

# GVG, an agricultural information collection APP

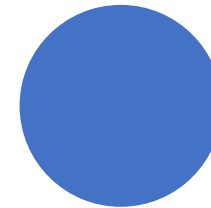
Fuyou Tian

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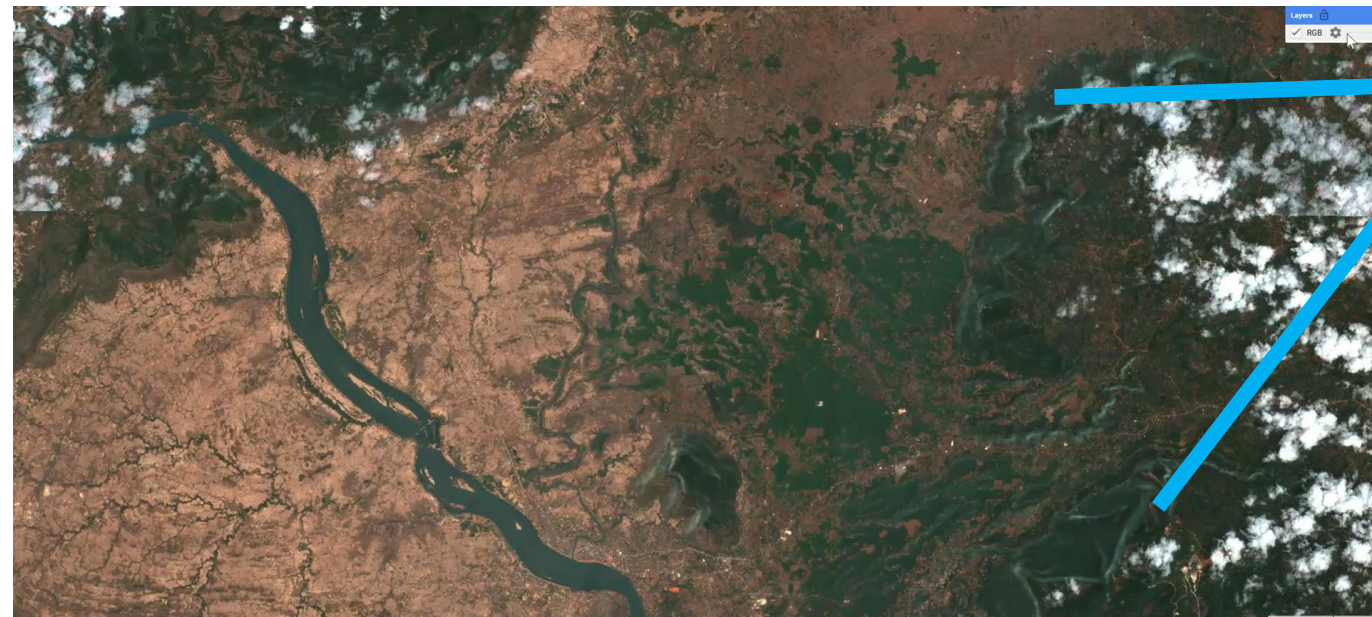
- Background
- Development of GVG Software
- Tutorial of GVG APP
  - Installation
  - Registration and activate your account
  - Settings
  - Data collection, backup to cloud and export

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# Outline



- Remote sensing can benefit agriculture a lot
- But can do more by integration with field survey data



What kind of vegetation? Crops or trees?

Field survey is needed

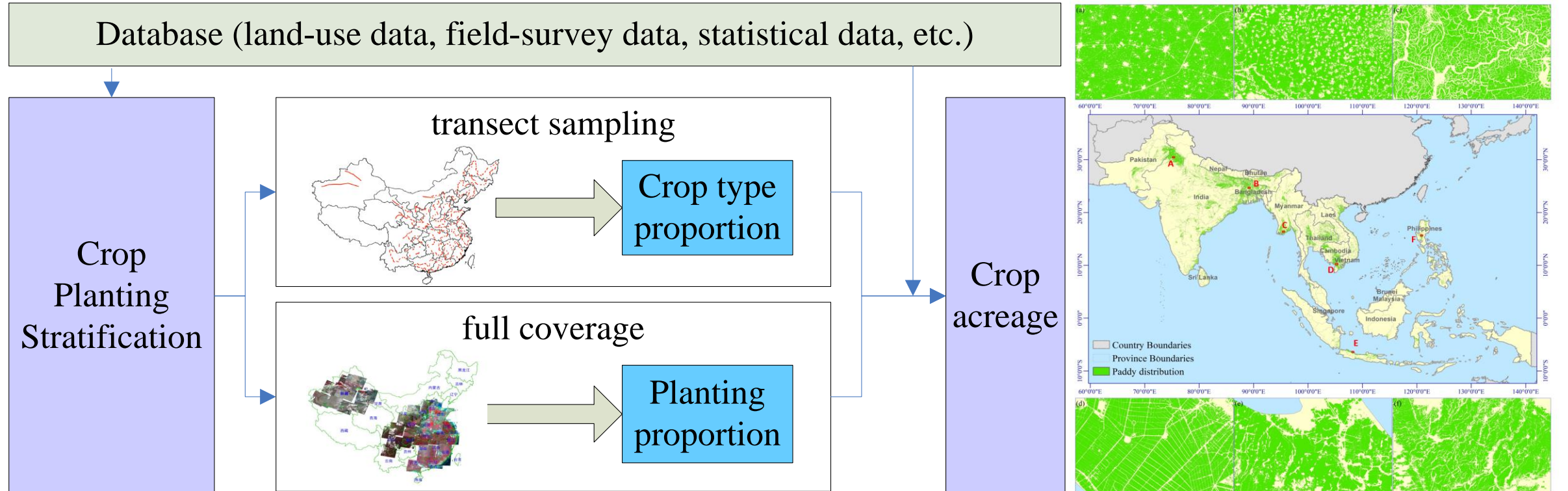
A efficient tool to collection field information?

Background

# Crop Areas

- Crop area information needs field data
- CropWatch integrates crop area estimation with geo-statistics & crop mapping
  - The CPTP method in complex agricultural landscapes (66%)
  - Transfer learning methods are integrated to reduce the reliance on in situ data (34%)

Crop type area = **Cropland area** \* **UEC** \* **cropping proportion** \* **crop type proportion**

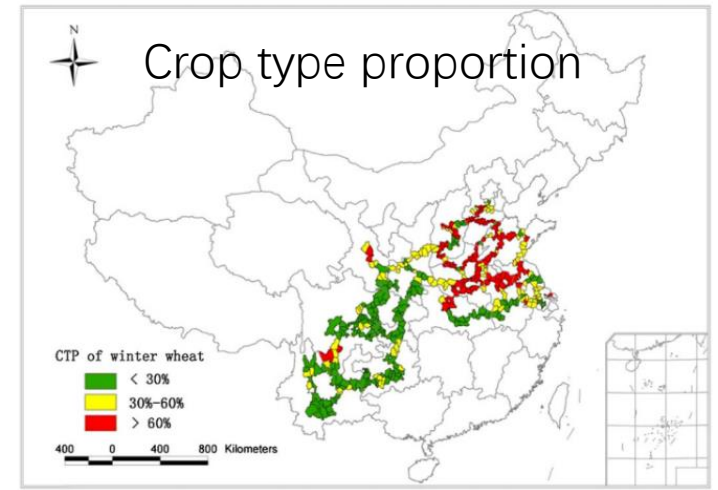
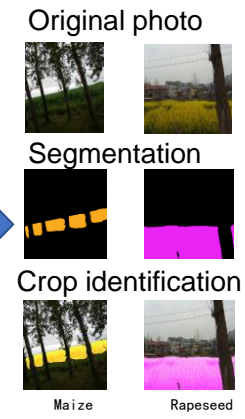
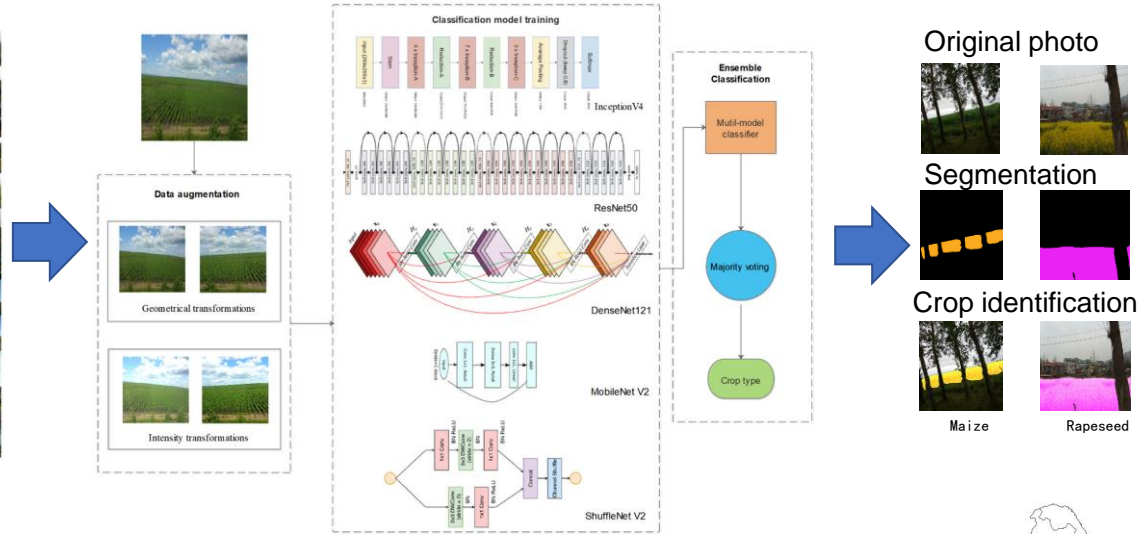


# Area estimates at fragmented areas

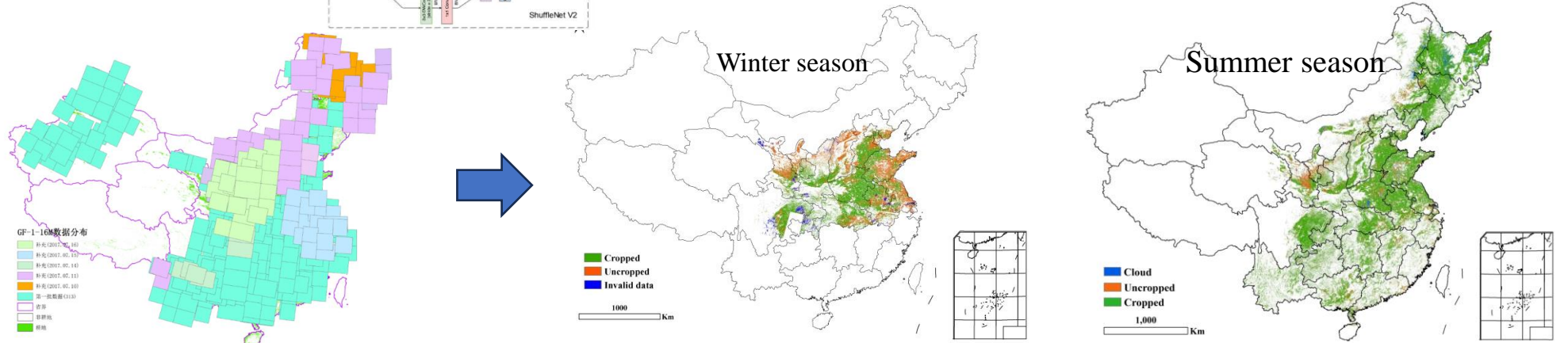
- Fully automated objects identification from massive photos by integration of multiple deep learning networks
- Currently major crops such as wheat, soybean, rice, maize, rapeseed could be precisely identified



Wu et al., 2021



Remote sensing-based identification of cropped and fallow fields

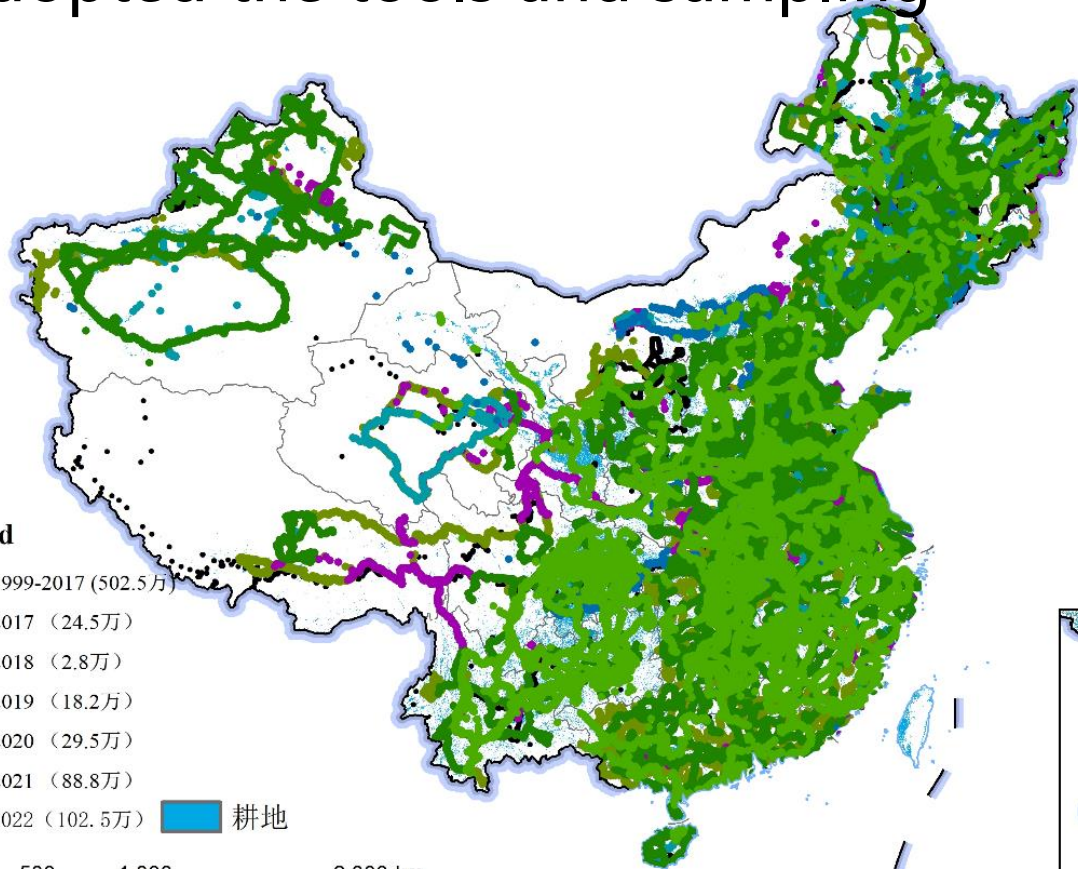


$$\text{Crop type area} = \text{cropland area} * \text{cropping proportion} * \text{crop type proportion}$$

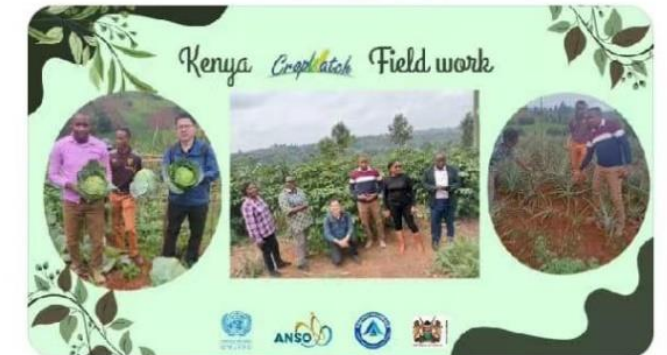
# Crop type proportion sampling

**China:** Millions of samples collected every year

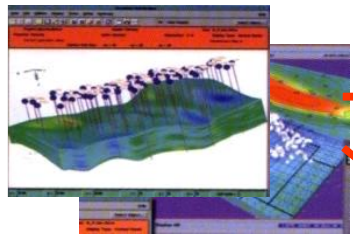
**Global application:** More than 20 countries already adopted the tools and sampling



UNCTAD Innovation @UNCTAD... · 20h ·  
#Kenya completed the first field study on crop growth monitoring and yield prediction, under the #UNCTAD-#China Academy of Science #CropWatch Innovative Cooperation Programme. [unctad.org/project/cropwa...](https://unctad.org/project/cropwa...)



全球推广应用



GIS



VIDEO



GPS

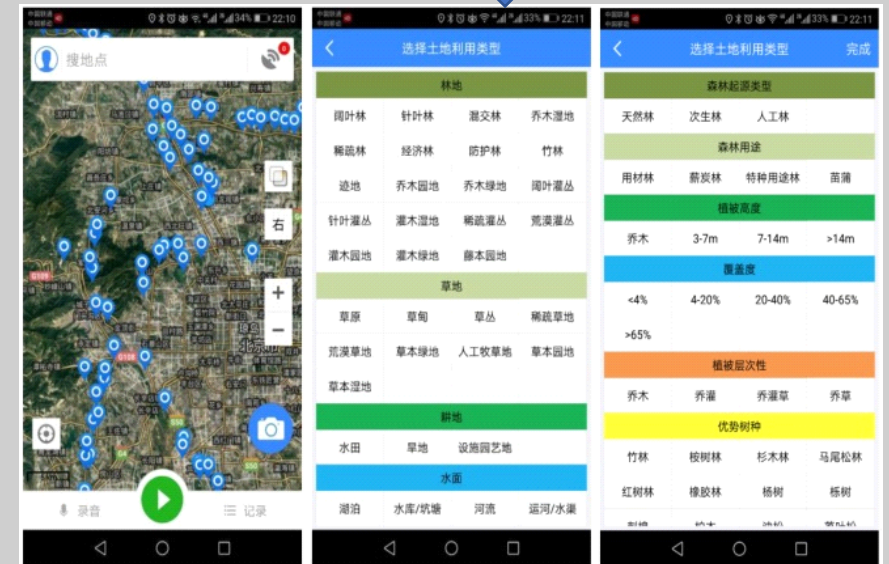


# Development of GVG software

What is GVG stands for? GPS, Video, and GIS

# Development of GVG software

To make it portable





GVG APP

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# Where to download and install



iOS App Store: Search for **GVG**



iPhone 屏幕快照

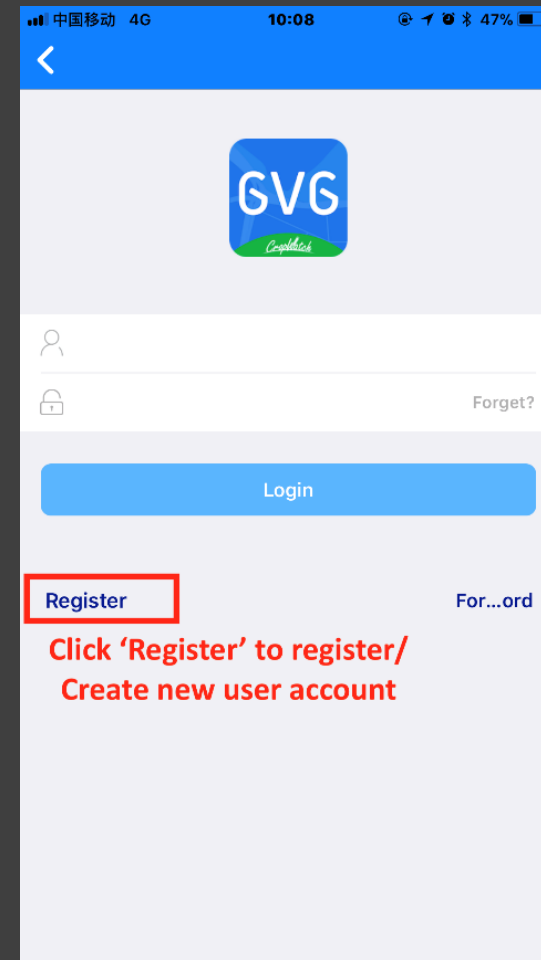
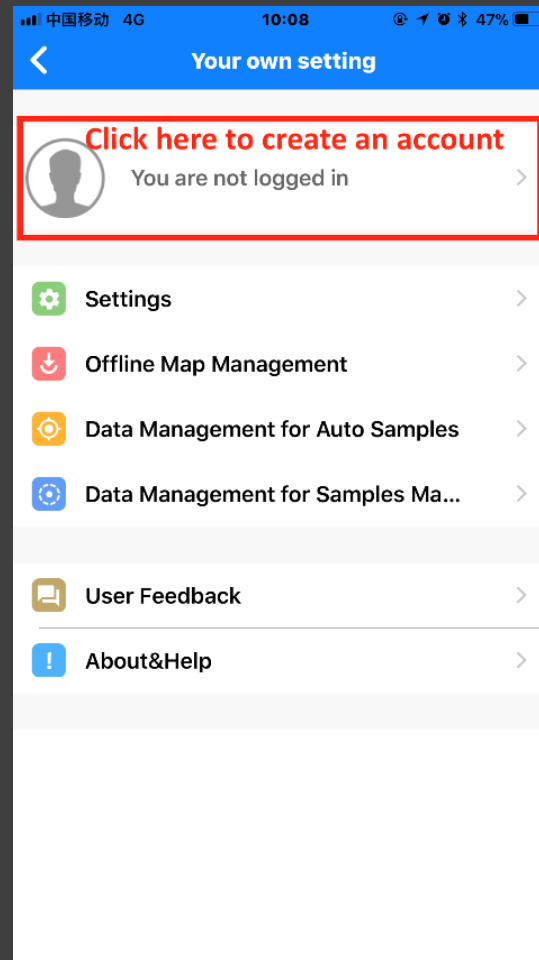


Android phones:

Use the following link or scan the QR code:

<https://gvgserver.cropwatch.com.cn/download>





# Registration

# Registration and activate your account

- When go to the registration page, first type in your email address, then click the blue button 'acquire verification code'
- Then check your email to get the verification code. When you get the code, type in the verification code, and set your password
- Click register button to finish the registration
- Send an email to [gvg@radi.ac.cn](mailto:gvg@radi.ac.cn) with your email account requesting activation
- Wait for activation until you get confirmed email and then you will be able to login

**Test account: [cropwatch@radi.ac.cn](mailto:cropwatch@radi.ac.cn)**  
**Password: cropwatch**

**Third step: check email and find the code, type in the verification code here**

**Fourth step: set your own password**

**Click here to finish registration**

The screenshot shows the registration page with the following elements and annotations:

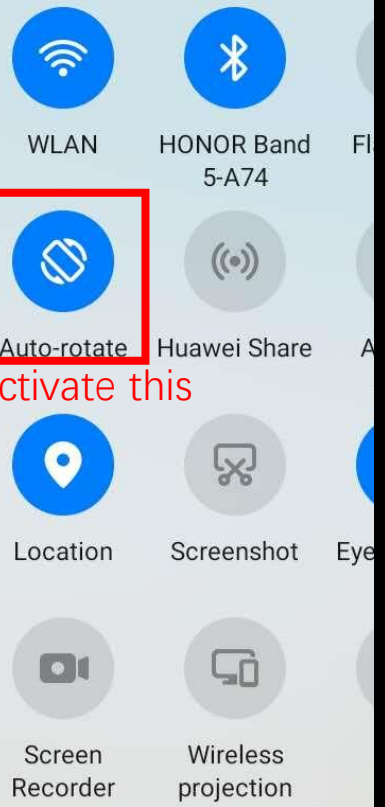
- First step:** A red box highlights the "Type your email address" input field.
- Second step:** A pink box highlights the "ACQUIRE VERIFICATION CODE" button.
- Third step:** A red arrow points to the "Verification code" input field.
- Fourth step:** A red arrow points to the "Password" input field.
- A red box highlights the "REGISTER" button.
- A red box highlights the checked checkbox for the "Installation License Agreement".

The screenshot shows the login page with the following elements:

- Logo: GVG Completed
- Phone number input: 18810871671
- Password input: masked with dots
- Buttons: "Login" and "Forget?"

11:40

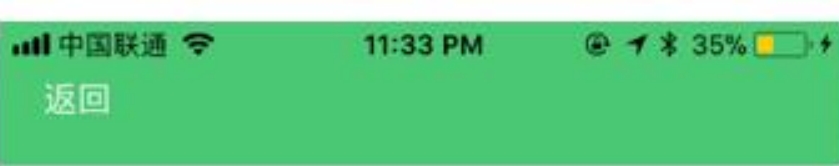
Friday, August 14



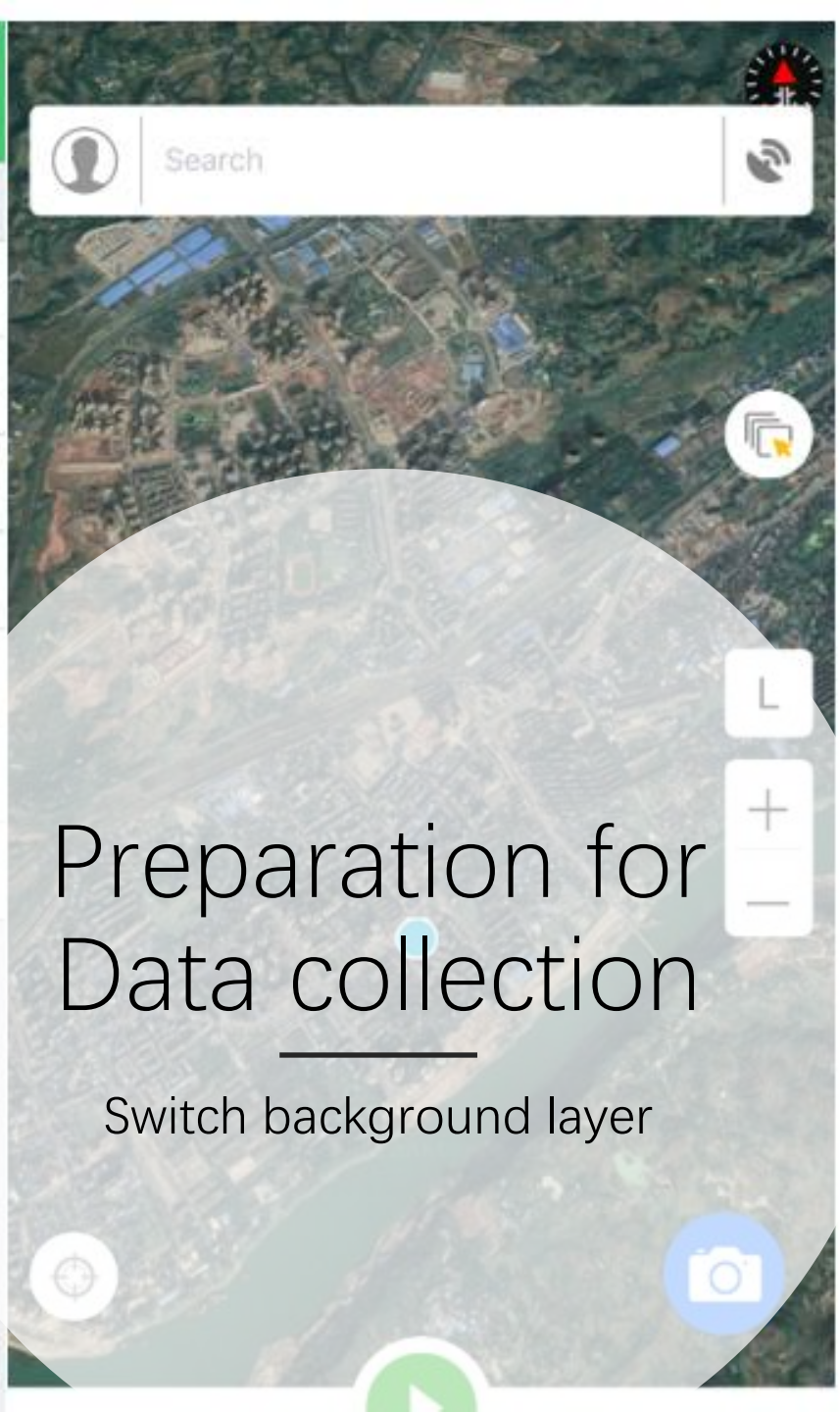
Activate this

# Settings

- four main settings, each one regarded to one task: Recording Settings, Camera Settings, GPS Settings and Update Settings.
- Remember to activate the auto-rotate of your cellphone
- Remember to give permission to GVG APP



- 返回
- Google Map 2
  - Satellite Image by Google**
  - Open Street Map
  - Amap
  - Amap Satellite
  - Map World
  - Remote Sensing Images



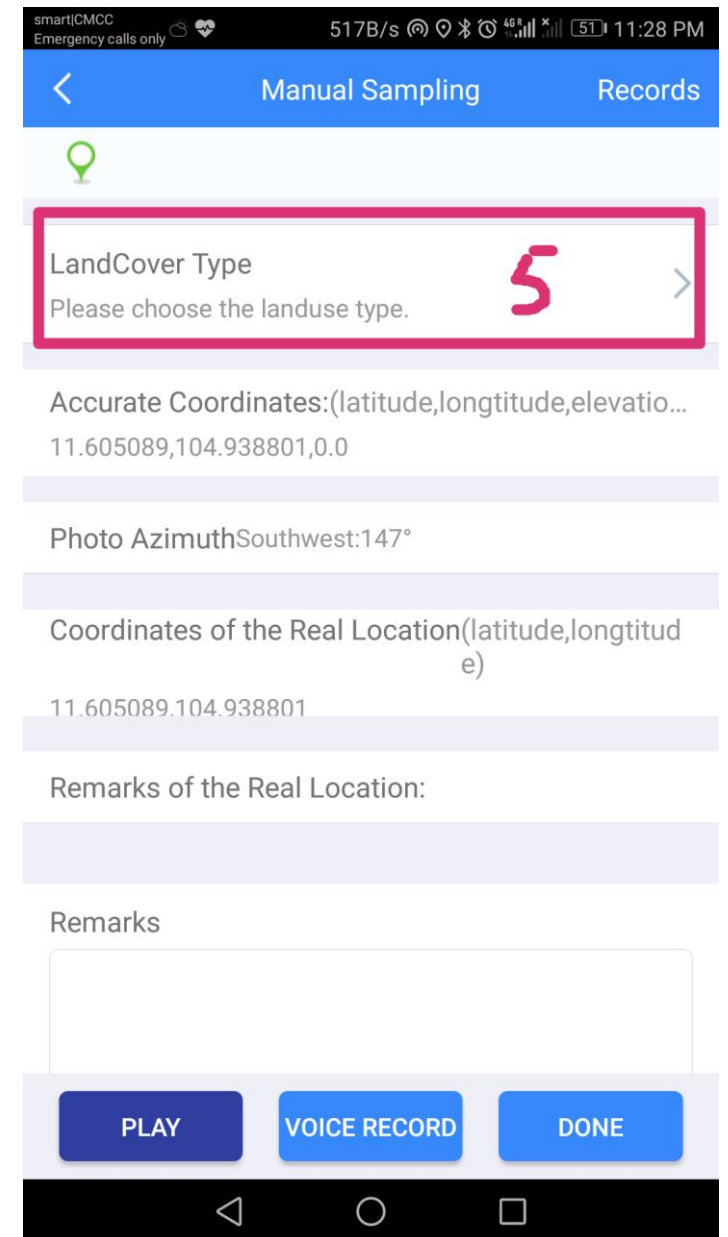
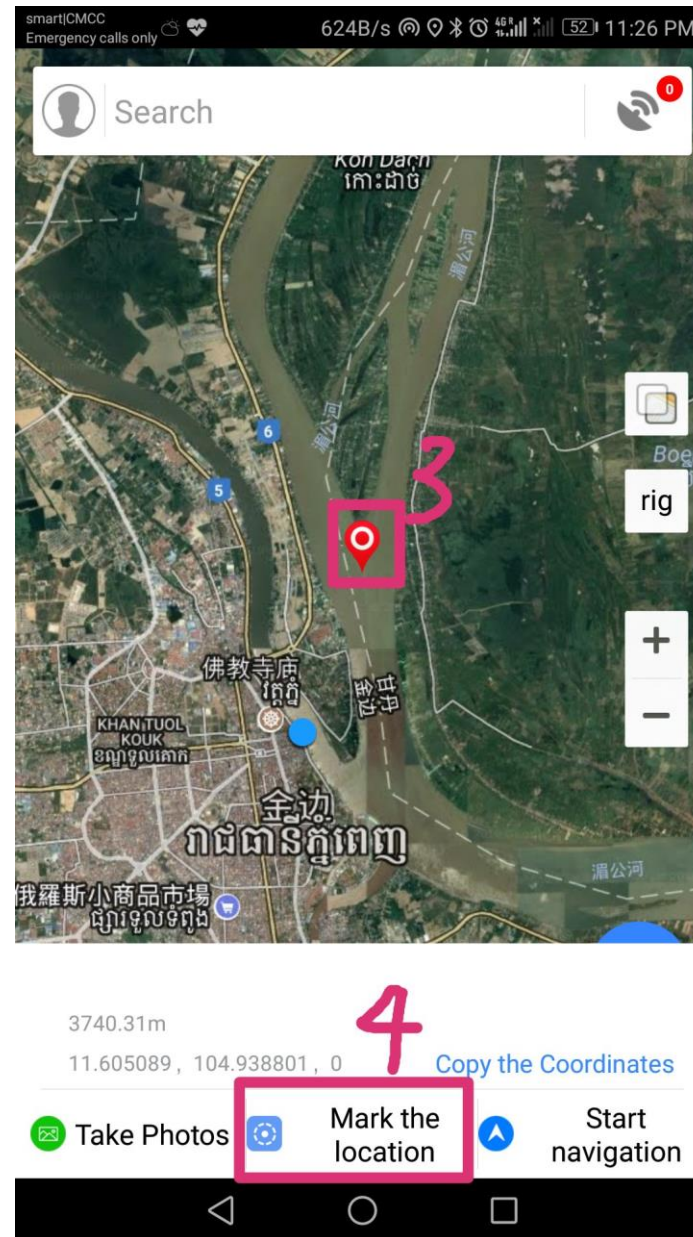
# Data collection



- Land use and land cover data
- Crop type proportion

# LULC Data collection

To mark the sample on the map, click and hold for seconds, click [4] to start the navigation. The [5] is Landcover Type selection part.





Choose the LandCover type			
Forest lands			
Broadleaf forest	Needleleaf forest	Broadleaf and needleleaf	Tree wetland
Sparse forest	Economic forest	Protection forest	Bamboo
Scar	Tree garden	Tree orchard	Broadleaf shrubland
Needleleaf shrubland	Sparse thickets	Desert shrub	Shrub garden
Shrub orchard	Vine garden		
Grasslands			
Steppe	Meadow	Grass	Sparse grassland
Desert grassland	Herbaceous grassland	Tame pasture	Herbaceous garden
Herbaceous wetland	Alpine desert grassland	Peat land	
Croplands			
Paddy field	Dry farmland	Facility garden	
Wetlands			
Lake	Reservoir/Pond	River	Canal/Channel
Aquafarm	Beach land	Salt pan	Emergent plants
Built-up lands			
Construction land	Transportation land	Mining field	Under development
Other lands			
Moss/Lichen	Bare rock	Gobi	Bare soil
Desert	Sandy land	Salina	Permanent ice/snow

Choose the LandCover type			
Dry land crops			
Wheat	Maize	Soybean	Cotton
Sorghum	Potato	Sweet potato	Cassava
Barley	Millet	Rapeseed	Peanut
Sunflower	Sugar	Flue-cured tobacco	Melon
Vegetable	Bast fiber	Beans	Eggplant
Tomato	Day lily	Wolfberry	Sugarcane
Mulberry leaf	Click to add other crop		

Manual Sampling

Photo Azimuth Due East:80°

Set the Real Location

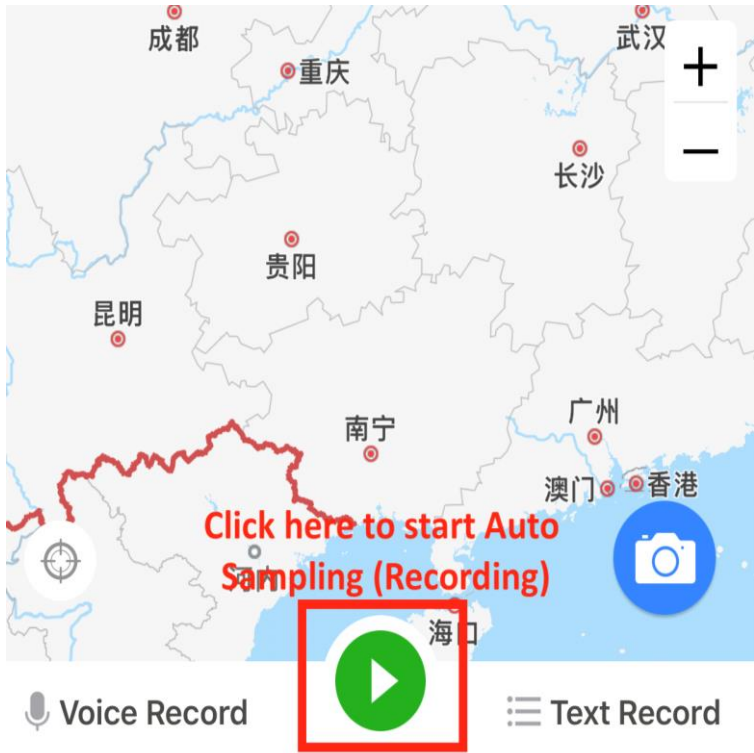
Remarks

Photo for this location: (Click to shoot)

Play Voice Record Save

Photo can be also added [8]. After all, to click save button to keep your information saved [9].

# Mark the sample

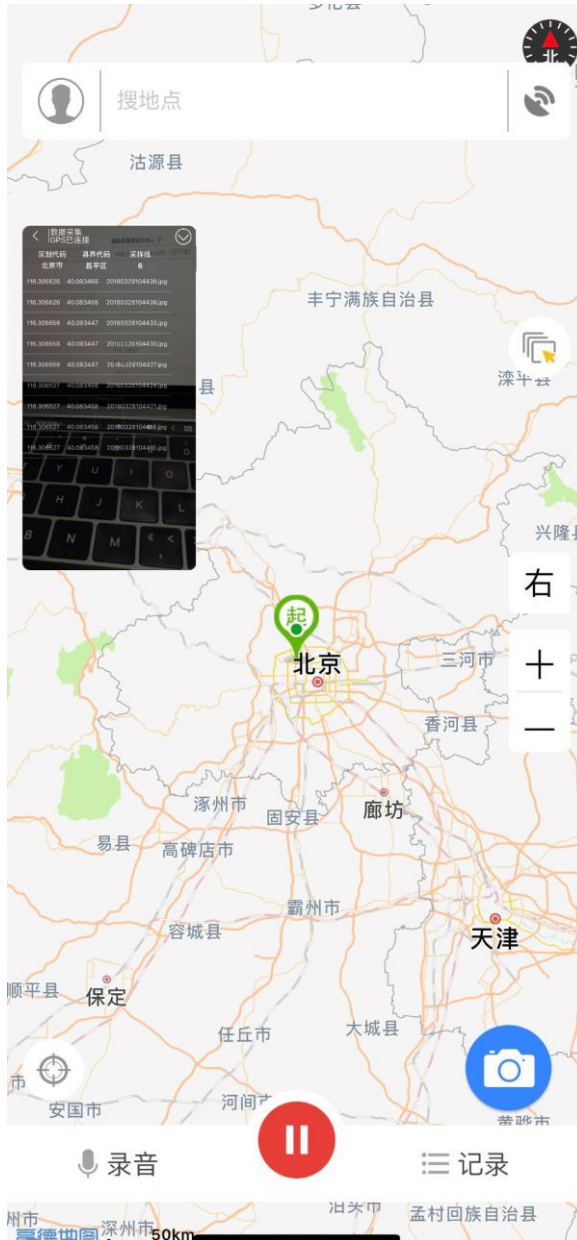


Sampling Line ID

Name for Exporting

Sampling Frequency

Here, define the sampling frequency

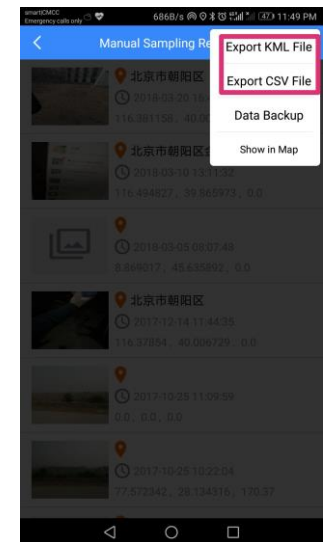
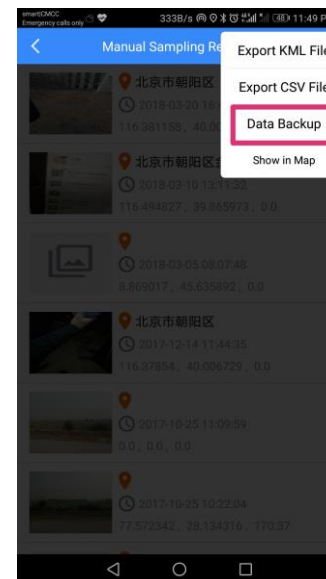
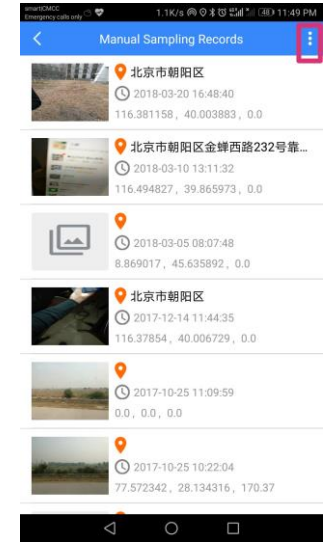
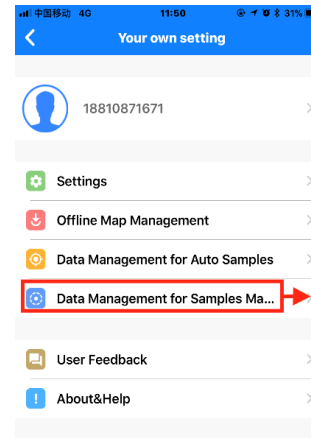


# Crop type proportion

allows users to record images automatically in every stated time as shown below

# Backup your data to cloud and export to external files

- open the settings and Choose Data management for manual samples to backup your data
- After backup is done, points can be exported into KML or csv file



Thanks for your attention!

