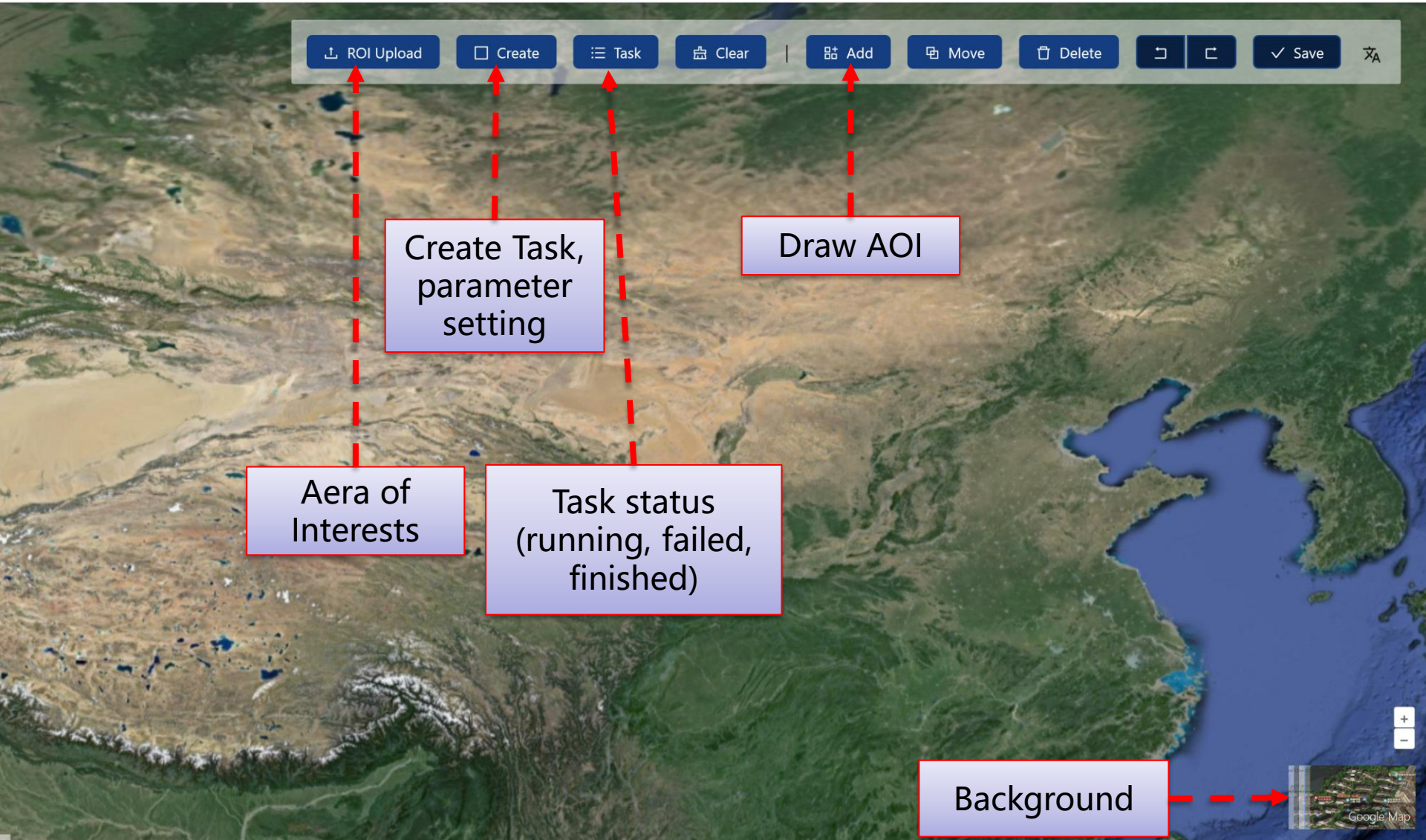
Julian Day 01-01 01-17 02-02 02-18 03-06 03-22 04-07 04-23 05-09 05-25 06-10 06-26 07-12 07-28 08-13 08-29 09-14 09-30 10-16 11-01 11-17 12-03 12-19

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

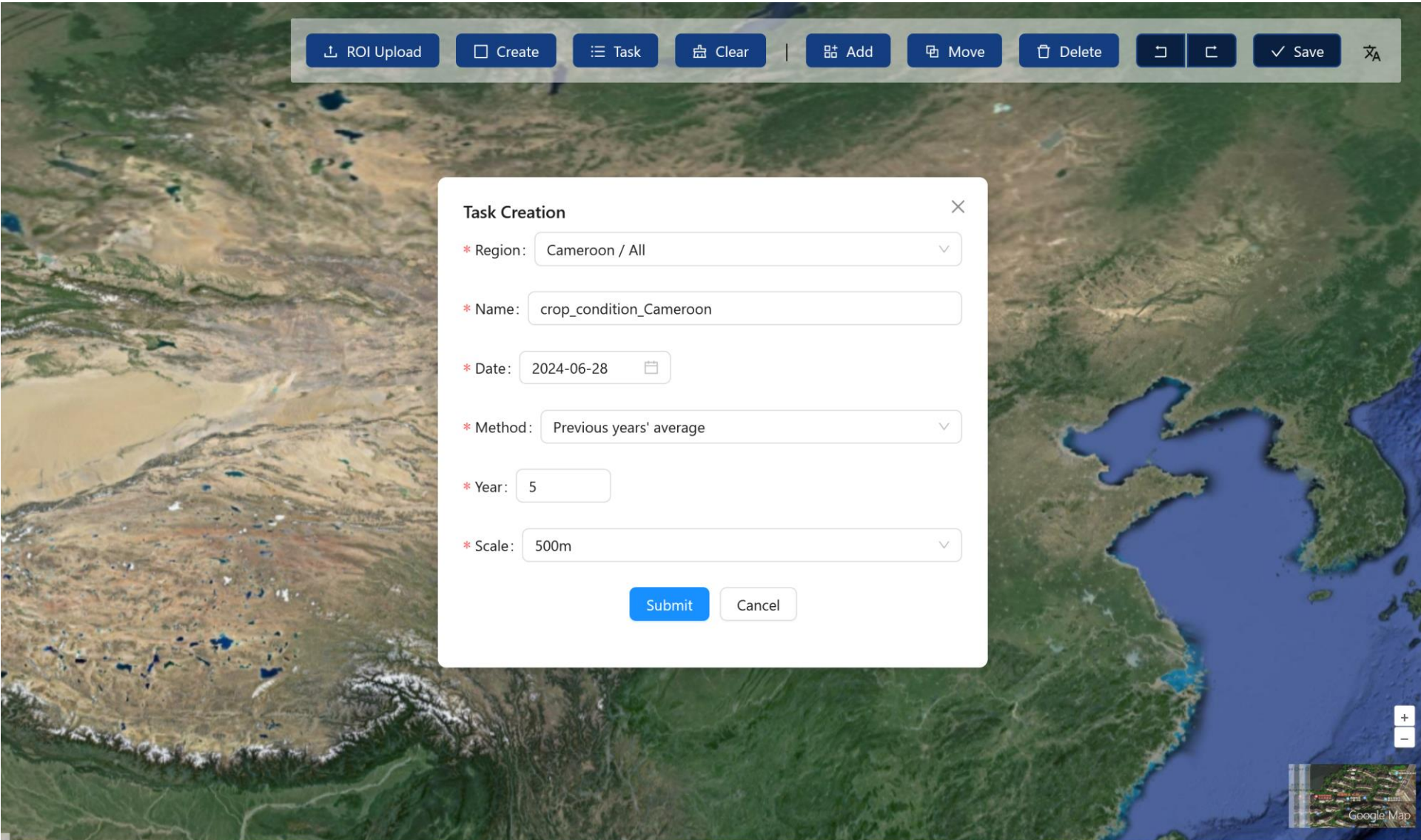
System configuration



Interface



Parameters to monitoring for your country




































Track your monitoring

Task List

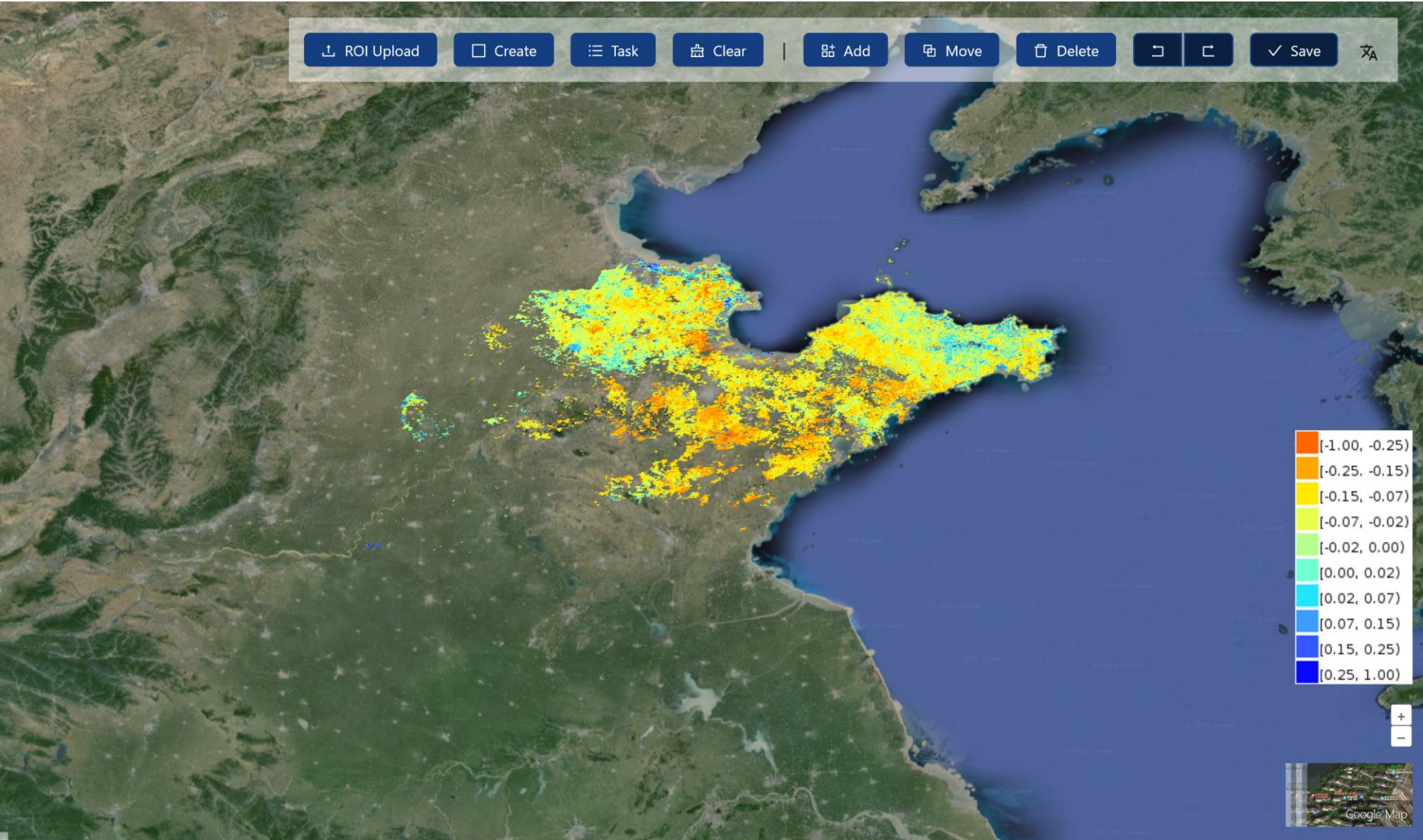
Filename:

Created Time: →

| ID | Filename | User | Start Date | Updated Time | Status | Operation |
|-------|---------------------------|----------------|------------|---------------------|---------|---|
| 1,325 | crop_condition_test | Miao | 2024-06-28 | 2024-07-04 06:52:43 | Success |    |
| 1,324 | crop_condition_test | Miao | 2024-06-28 | 2024-07-04 06:47:44 | Success |    |
| 1,323 | crop_condition_Nigerstate | Miao | 2024-06-25 | 2024-07-04 06:46:43 | Success |    |
| 1,322 | crop_condition_Cameroon | Miao | 2024-06-28 | 2024-07-04 06:44:43 | Success |    |
| 1,317 | crop_condition_test | zenghongwei | 2024-06-06 | 2024-07-02 19:09:44 | Success |    |
| 1,316 | crop_condition_test | zenghongwei | 2024-06-26 | 2024-07-02 18:52:43 | Success |    |
| 1,315 | crop_condition_test | Wangmx | 2024-06-26 | 2024-07-02 14:54:43 | Success |    |
| 1,314 | crop_condition_test | Wangmx | 2024-06-25 | 2024-07-02 14:44:43 | Success |    |
| 1,313 | crop_condition_test | Wangmx | 2024-06-26 | 2024-07-02 14:39:43 | Success |    |
| 1,312 | crop_condition_test | WegisDeveloper | 2024-06-26 | 2024-07-02 14:35:43 | Success |    |
| 1,311 | crop_condition_test | Wangmx | 2024-06-25 | 2024-07-02 14:19:43 | Success |    |



Visualize your result

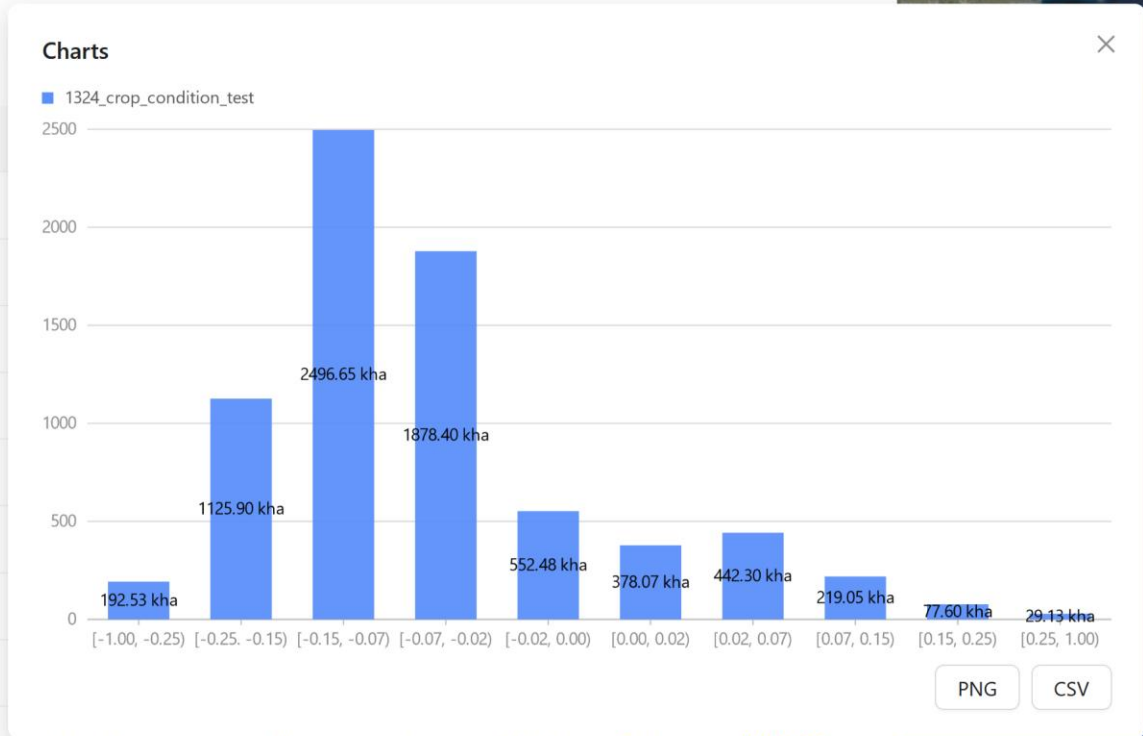


Statistical analysis

Task List

Filename: Created Time:

| ID | Filename |
|-------|---------------------------|
| 1,325 | crop_condition_test |
| 1,324 | crop_condition_test |
| 1,323 | crop_condition_Nigerstate |
| 1,322 | crop_condition_Cameroon |
| 1,317 | crop_condition_test |
| 1,316 | crop_condition_test |
| 1,315 | crop_condition_test |
| 1,314 | crop_condition_test |
| 1,313 | crop_condition_test |
| 1,312 | crop_condition_test |
| 1,311 | crop_condition_test |



| | | | | | | |
|----------------|------------|---------------------|---------|--|--|--|
| wangmx | 2024-06-26 | 2024-07-02 14:39:43 | Success | | | |
| WegisDeveloper | 2024-06-26 | 2024-07-02 14:35:43 | Success | | | |
| Wangmx | 2024-06-25 | 2024-07-02 14:19:43 | Success | | | |

Move Delete ↶ ↷ Save ✖

- [-1.00, -0.25]
- [-0.25, -0.15]
- [-0.15, -0.07]
- [-0.07, -0.02]
- [-0.02, 0.00]
- [0.00, 0.02]
- [0.02, 0.07]
- [0.07, 0.15]
- [0.15, 0.25]
- [0.25, 1.00]



Thank you for your attention!

contacts: zhangmiao@aircas.ac.cn