Georectification and uploads for Soar.Earth
Step-by-step tutorial

Georectification is the process of adding location data to an image so platforms such as Soar.Earth can easily read and place the map to an accurate location on Earth.

This guide outlines how to georectify a vintage map and put it on Soar.Earth. Keep in mind this process will work for any image, be it maps or satellite imagery.

The first step is to decide what you want to georectify. For our example, we have a vintage map of an island in Hawaii as seen below. I highly encourage you to download the image below.

Link to image download:
https://drive.google.com/file/d/1d4M_PK5d38Pjp3y-aJKtbQSRxDkz177x/view?usp=sharing

Use it, following the instructions as practice before uploading something else.
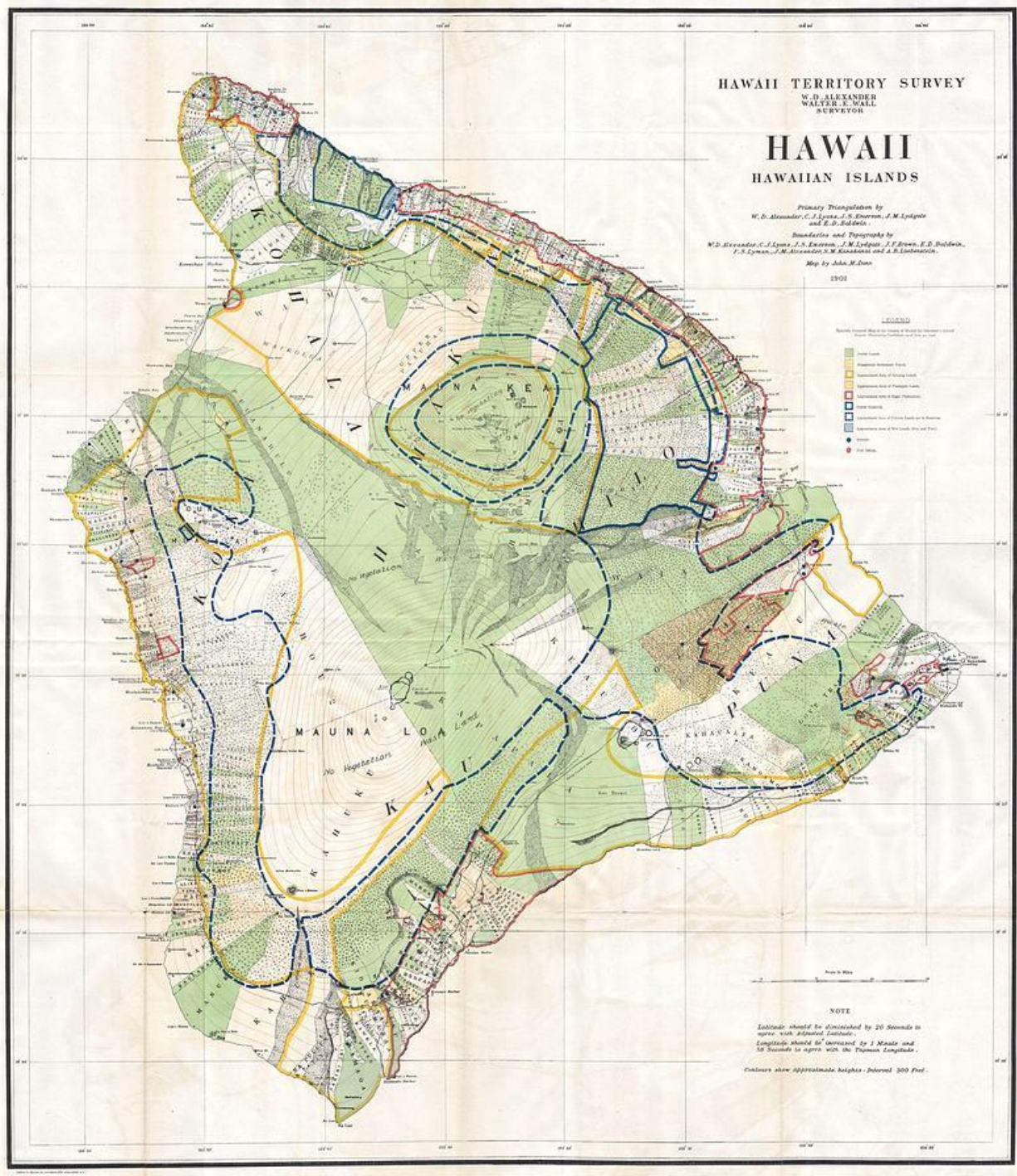
The map file currently is a JPEG file, but almost any image file will work here. Generally, PNG or JPEG is best to work with.

Next, we want to begin the georectify process. To do this, we'll be using a website called MapWarper.net

Visit this link in a new tab! -> https://mapwarper.net/ <-

First, you'll want to create an account and log in.
Once you've got an account set up, on the home page select "Upload map".
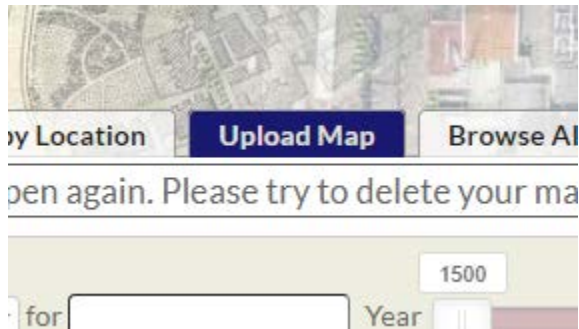
Once at the upload page, give your map a title. This title won't be important as we'll be deleting our map from mapwarper.net later. *Make sure the title of your map isn't something you've used in the past on the website.*

Next, you'll want to find the "Upload an image" area and select "Choose File". This is where you'll upload your image you want georectified. Once those two steps are complete, hit "CREATE".
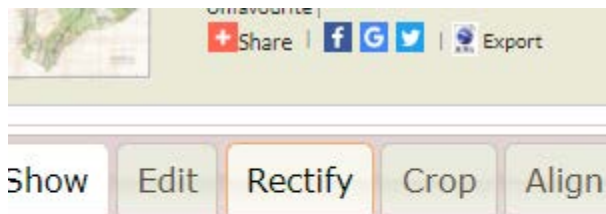

Upload a new map

By uploading images to the website, you agree that you have permission to do so, and accept that anyone else can potentially view and use them, including changing control points.

This server often runs out of disk space. Consider deleting your map after you have finished with it to help mapwarper.net to run for longer.

Title
Island of Hawaii

Description (max 256 chars)

Issue Year (year, optional)
Used to display maps by year.
2021

Tags (comma separated)

Is a map

Subject Area (optional)

Metadata Unique ID (optional)

Source / Bibliographic Ref URL (optional)

Call Number (optional)

Publisher (optional)

Place of Publication (optional)

Author(s) (optional)

Date Depicted (year, optional)

Published Date (optional)

Reprint Date (optional)

Scale (optional)

Metadata Projection (optional)

Metadata Locations (optional)
Lat:
Lon:

Upload An Image File:
Choose File antique-ma…-grafiikka.jpg

Upload from a URL:

Map visibility. Maps are by default visible to all users.
CREATE

You'll be brought to a page with your image, hit the "RECTIFY" tab.

You should now see your image on the left, and a world map view on the right. To georectify our map we must place points on both our image (left) and the world map (right) to let the computer know where the map should be placed and how it might need to be warped/adjusted to line up correctly.
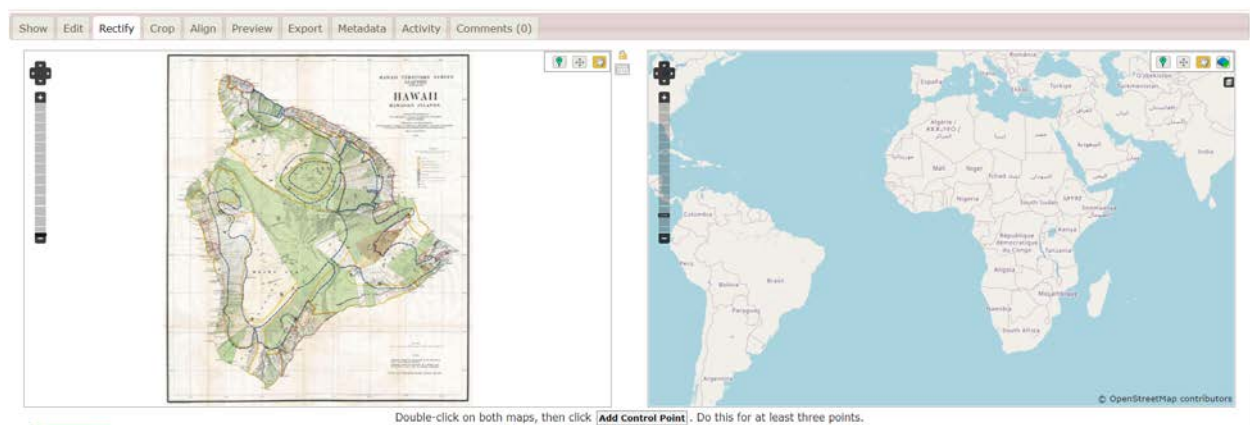
First, on the world map (right) zoom in with your scroll wheel and begin locating the place of your image. For our example, we need to locate the same island of Hawaii. It may be helpful, especially for more detailed images, to use the satellite background instead of the map one. You can switch between these layers using the layers tab in the top right corner.

For our example, we've now located our image's island of Hawaii on the world map view.
For some guide, below we've circled where Hawaii is on the world map.

Double-click on both maps, then click [Add Control Point]. Do this for at least three points.
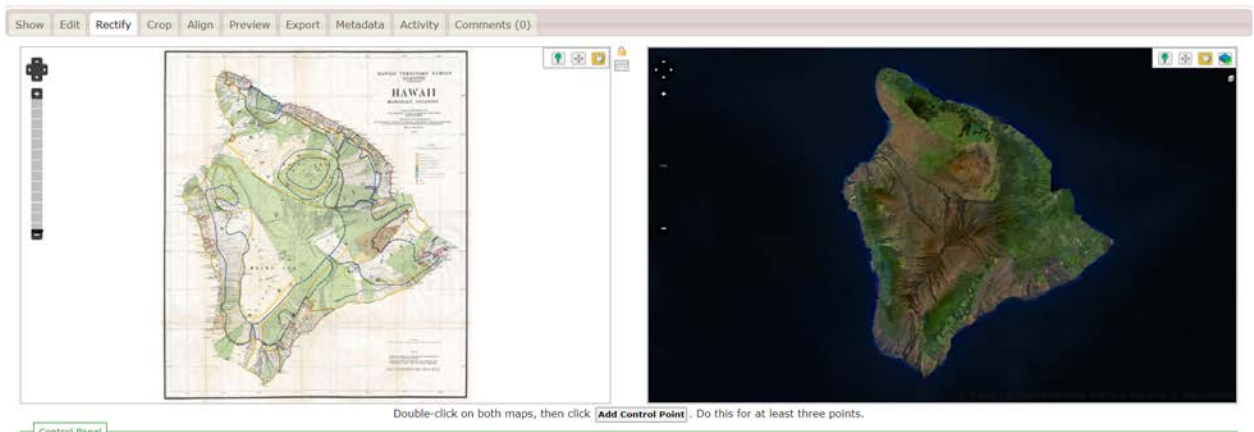
Now begins the process of adding 'control points'. The best way I've found to place control points is to **visualize your map's most identifiable 4 corners**. I've illustrated where I see these 4 corners on the island of Hawaii in my mind's eye below.

HAWAII TERRITORY SURVEY
W. D. ALEXANDER
WALTER E. WALL
SURVEYOR

HAWAII

HAWAIIAN ISLANDS

Primary Triangulation by
W. D. Alexander, C. J. Lyons, J. S. Emerson, J. M. Lydgate
and E. D. Baldwin.

Boundaries and Topography by
W. D. Alexander, C. J. Lyons, J. S. Emerson, J. M. Lydgate, J. F. Brown, E. D. Baldwin,
F. S. Lyman, J. M. Alexander, S. M. Kanakanui and A. B. Loebenstein.

Map by John M. Donn
1901

NOTE

Latitude should be diminished by 20 Seconds to
agree with Adjusted Latitude.

Longitude should be increased by 1 Minute and
18 Seconds to agree with the Thomas Longitude.

Contours show approximate heights. Interval 300 Feet.

Let's begin placing our points first on our image. To place our points click the small pin icon in the top right corner of your image.
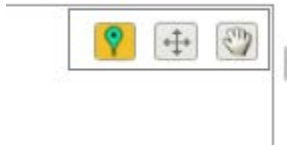
Then on the image, place your first point. Here, our first point will be located at the top of the island. The order doesn't matter too much, but try to keep it organised where possible.


Before you can place any other points, you must first place the correlating point in the same location on the **world map (right).**

Try to match both points as close as possible, feel free to zoom in/out where needed. If you need to move your point, you can simply click on a new location and it'll update the current point.

Our maps should be looking something like this now with our first point on **BOTH the image (left) and the world map (right).**
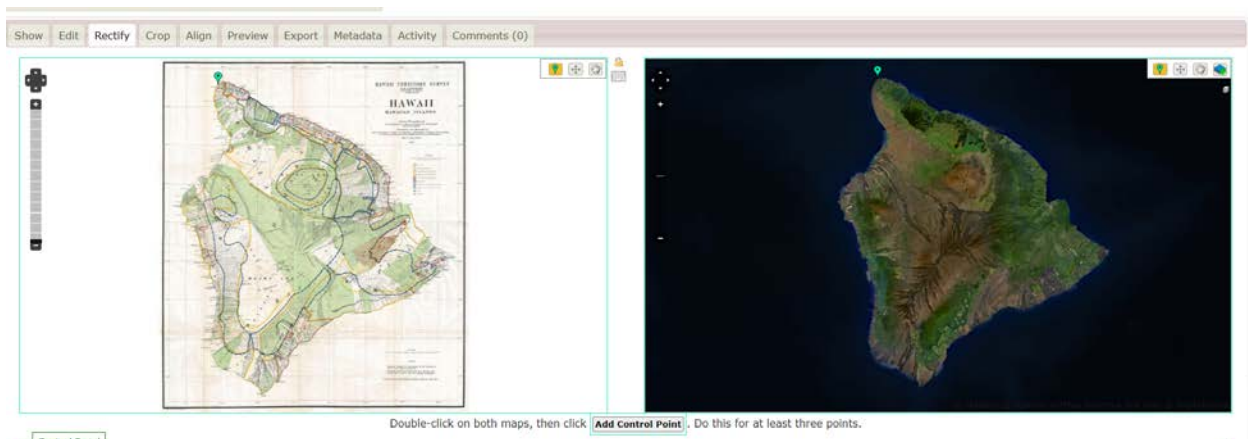
To mark our first point as finished, we have to hit **"add control point"** at the bottom below our maps.

Double-click on both maps, then click Add Control Point . Do this for at least three points.

Once that's done, you should see your control point has been updated with the number **"1".**

Now we can continue the process and place our second control point. Repeat these steps until you've placed 4 control points. A good rule of thumb is to try to keep control points to a minimum (you need to use at least 3 points, aim for around 4). The fewer control points you have, the easier it is to rectify.

Double-click on both maps, then click Add Control Point . Do this for at least three points.
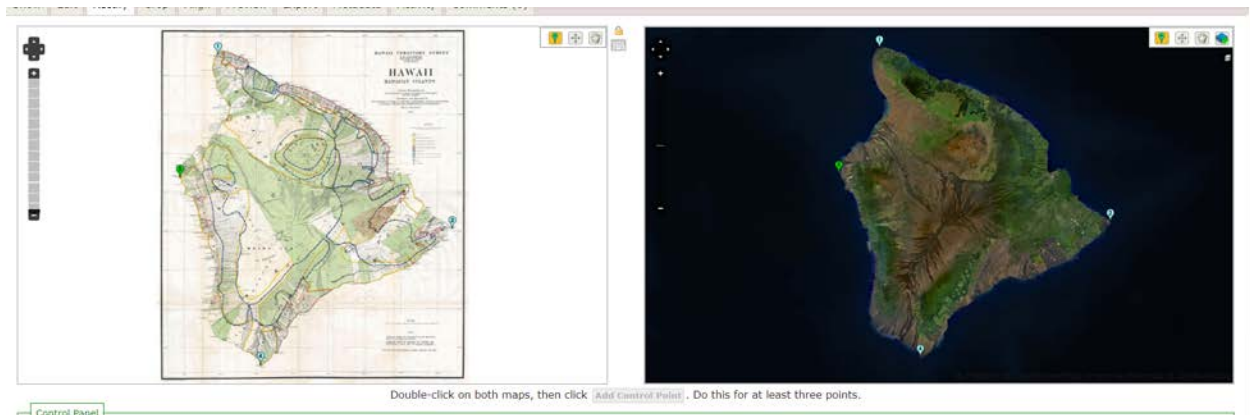
We can now preview how the software has warped our map onto the world map with all our control points. To do so, scroll down a little and click **"WARP IMAGE".**
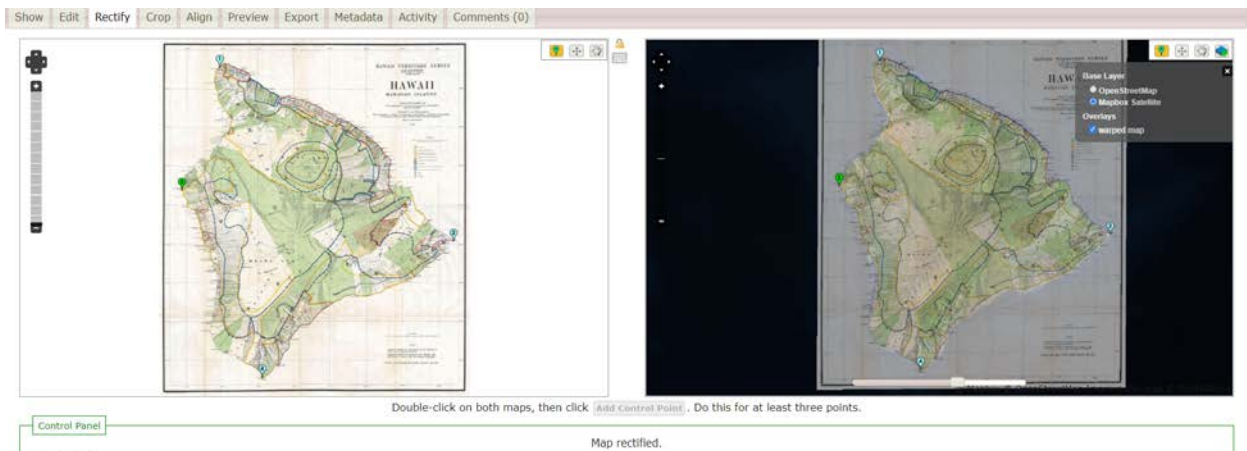
Double-click

Once the process has finished, you should see an overlay of your image on the world map area.

Looking good! Our points seem to have worked well. Depending on the map, it can be tricky to find those 4 corners, so experiment a little and always try to upload maps with key identifiable locations so it's easier to rectify.

Let's adjust our map a little before we finish!

To adjust your points, or add new ones, use the same process we used earlier. Moving an existing point is easy, just hit the move tool and drag your pin to a new location.
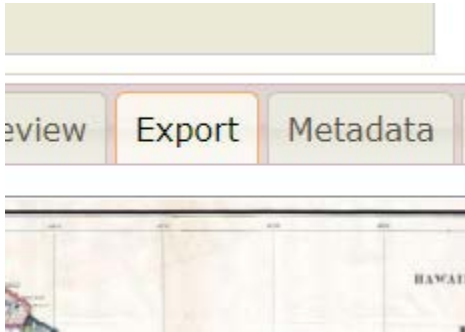

To see your changes update, hit "WARP MAP" again. Use the transparency slider below your map overlay to compare.

ee points.

When you're happy with your map, go up to the "EXPORT" tab.

You'll want to download the "GeoTiff" file of your map. Click the "Download rectified GeoTiff" link!

Export

Images

GeoTiff: Download rectified GeoTiff
PNG: Download rectified PNG (and associated .aux.xml file .aux.xml)

Map Services

We now have a georectified file we can upload to Soar.Earth! Before we do, it's good practice to delete your map on mapwarper.net before, as this helps the service run better for everyone using it. To do this, click on your profile (in this case mine is shown as "Michael" at the top right corner) and find and click into the map you want to delete.

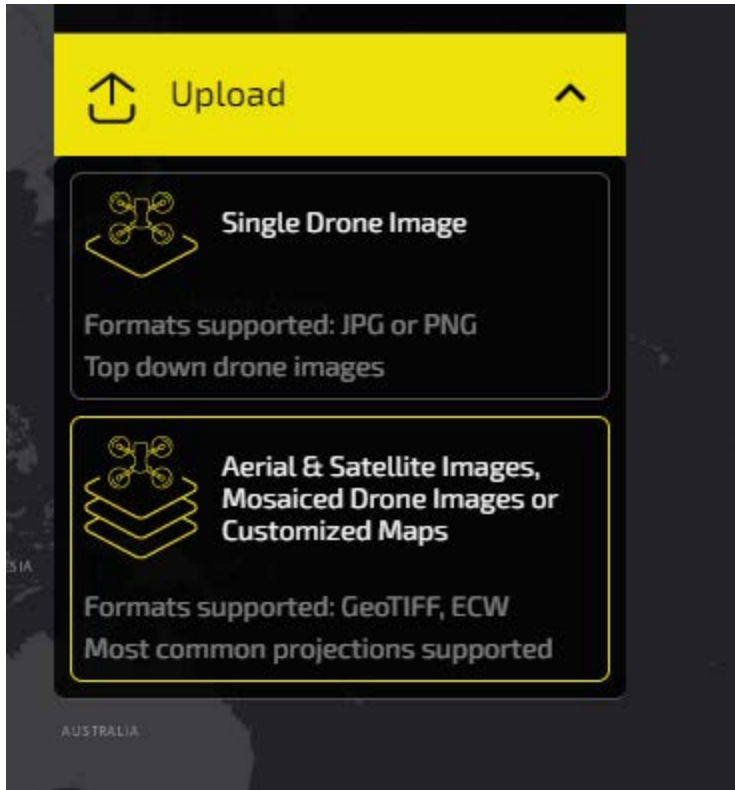Once in your map, hit the "Edit" tab and hit "Delete this map".

Hit "YES, DELETE MAP!", your map is now deleted from mapwarper.net

Part 1 complete!

Part 2, uploading to Soar.Earth

Now we can upload our map to Soar.Earth!

Login to Soar.Earth and hit upload, then hit "Aerial & Satellite Images".

Drag & drop your georectified file into the dotted area, usually, your file will be named with a random set of numbers. In our case, our file came out as "58487.tiff".

Fill in your map details, making sure to link to the source if the map wasn't originally created by you. You're free to include any Twitter links if there's an interesting story about the map.

Map Details

File name: 58487.tif

Title *

Vintage map of Hawaii

Characters: 21/100

Description *

This is a vintage map of the island of Hawaii.

Source: https://www.examplelink.com

Words: 11/200

Tags (optional)
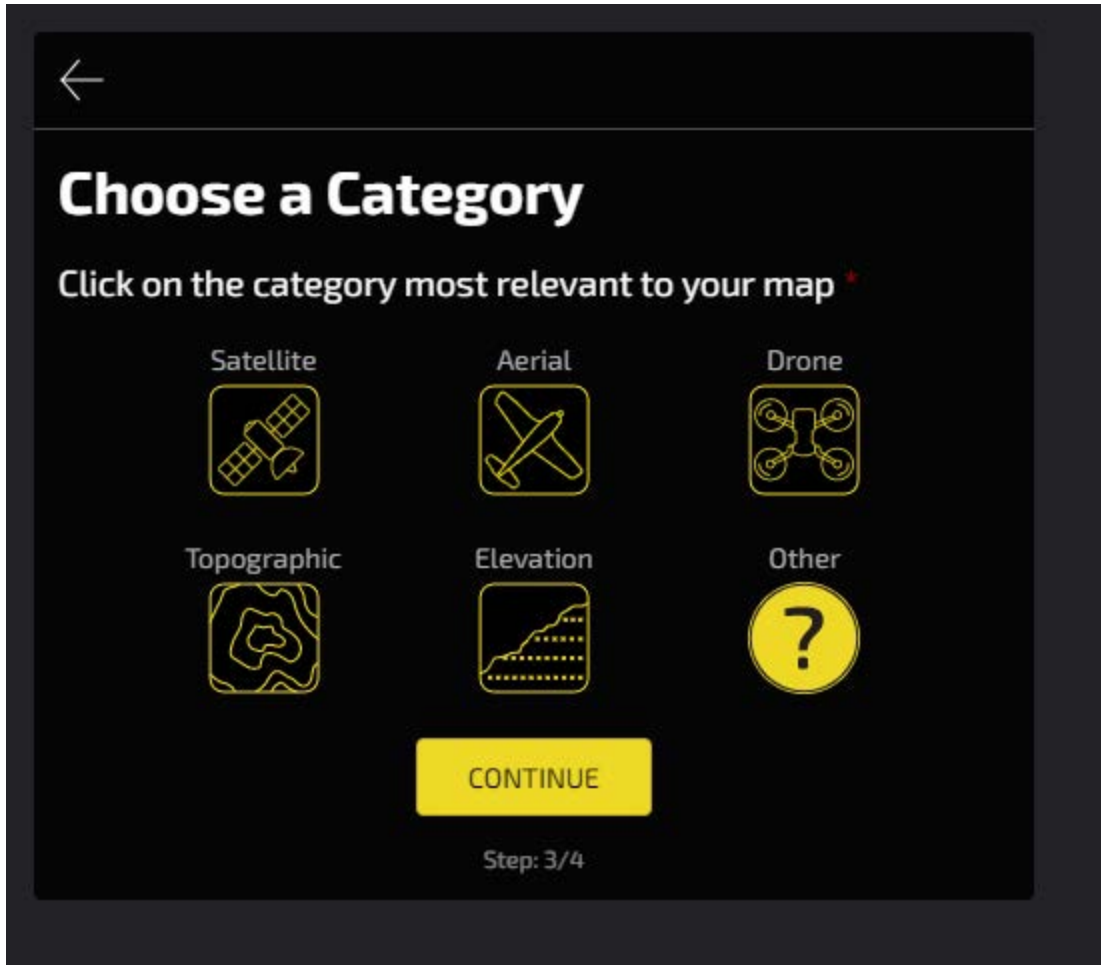
#Hawaii ×   #Island ×   #Vintage ×   #Map ×

CONTINUE

Step: 2/4

Hit Continue and select the category that best suits your map.

Congratulations, your map is now in the upload process and you'll be notified via email when it's available to view on your dashboard.