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Miao Zhang, Bingfang Wu and Hongwei Zeng GEOGLAM CropWatch - a cloud platform enhancing the crop monitoring capacity for developing countries wubf@aircas.ac.cn http://cloud.cropwatch.com.cn/







Outline

Background

CropWatch Cloud

Data in CropWatch

 Capacity building and knowledge sharing

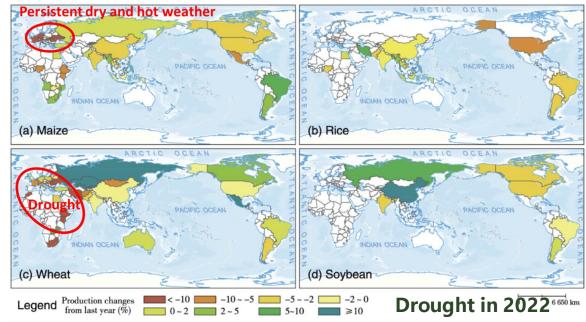
Issues for Food Security



- Food security is still a challenge issue over the world, in particular in Africa, south & southeast Asia.
 COVID-19, Desert Locust, drought, flooding, etc. further threaten food security.
- The paucity of adequate capacity in obtain and accessing up-to-date production information pose

the danger of taking decisions based on delayed and on not easily verifiable information.





CropWatch Cloud



- CropWatch is a satellite-based crop monitoring platform, providing APIs access to all agro-climatic indicators, agronomic indicators, area, yield and production at different scales
- Release Quarterly and annually bulletins on global crop monitoring, covering 173 countries and regions down to provincial scales, with special focus on 43 key agricultural countries

 CropWatch-Pro An online tool for people to produce crop monitoring products at any time and anywhere 	Rainfall index	X Maximum VCI	Normalized Differ ence Vegetation I ndex	Crop Condition b ased on NDVI ano maly
Cropwatch Pro Enter	Temperature Inde x	MinimumVegetati on health Index	🔬 Leaf Area Index	Index Based Crop Development
CropWatch-Explore An online interface for people to explore and	Photosynthetic Ac tive Radiation	Cropped Arable L and Classification	Fraction of Absor bed PAR	Crop condition cl ustering
analysis all the crop information data easily.	Potential Biomass	Cropping intensit y	Normalized Differ ence Water Index	Crop Condition Cl assification
 CropWatch-Project An online platform for people to create and 	Index Based Yield Model	CPTP Method for Area Estimation	Production Outlo ok Indicator	Evapotranspiratio n
write the crop bulletin.	Agro-Meteorologi cal Yield Model	Planted Area Early Warning Indicator	Supply Situation I ndicator	MinimumVegetati on health Index(C hina)
CropWatch-Bulletin	Remote Sensing B ased Production	Agro-Meteorologi () cal Suitability Ind ex	Standardized Prec ipitation Index	🛞 Thematic Map
• An webpage for people to read CropWatch bulletin.	Trend Based Prod uction for Minor Producers	Agro-Climatic Ind ex Composite	🔬 Soil Moisture	() Zonal Statistics

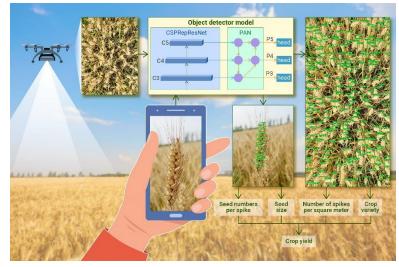
http://cloud.cropwatch.com.cn/

Tools for ground truth data collection

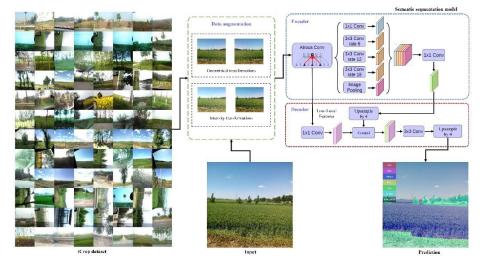




- The field data collection prevents most systems have crop area and yield components
 - Cost, labor and time consuming
- Two tools developed for free use
 - GVG app for crop identification and FieldWatch for yield measurement with image recognition



FieldWatch for yield data measurements



GVG Crop type identification from geo-tagged photos

Features of CropWatch Cloud



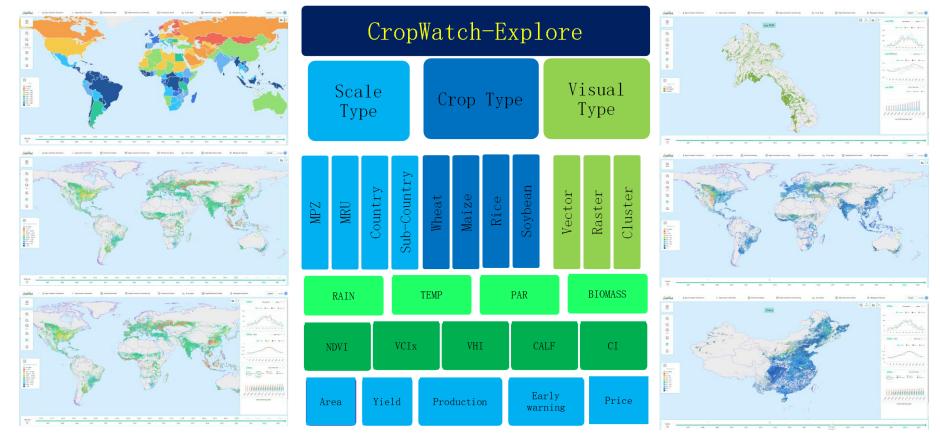
- Analysis-ready products
 - Indicators ready in CropWatch Cloud considering commonly used indicators in existing system
 Indicators customizable, easy to include new national or regional specific indicators
- Promote ownership
 - Cloud based system assessable from internet everywhere without investment on computing infrastructure, storage, etc
 - Customized according to the specific demand for each country and work as a national/regional system
 - After customization and training, countries will strengthen the agricultural monitoring capacity on your own
- Inclusive, no preconditions, no investment needed for infrastructure

Data accessible in CropWatch-Explore



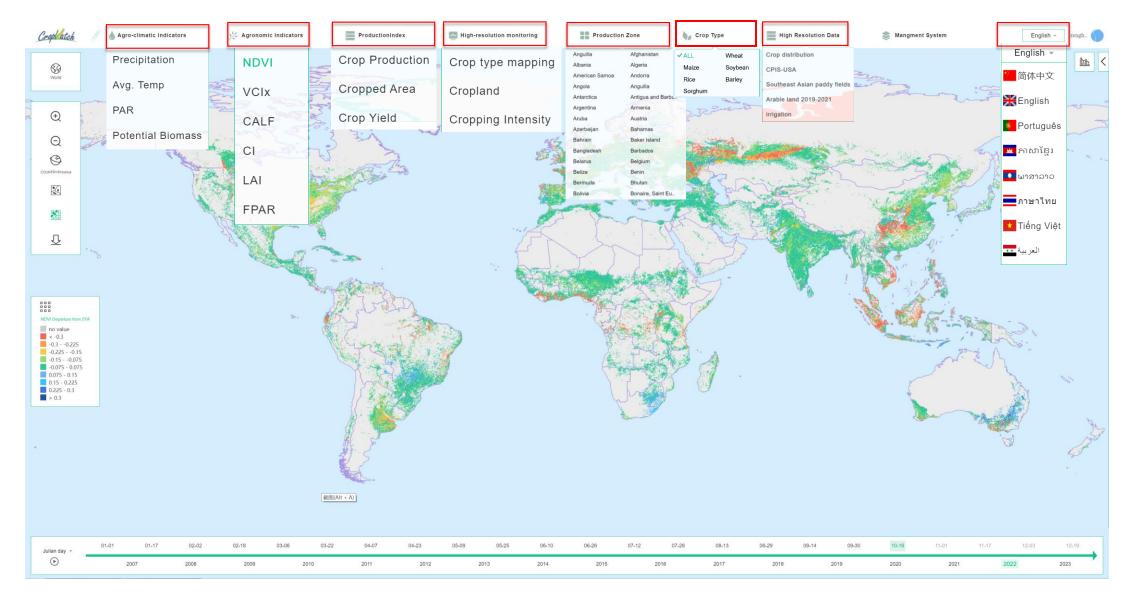


- Information categories: agri-climatic, agronomic, crop production
- Type of information visualization: regional statistical data, raster
- 4 spatial scale: major production zones, reporting unit, countries, sub-countries



Available information





National and sub-national indicators



04/07/2023

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EARTH OBSERVATIONS

Dashboard to show info of AOI





Baseline data





Zhang, Miao; Wu, Bingfang; et al, 2020, "GCI30: Global Cropping Intensity at 30m resolution", https://doi.org/10.7910/DVN/86M4PO, Harvard Dataverse, V2 Miao Zhang, Bingfang Wu. Global 30-m cropping intensity in 2020 (GCI30_2020), doi: 10.12237/casearth.62ff4caa819aec75a535cbe7 Miao Zhang, Bingfang Wu. Global 30-m spatial distribution of cropland in 2020 (GCL30_2020), doi: 10.12237/casearth.62ff4caa819aec75a535cbe6

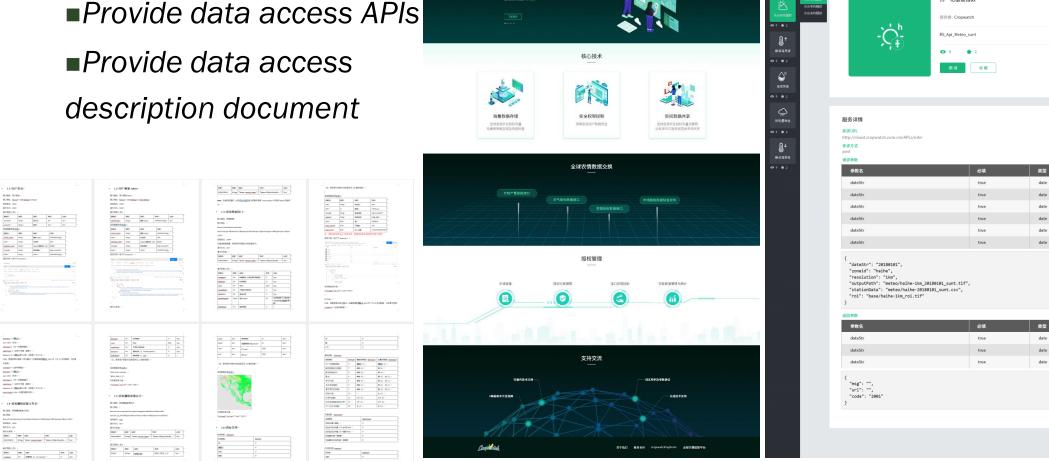
High resolution crop type mapping





http://cropwatch.com.cn/cropwatchcenter/#/applyforauth





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推荐服务

首页

接口

数据集

权限管理

用户指南

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Data accessible via API portal

Data Service Center



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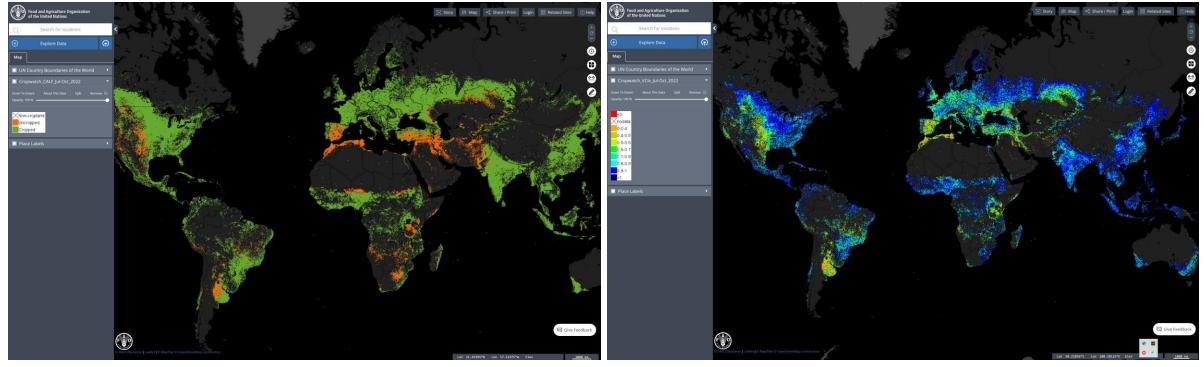
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FAO hand-in-hand access CropWatch through APIs





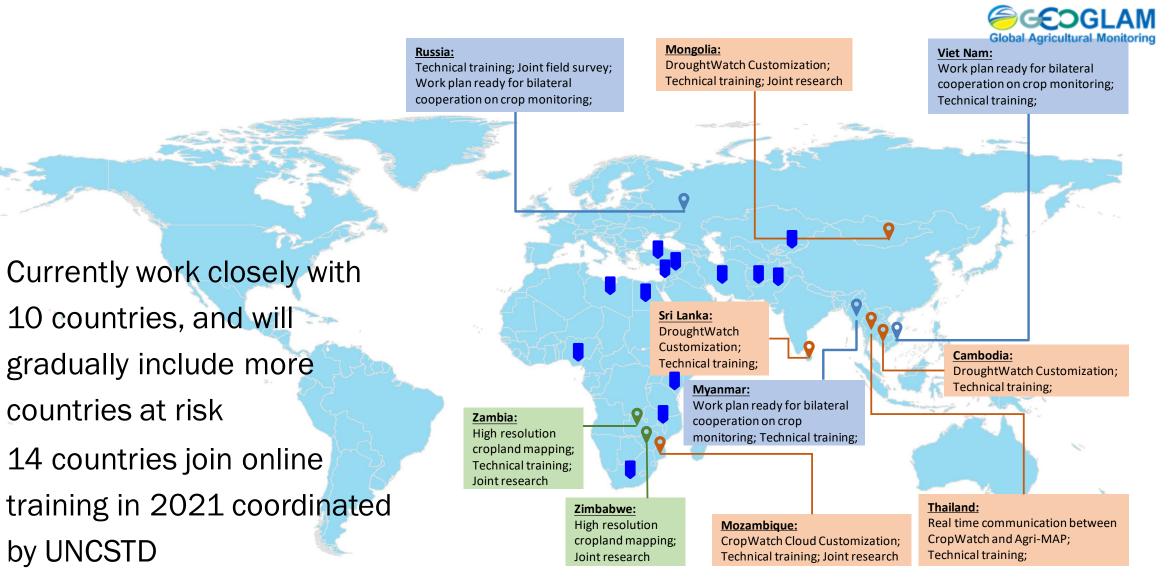
Through API data access portal, updated CropWatch indicators will be automatically synchronized to FAO Hand-in-Hand system at real-time



https://data.apps.fao.org/

Maximum Vegetation Condition Inex

Capacity building across the globe



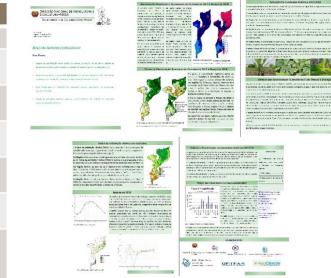
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EARTH OBSERVATIONS

Technical training and national bulletin for Mozambique

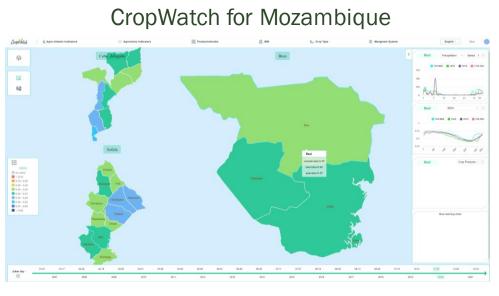
- Sponsor by World Bank
- First CropWatch training for selected experts (3 persons)
- Extended CropWatch training (29 participants)
- In-situ data collection training
- National Meteorological Bulletin powered by CropWatch

Activities	Outputs
Requirement analysis	Detailed Requirement report
Discussion and finalize the implementation plan	Detailed implementation plan
Discussion and joint field trip in Mozambique	In situ data in Maputo and Nampula
First technical training of CropWatch in Beijing	Agricultural monitoring report done by MOZ experts using CropWatch
Second technical training of CropWatch in MOZ	CropWatch based crop condition monitoring included in MOZ national meteorological bulletin
Training for national and provincial office	Mozambicans get some knowledge a bout crop monitoring on their own
Customize the CropWatch system for Mozambique	Provide system in Portuguese; Include all provinces for MOZ; Yield model calibrated





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CropWatch supports crop monitoring for food security in Mozambique

"We use CropWatch mainly for crop production forecast. Our team has been applying the tool to generate monthly agriculture bulletin during the rain season, which informs policy making at national and provincial-level agriculture departments."

Mr. Hilten, Department of Crops and Early Warning, Ministry of Agriculture and Rural Development, Mozambique

In 2019, CropWatch Cloud for Mozambique was selected as one of the **best "rural solutions"** by the **International Fund for Agricultural Development (IFAD)** due to its contributions in improving the capacities of Mozambique to access domestic and global agricultural *imforro*tation.



Collaborative Crop conditions and Disaster's Updates in Portuguese language



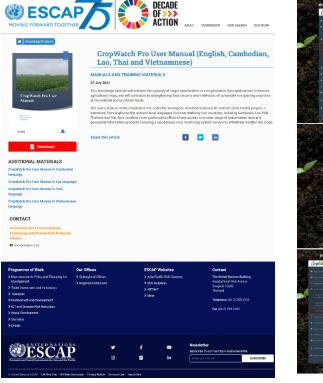


Powered by: Croplatch

User manual and training materials



Under the coordination from UNESCAP, CropWatch user manual and the training courses were translated into local language including English, Cambodian, Laos, Vietnamese, and Thai



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Training video in Cambodian



https://www.unescap.org/kp/2021/cropwatch-pro-user-manual-english-cambodian-lao-thai-and-vietnamnese?fbclid=lwAR0xlyWu5fOL1XSftjAV8lMv7aG2SFFbBnosfkYpSNnEFlxNhqf0WdHqlBA



CONTACT DETAILS

Crophatch



EMAIL ADDRESS

wubf@aircas.ac.cn

cropwatch@aircas.ac.cn

zhangmiao@aircas.ac.cn



PHONE NUMBER

+8610-64889563

