

Data Collection Manual

The CEO Team

May 20, 2020





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FROM THE AMERICAN PEOPLE



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Food and Agriculture
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SilvaCarbon



 Spatial Informatics Group

Google

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COLLECT EARTH
ONLINE

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Welcome to Collect Earth Online!

Collect Earth Online, or CEO, is a free and open-source image viewing and interpretation tool, suitable for projects requiring information about land cover and/or land use. CEO enables simultaneous visual interpretations of satellite imagery, providing global coverage from Digital Globe and Bing Maps, a variety of satellite data sources from Google Earth Engine, and the ability to connect to your own Web Map Service (WMS) or Web Map Tile Service (WMTS). The full functionality is implemented online; no desktop installation is necessary.

Collect Earth Online (CEO) is available at <https://collect.earth/>.

This manual focuses on information for data collectors to facilitate contributions to their institution's projects in CEO. Part 1 provides a quick overview of the Collect Earth Online platform, so users can set up their own accounts. Part 2 details how to join your institution. Part 3 & 4 discuss how to collect data for your institution's projects. Part 5 describes what to do if you encounter an error.

If you are interested in learning how create and manage an institution, set up a data collection project, or add imagery, please see CEO's **Institution & Project Setup Manual**.

This manual uses a few formatting standards for ease of use. Clickable links are shown **[like this]**. The names of pages, like the **Home** page, are bolded.

Finally, CEO is a live tool that is under continuous development. Workarounds for current issues are shown in boxes like the one below:

This describes a current challenge and how to work around it.

And planned features are shown in boxes like this:

This is a description of a planned feature.

Part 1: A Quick Introduction to Collect Earth Online

A. Setting up your account

1. In your browser window, navigate to <https://collect.earth/>. CEO supports Google Chrome, Mozilla Firefox, and Microsoft Edge.
2. Click **[Login/Register]** on the upper right.
3. To set up a new account, click on **[Register]** and follow the instructions. You will receive a welcome email if registration is successful.
4. When you have created an account, login with your email and password.
5. If you forget your password, click on **[Forgot your password?]** and follow the instructions.

B. Website features

1. On a desktop browser, you can access the **Home**, **About**, **Support**, and **Account** pages from the top menu bar.
 - i. The **Home** page includes information about institutions, published projects, and a map showing locations of existing projects.
 - ii. The **About** page summarizes information about CEO.
 - iii. The **Support** features Collect Earth Online Manuals, Tutorials, and a Collect Earth Online Demo. This page also includes links for bug reporting and forums to ask for help (also see Part 5).
 - iv. The **Account** page lists information such as user statistics and allows users to update their account settings.

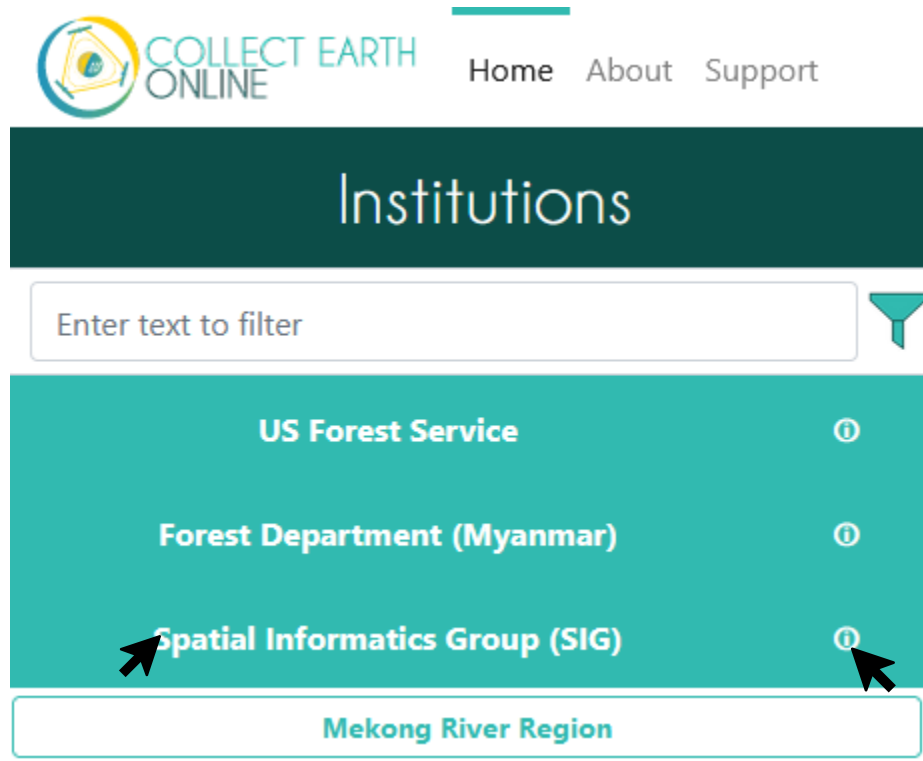
The data collection portion of the website does not work on mobile (question/navigation sidebar is not accessible). On a narrow computer/laptop/tablet screen, or if your browser window is not over 958 pixels wide, the data collection screen is located beneath the map and you will need to scroll down in the browser window to find it.


CEO will be adding dynamic “My Institutions/My Projects” tabs along with more detailed Account pages. This will make it easier to access your institutions and projects.

Part 2: Joining Your Institution

A. Navigating the list of institutions & institution pages

1. A list of all institutions is displayed on the **Home** page on the left-hand panel. If there is an institution you are looking for, you can type the name in the box that says **[Enter text to filter]**.
2. Clicking on an institutions' name expands a list of all active Projects for the Institution.



3. Next to each institution's name is an **info button**, symbolized by .
4. By clicking on an institution's **[info button]**, the **Institution** page opens.
5. On any **Institution's** info page, you can find:
 - i. The institution's logo, which when clicked will take you to the institution's website link,
 - ii. The institution's name
 - iii. A short description of the institution,
 - iv. Imagery feeds available to the institution
 - v. The institution's projects, and
 - vi. A list of all registered users associated with the institution.

B. Request to join an institution

1. If your institution already has an account on CEO and you would like to request to be a member, start by navigating to the **Institution** page via the **info button** described in A.2-4 above.
2. The list of Users is displayed on the right-hand panel.
3. Click on the **[Request Membership]** button to be considered to join the institution.

COLLECT EARTH ONLINE Home About Support Account biplov.b@adpc.net Logout

Spatial Informatics Group

Spatial Informatics Group (SIG)

Spatial Informatics Group is an environmental think-tank specializing in the characterization and assessment of wildland and urban landscapes. Our goal is to help our clients make informed management, land-use and policy decisions by converting spatial data into knowledge they can use in a world with ever-changing environmental conditions.

Imagery 9	Projects 10	Users 13
DigitalGlobeRecentImagery	Public Mekong River Region	Request membership
DigitalGlobeRecentImagery+Streets	Public FAO Regional Subset Collection	Admin apoortinga@sig-gis.com
BingAerial	Public Heilongjiang	Admin crianopa@gmail.com
BingAerialWithLabels	Public Central Japan	Admin dsaa@sig-gis.com
DigitalGlobeWMSImagery	Public Bangkok Example	Admin flopezornelas@sig-gis.com
NASASERVIRChipset2002	Public Sample Project	Admin gjohnson@sig-gis.com
PlanetGlobalMosaic	Public Pilot Rubber Plantation (WWF)	Admin jdliger@sig-gis.com
LB 2017 Guyana	Public Rubber, Palm Oil, Other (WWF)	Admin karistenneson@gmail.com
Sentinel2: 2018-01-01 to 2018-12-31	Public Time Sync Companion: conifer and dry diptocarp forest	Admin pcutter@sig-gis.com
	Public Example, validation data for land cover map in Ecuador.	Member chormali5354@gmail.com
		Member edsteitzer@yahoo.com.ar
		Member honganhngt@gmail.com
		Member jtp20111@hotmail.com
		Member tipwimoltot@gmail.com

4. The institution's administrator will need to approve your application to the institution.
5. You will receive an email when you are added to the institution or if your role inside the institution changes (e.g. if you are promoted to admin).
6. Once you are part of an institution, the **Institution** panel on the **Home** page will show your institutions. This makes it easier to access these institutions and their projects.

Enter text to filter

Your Affiliations

- World Data Classification
- Forest Classification Alliance

Part 3: Preparing for Data Collection

Several publicly available mapathon projects are featured in the map window on the **Home** screen. Anyone with an internet connection can log into Collect Earth Online and begin collecting data for these projects.

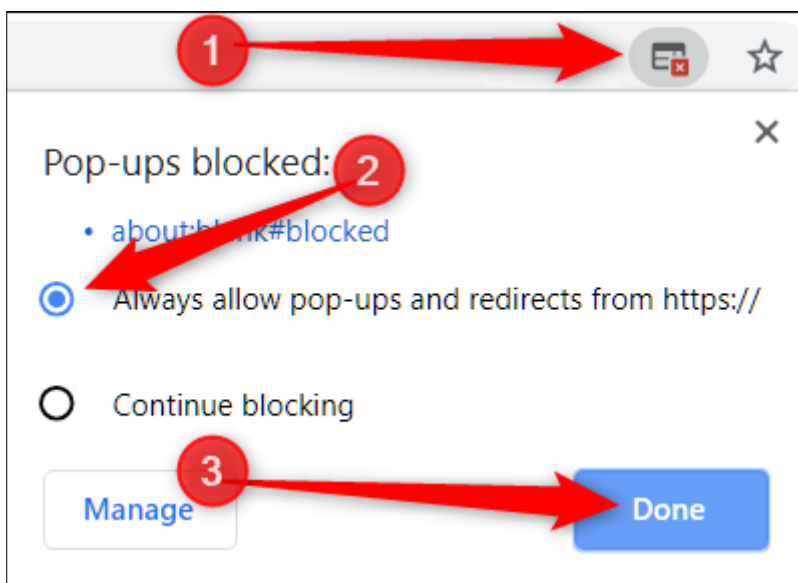
Other projects require users be a member of either an institution or a project. These security levels are pre-determined for each project by the project manager.

A. Allow pop-ups

1. If it is your first-time collecting data with Collect Earth Online, or you have switched computers, you may need to allow pop-ups from the CEO site. CEO uses pop-up windows to display additional, relevant information about each plot through the Geo-Dash interface.
2. How to enable pop-ups varies based on the browser you are using. The most used browsers are discussed below. However, if your browser is not covered, simply search online for your browser name + “allow pop-ups” and the search engine should return relevant results.
3. For Google Chrome:
 - i. Check the address bar. If it is marked with a Pop-up blocked icon (see image below), click on the **[popup blocked]** warning.



- ii. In the popup window that appears, select **Always allow pop-ups from https://collect.earth/**. Then click **[Done]**.

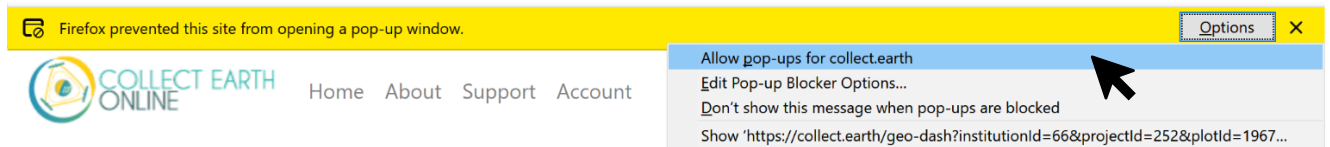


iii. If there is no icon, follow the directions here:

<https://support.google.com/chrome/answer/95472>

4. For Mozilla Firefox:

i. Check for a yellow bar below the address bar (see image below). If there, click on the **[Options]** button.

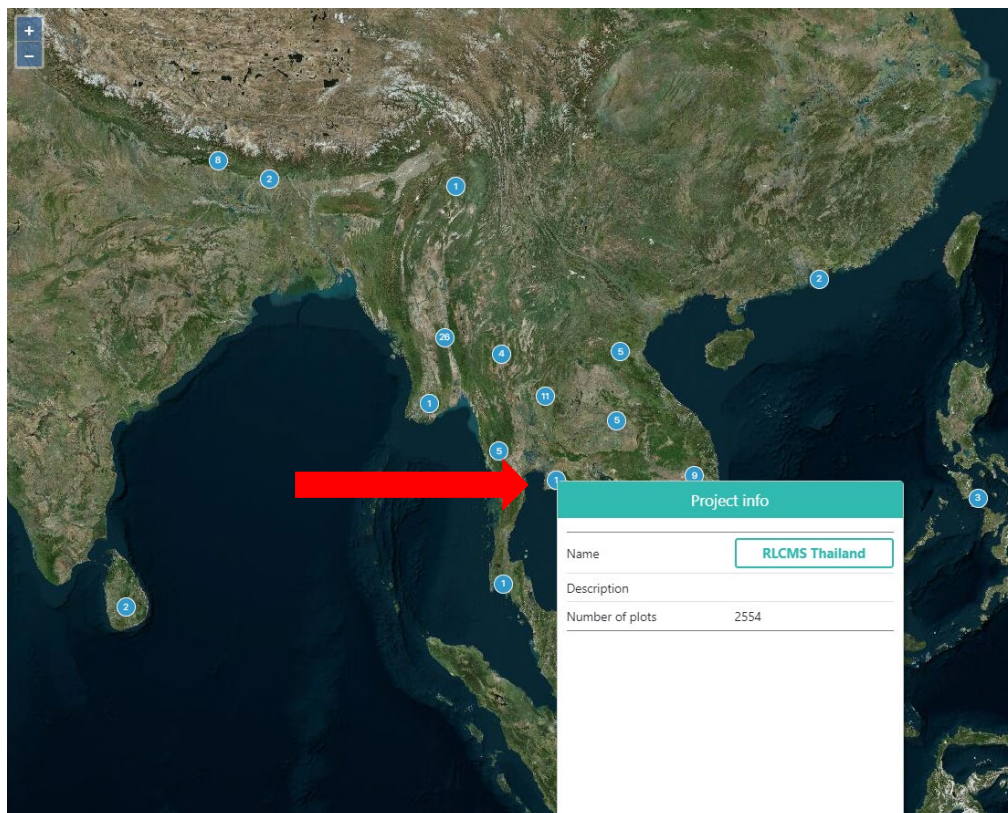


ii. In the popup window that appears, select **Allow pop-ups for collect.earth**.

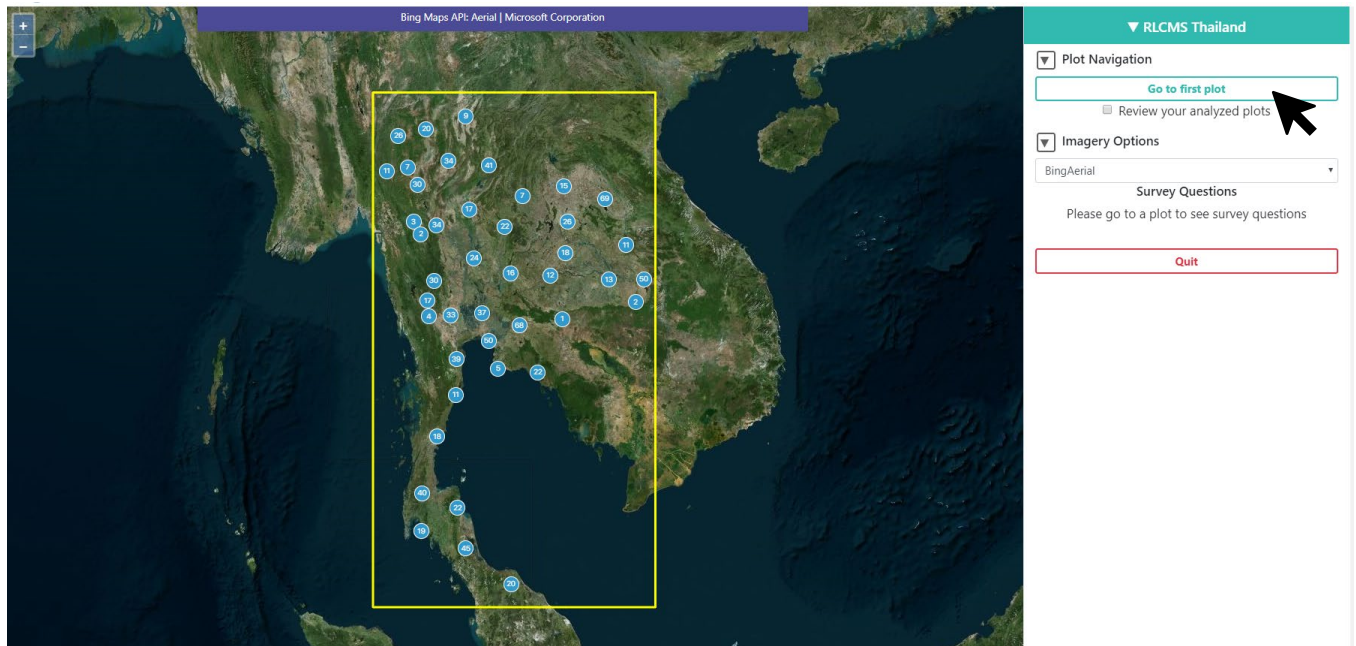
iii. If there is no icon, follow the directions here: https://support.mozilla.org/en-US/kb/pop-blocker-settings-exceptions-troubleshooting#w_pop-up-blocker-settings.

B. Option 1: Work on a public project

1. From the **Home** page, you can begin collecting data on public projects. There are map pins representing each project at the project location.
2. Select a project by first clicking on a map pin. Then from the pop-up **Project info** menu, click on the name of one of the projects in the pop-up window.



3. This will take you to the **project's homepage**, a screen that shows a **Map** of the whole study region on the left & the **Data Collection Toolbar** on the right.



4. Under **Plot Navigation**, Click the green **[Go to first plot]** button to begin collecting information.

C. Option 2: Select a project from an institution

1. If your institution has a specific project you want to work on, click on your institution's name on the left-hand side of the **Home** page. You may want to use the **Enter text to filter** box to find your institution.
2. A drop-down list of the institution's available projects will open. Select the project of interest by clicking on the project's name.



Institutions



US Forest Service



Forest Department (Myanmar)



Spatial Informatics Group (SIG)



Mekong River Region

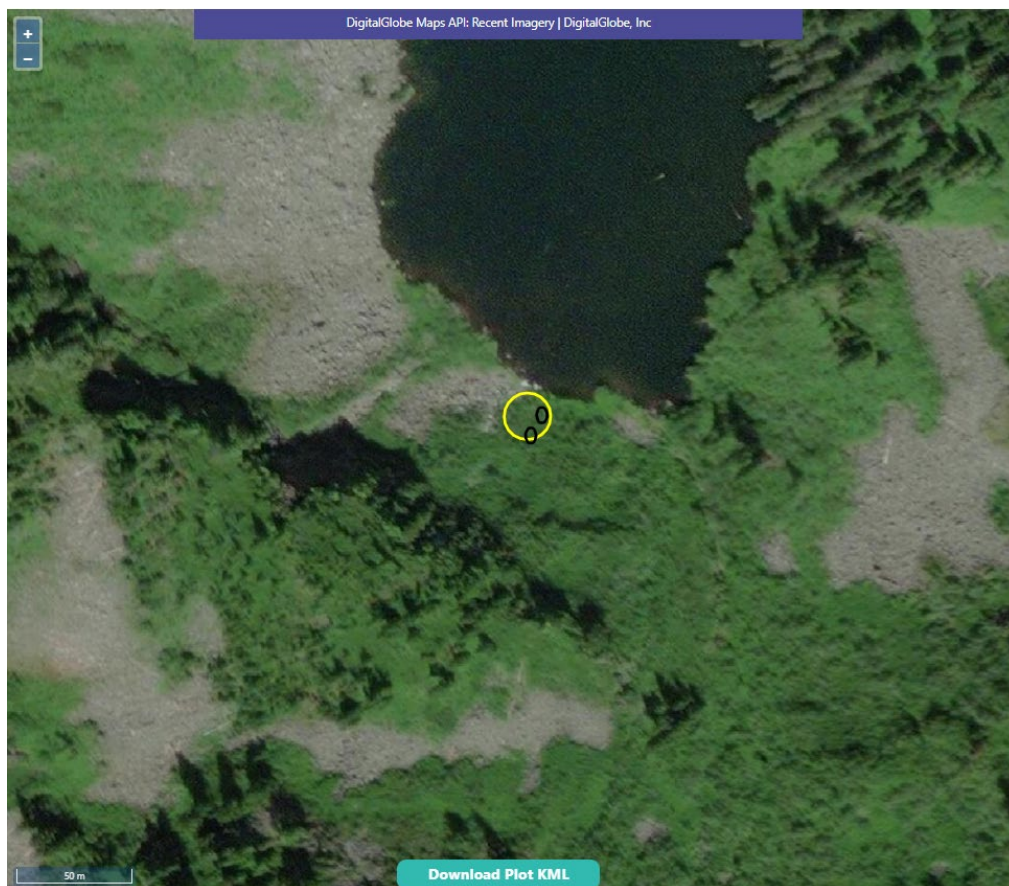


3. This will take you to the project's home screen as described in B.3 above.
4. Click the **[Go to first plot]** button to begin collecting information.
5. You can also go to a project through the **Institution's** page via the **info button** described in A.2-4 above.
 - i. There are three colors of projects on the **Institution** page. Blue-green highlighted project names have completed data collection.
 - ii. Yellow project names are partly collected.
 - iii. Red project names have no data collected.



D. The analysis screen

1. First, familiarize yourself with the analysis screen. On the left-hand side:
 - i. Your **sample plot** will show up as a yellow circle or square in the map window. The sample shape is dependent on how the project has been designed.
 - ii. Each **sample point** is identified with a black circle until it is assigned a label.
 - iii. You can change the color of the unassigned sample points from black to white by selecting the corresponding color radio button next to “Unanswered Color” on the right-hand panel.
 - iv. You can zoom in and out using the blue + and - buttons in the upper left-hand corner of the map window, or by scrolling your mouse wheel.
 - v. Information about the imagery is shown at the top of the screen.
 - vi. The option to **Download Plot KML** is at the bottom of the screen. Downloading the KML allows you to transfer the plot information to another program, such as Google Earth. Importantly, the KML functionality allows users to determine the coordinates (latitude and longitude) at which points of interest are located.



2. On the right-hand side:

Plot Navigation - ID: 3954717

Navigation buttons: [Left Arrow] [Right Arrow]

Text input: 3954717

Go to plot

☐ Review your analyzed plots

Re-Zoom Geodash

Go to GEE Script

Optional

- i. The **Plot Navigation** menu is collapsed by default and can be expanded using the black arrow button. In some browsers, it is a white arrow in a blue box.
 - (a) At the top next to Plot Navigation is the **plot ID number**.
 - (b) The navigation menu contains blue **forward** and **backward** buttons to navigate to different plots, as well as a text box where you can enter a plot ID number and then click **[Go to plot]** to navigate to a specific plot.
 - (c) Importantly, you can review previously analyzed plots by ticking the **[Review your analyzed plots]** radio box. This box MUST be ticked if you want to look at already analyzed plots, otherwise CEO will give you an error.
 - (d) There are also buttons to **Re-Zoom** your focus to the focus plot and to open the **Geo-Dash** pane with additional information about the plot (described below).
 - (e) The **Go to GEE Script** button may or may not be present on your dashboard. If it is present, it will take you to an Earth Engine Apps website displaying additional data about the plot.
- ii. Under **Imagery Options**, you can change the background image by selecting between different imagery on the drop-down list. Different images are helpful for comparing different points in time and/or where one imagery source does not have enough detail to answer the **Survey Questions**. Some imagery options also include the names of towns, villages, etc.

Some imagery servers are slow. Please be patient when switching to sources like Planet Daily, since their servers take about 30 seconds to respond to queries sent by the CEO platform.

▼ Imagery Options

DigitalGlobe <2012

DigitalGlobeRecentImagery

DigitalGlobeRecentImagery+Streets

BingAerial

BingAerialWithLabels

DigitalGlobeWMSImagery

DigitalGlobe2010

DigitalGlobe 2012

DigitalGlobe <2012

DigitalGlobe 2011-2013

iii. Below **Imagery Options** is the area to answer the project's **Survey Questions**. Each project has a different set of numbered survey questions (in the example below only "1" question is in the project). You can navigate between questions using the forward and back arrows or the numbers. The **Unanswered Color** radio button changes the color of the survey points. The **Save** button will save your survey answers and move on to the next point (it only becomes active when all points have been interpreted). **Flag Plot** is used when a survey question cannot be answered, either because the imagery is not of high enough quality or there is another problem; this will advance to the next plot. **Clear All** erases all your survey question answers for this plot.

Unanswered Color ☒ Black ☐ White

Survey Questions

< **1** >

- LULC

☒ Forest ☐ Other

☐ Water

Save

Flag Plot Clear All

Quit

The **Quit** button does not currently work, please navigate back to the **Home** page to switch to a different project.

3. The **Geo-Dash** pop-up window will also open with information about the plot if it has been configured for the project. This window contains information to help identify land cover and land use attributes compiled from Google Earth Engine. Depending on the project, Geo-Dash can include plots of time series data (such as how NDVI values have varied over time), Landsat image chips, and more.

E. Familiarize yourself with satellite imagery & photo identification

1. The landscape looks very different from above than it does from the ground! If you have been on a plane, think about how the world looks from that height. If not, imagine yourself slowly rising higher and higher above the ground. Each person soon becomes a spot, you can only see the shape of the roof of each building, trees turn into circular green blobs (or spindly brown, depending on the season). Consider looking at where you live with satellite imagery first. Use your local knowledge to see what roads, buildings, lakes, trees, and more look like.
2. Here are some sample images illustrating different land uses. All images are courtesy Bing Maps.
 - i. Forest



(a)

Conifer forest



(b)

Deciduous forest

ii. Pasture



(a)

Canada

iii. Agriculture



(a)

Western US (arid)



(b)

(temperate)

Midwestern US

iv. Water-Lake



(a)

Myanmar

v. Water-River



(a)

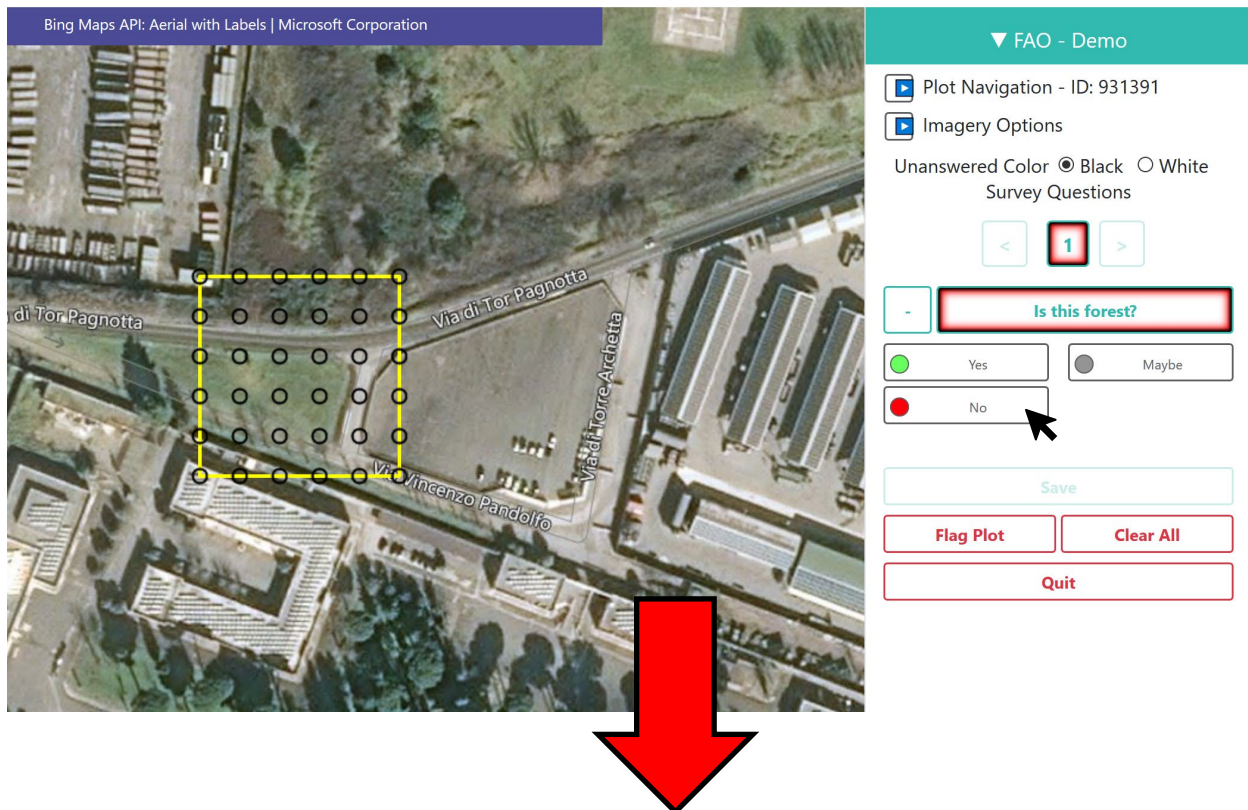
Guatemala

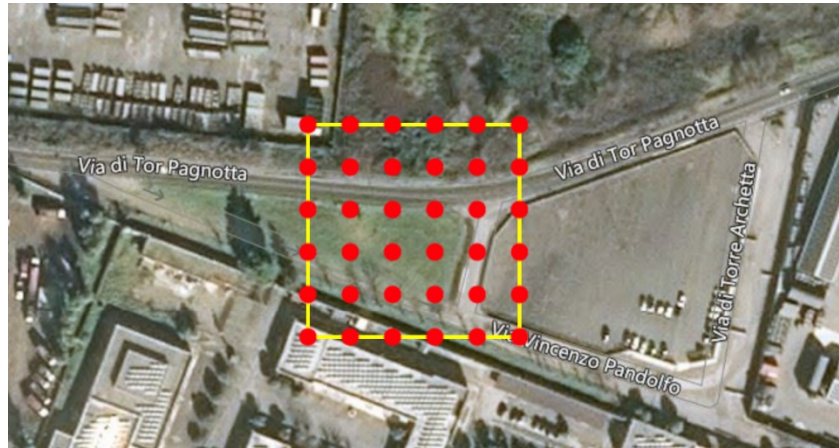
3. Remember that depending on the study region, seasons may change how the landscape looks.
4. Here are some additional resources to help you learn how to visually interpret forests, grasslands, buildings, and more.
 - i. <https://earthobservatory.nasa.gov/features/ColorImage>
 - ii. <https://www.amnh.org/research/center-for-biodiversity-conservation/capacity-development/biodiversity-informatics/remote-sensing-guides>
 - iii. <https://www.amnh.org/research/center-for-biodiversity-conservation/capacity-development/biodiversity-informatics/remote-sensing-interactives>

Part 4: Start Collecting Data!

A. Analyze some plots!

1. Now it is time to contribute to the project.
2. Read the first Survey Question and the possible answers.
3. If you want to assign the same class or answer to ALL points in the plot (prior to having applied an answer to any of the points), you can just click on the answer without first needing to select the points.
4. If you want to assign different classes or answers to points in the plot, you will first select your sample points. When sample points are selected, they turn blue.
 - i. To select a single sample point, click on it with the left mouse key.
 - ii. To select several sample points, click on them while keeping the Shift key pressed down.
 - iii. To select all points in the sample or all points in a rectangle, hold down Ctrl, then click, hold, and drag in the map window to draw your rectangle.
5. When your sample points are marked in blue, you can assign them a sample value by clicking on the suitable value in the legend to the right of the map window. The sample points are then marked in the color of the value class. Here, these sample points are not forest, so we select NO.





- i. If it is hard to answer the question because the basemap imagery does not provide enough detail, try changing the imagery as described in Part 3 D.2.ii above.
 - ii. You may also want to change the basemap to check for seasonal effects (See also Part 4 B.2 below).
 - iii. Try zooming out to gather context clues from the landscape (See also Part 4 B.3 below).
 - iv. If you make a mistake and assign the wrong value to a point or points, you can reselect the points & change the “answer.”
6. If there is a second survey question, click on “2” or press the **Right arrow**. Read this question & the answers, reselect the points and assign them the correct secondary attributes.
 7. Continue until all sample points have been assigned a value for all survey questions.
 8. Then, click on **SAVE**. This button appears blue (active) only when all the points have been labeled.
 9. The next plot for analysis shows up automatically.
 10. When all plots are classified, a pop-up window appears to inform you that all sample plots of your project are analyzed.

B. Geo-Dash interface

For some projects, a second page will open automatically when you go to your first plot. This is the **Geo-Dash interface**. Many different elements can be displayed on this interface, depending on what the Institution has set up.

Some of the most commonly used indexes are described here. If your Institution has set up the project with a more complicated **Geo-Dash interface**, contact them for more information on how to use the information provided to assist data collection and photo interpretation.

The normalized difference vegetation index (NDVI) is used to determine if an area contains live green vegetation. In map based representations, dead plants and inanimate objects are represented in one color, while live healthy plants are represented as another color. Which colors these are depends on how your institution has set up the project you’re working on. You can use the slider on the NDVI widget to compare the NDVI values with satellite imagery. In numerical representations (e.g. time series

graphs), values below 0 represent dead plants or inanimate objects, 0-0.33 represents unhealthy plants, 0.33-0.66 represents moderately healthy plants, and 0.66-1 represents very healthy plants.

The enhanced vegetation index (EVI) and two-band EVI (EVI 2) are optimized vegetation indexes. They are designed to have higher sensitivity in high biomass regions e.g. along the equator. As with NDVI, dead plants and inanimate objects are represented in one color, while live healthy plants are represented as another color. Which colors these are depends on how your institution has set up the project you're working on. You can use the slider on the EVI widget to compare the EVI values with satellite imagery. The index varies between 0-1, with 0 representing dead plants and 1 representing very healthy plants.

The normalized difference moisture index (NDMI) is used to determine the water content of vegetation. Values near -1 indicate plants with low moisture while values near 1 indicate plants with high moisture.

The normalized difference water index (NDWI) is also related to plant water content and plant water stress. Values near -1 indicate low water content and vegetation cover and values near 1 indicate high water content and vegetation cover.

Some projects may set up imagery from two time periods, so you can easily view them side by side.

C. Advanced plot analysis

1. For analyses comparing two time periods, toggle between imagery from two different dates.
 - i. Your institution should have set up the project with two labeled imagery options for the time periods of interest.
 - ii. Click the **drop-down menu** under **IMAGERY OPTIONS** and select the earlier of the two time periods.
 - iii. Then, repeat this for the later of the two time periods.
 - iv. Some imagery options allow you to enter imagery start and end dates.

Start Date

01/01/2019📅

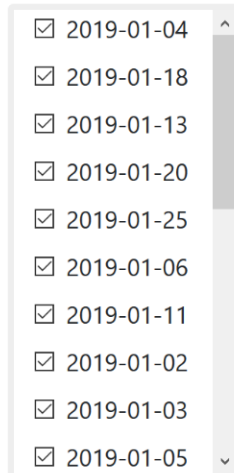
End Date

02/01/2019📅

- v. Some imagery options also allow you to choose a feature profile for the imagery. This is essentially a filter that the imagery provider puts on their data. For example, the Cloud Cover Profile filters out imagery with too much cloud cover.

Cloud_Cover_Profile▼

vi. For the Planet Daily data, you will see a list of check boxes pop up just to the left of the **Imagery Options**. You can use these checkboxes to refine the dates of the map data you want to see displayed. Planet Daily imagery is received as a stack of images. CEO displays the imagery and the checkboxes in the same order that Planet Daily provides this imagery stack. That is, the top date is also the top layer in the imagery stack. If you turn the top image off by unchecking the box, you will see the next date's image is now on top. It is like looking through a stack of photographs, removing the top one reveals the photo underneath.



vii. If your project uses SecureWatch Imagery, you will be able to select a range of dates (under **Select Range**) or specific dates (under **Select Dates**). Your institution will have set a default range of dates when the project was created. The list of **Available Dates** will automatically populate with the available dates for the sample plot you are looking at. When you answer a question, the date or range of dates will be recorded. Please refer to any specific instructions your institution has given you regarding which imagery options to use for SecureWatch.

▼ Imagery Options

SecureWatch2 ▼

☐ Select Range

Start Date

01 / 01 / 2014 ✕

End Date

05 / 05 / 2020 ✕

Feature Profiles

Default ▼

☒ Select Dates

Available Dates

-- select a date -- ▼

- viii. Make sure you also refer to the second tab, where the Geo-Dash information is presented. The time series information that is presented in the Geo-Dash window is also helpful in determining if change has occurred on the landscape.
 - ix. If both images look the same, no change occurred, so we select all points and label them as no change or stable.
 - x. If there has been change, select the appropriate change option.
 - xi. Repeat for all Sample Value categories.
2. Seasonality issues can occur when different land uses appear different between seasons. For example, a grassland might be bright green in spring but look brown in the summer. If you saw just the brown imagery, you might think the brown is dirt and incorrectly classify the grassland as barren dirt.
 - i. To avoid this issue, try switching between different imagery that is available to you. Look to see if there is imagery available from different seasons to help with your decision.
 - ii. You can also look at the Geo-Dash page for the plot to see if there is any NDVI or other additional information that could help you.
 - iii. You can also click on **Download Plot KML** to download a .kml file to view in Google Earth. Google Earth has multiple current and historic imagery sources that can help you identify a plot.
 3. Zooming in and out to gather contextual clues from the landscape is important for multiple land use and land cover types. For example:
 - i. Water in larger waterbodies often appears black or dark until you zoom out.
 - ii. Tree plantations may look like forests until you zoom out and see the regular pattern of planted trees.

4. You can click **[Flag Plot]** if the imagery is insufficient (missing, low resolution, etc.) to accurately label the plot attributes. It will automatically reload the next plot for your project.
 - i. **Flag Plot** will delete any attributes that have been assigned to the points/plots.
 - ii. You can click on the **[Review your analyzed plots]** to return to the flagged plot and try to answer the questions again. The **flag plot** button will be disabled because the plot has already been flagged & you cannot flag it again.
 - iii. Your responses will be recorded, and the plot will be unflagged if you click **Save**.
 - iv. Plots can either be flagged or saved by a user, but not both.
5. Sometimes plots are hard to interpret, even with good imagery! These plots can only be reliably and accurately classified by having knowledge of local agricultural systems, local vegetation types, and landscape patterns.
 - i. Try making use of the surroundings of the plot to glean as much information as you can before making a best guess.
 - ii. If different users identify the plot differently, it will be flagged internally as a difficult plot.
 - iii. If you do not feel comfortable interpreting the plot, you should click **[Flag Plot]**.
6. At any time, you can skip a plot for later analysis by clicking the **[Next Plot Arrow]** in the **Plot Navigation** tab. Alternatively, click on **[Previous Plot Arrow]** to revisit the previous plot
7. If you click on the project name, it will show the number and percent of plots completed, the number and percent of plots flagged as bad, and the total number of plots. An accuracy score based on the project's training data will also be available soon.

The screenshot shows the 'RLCMS Thailand' project interface. A statistics overlay is displayed, showing the following data:

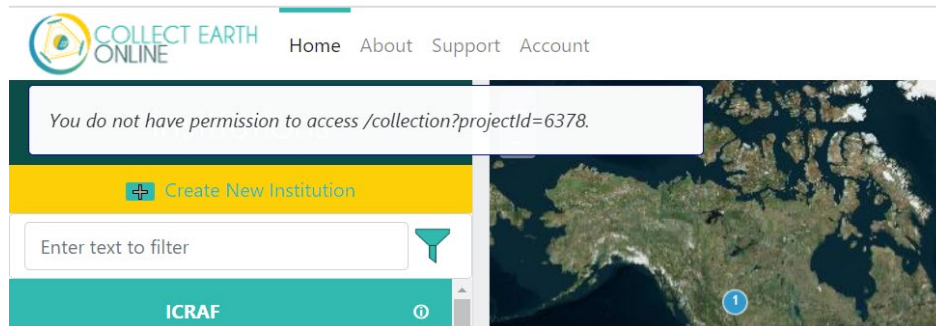
My Plots Completed	4(0.16%)
-- My Average Time	729.00 secs
Project Plots Completed	2382(93.27%)
-- Analyzed	2381(93.23%)
-- Flagged	1(0.04%)
-- Total contributors	8
-- Users Average time	729.00 secs
Project Plots Total	2554

Below the statistics, there are options for 'Unanswered Color' (Black and White) and 'Survey Questions' (1, 2, 3). A 'plot' button is also visible on the right side of the overlay.

Part 5: Troubleshooting

A. Analysis troubleshooting

1. If you try to access a project and receive an error message saying you do not have permission (as below), access to the project is limited to institution members. You will need to join your Institution per the steps in Part 2: B.



2. If you are on a **project's homepage** and click on a plot and get an error window (e.g. if the plot is not found or if that plot has already been classified), after you click through the error there will be no plots on the map. You can either click on 'go to plot' and have the first plot for analysis show up or reload the page to get all the survey plots back.
3. While collecting data, if you try to return to a previous plot you analyzed to review it and receive an error message, make sure the **[Review your analyzed plots]** radio box is checked under **Plot Navigation**.
4. If the background is completely black, the imagery resolution might be too low for the automatically set zoom level. Alternatively, the plot might be in a large waterbody. Zoom out until you see some more map context to confirm whether the issue is imagery resolution or a waterbody plot.
5. If the background of a new plot is grey, green, brown, or any solid color, the imagery resolution is too low for the automatically set zoom level. Zoom out a bit to display the imagery.
6. If the background of a new plot is white, the currently selected imagery does not exist for the current plot. Choose a different imagery.
7. Current imagery errors include:

The Sentinel Mosaic is not being displayed; this is a known imagery issue.

8. Now deprecated imagery:

The default DigitalGlobe: WMS Imagery has been deprecated and is no longer available. However, if your institution has connected to their DigitalGlobe imagery subscription, you will be able to use DigitalGlobe imagery under a different heading—it will be custom titled for your institution.

B. Advanced troubleshooting

1. Interpreting time period represented by Digital Globe & Bing Aerial imagery. Map tiles provided by both sources are created from multiple different satellite images captured over multiple days, months, or years. This means that the image does not represent a specific point in time. For this reason, CEO does not display one date for these imagery sources.
2. Browser cache clearing
 - i. You may get the message “This plot has already been analyzed” in error when you know that the plot has not been analyzed (e.g. it is a new project).
 - ii. If this happens, try clearing your browser cache. Instructions will change based on your browser.
 - iii. For Chrome:
<https://support.google.com/accounts/answer/32050?co=GENIE.Platform%3DDesktop&hl=en>
 - iv. For Firefox: <https://support.mozilla.org/en-US/kb/how-clear-firefox-cache>
 - v. For Edge: <https://support.microsoft.com/en-us/help/10607/microsoft-edge-view-delete-browser-history>
3. Image cache clearing.
 - i. Clear the local storage from the browser console line to remove the cache.
 - ii. You can do that by opening the browsers console and running: **localStorage.clear()**
4. Geo-Dash is opening in the same tab when opening a new plot
 - i. This is usually caused if you are copy and pasting URLs in your browser, and you cut and paste a new link into the ‘Geo-Dash’ tab. This tab is labeled by the browser as the Geo-Dash tab, so when you go to the new tab, CEO tells your browser to put the new plot’s Geo-Dash in the Geo-Dash tab.
 - ii. If you copy your CEO URL (e.g., for the collection page) into the “_geodash” tab, then when you try to visit a new plot, CEO will disappear and the Geo-Dash widgets will be displayed in that same tab. CEO uses a named “_geodash” tab to keep the Geo-Dash widgets in one place. Otherwise, they would spawn a new tab for every single plot that you visit.
 - iii. All you need to do to avoid this situation is to not copy your CEO URLs into an open Geo-Dash tab.

C. Report an issue and request new features

When you click on the **[Support]** page on the menu bar, there is a link to the GitHub issues page. This page is also available at: <https://github.com/openforis/collect-earth-online/issues>.

If you discover any of the Collect Earth Online functions are not working properly or would like to suggest an additional feature, you can use this page to log an issue or suggestion. Once logged, these messages go directly to the Collect Earth Online developer team.

You will have to either log in or set up a GitHub account in order to log an issue. By logging in, the development team can contact you in case they need additional information to provide a solution to the issue or feature suggestion. Alternatively, if you are unable to register an account with GitHub, you can ask questions on the OpenForis forum, which is available here <http://www.openforis.org/support>.

1. When you have a GitHub account, [navigate to the CEO GitHub Page](#).
2. To log an issue or request a new CEO feature, simply click on the green **[New issue]** button in the upper right-hand portion of the screen.
3. Type in a title that conveys the topic of the issue or request.
4. Then below, type in a detailed message summarizing the issue you have encountered or the additional functionality you would like to see in CEO.
5. Once you have finished providing the details, click the green **[Submit new issue]** button. This will log your request.