

# Hawaii - US Pacific Basin Imagery Update

## April 2023

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# Imagery Discussion Points

- **USDA Imagery Goals**
- **Hawaii NAIP**
- **Satellite Imagery for Hawaii and US Pacific Basin**
- **How to access imagery?**

## **USDA-FPAC-BC-GEO Branch**

- **GEO Branch's goal is to provide high quality geospatial data for all regions of the United States and affiliated territories.**
- **USDA has collaborated with imagery acquisitions with other Federal Agencies (USGS, USFS etc...) via since the early 1980's.**
- **USDA provided additional funding to allow publishing of the internal ImageServer Service to the general public (Pacific Rim GIS Community).**
- **USDA-FPAC-BC-GEO has the largest civilian imagery program in the Federal Government. Over 350 Million funded via National Agricultural Imagery Program since 2003.**

# USDA Offices

## Hawaii – US Pacific Basin:

**USDA-NRCS/FSA: State Office Plant Materials Center and 12 Service Centers (Hawaii, Guam, CNMI, Palau, American Samoa and Federated States of Micronesia)**

## Alaska:

**USDA-NRCS/FSA: State Offices and 5 Service Centers.**

## Hawaiian Islands

- 1) 2004-2008
- 2) 2010-2012 (WV2&3)
- 3) 2013-2015 (WV2&3)
- 4) 2016-2018 (WV2&3)
- 5) 2020 (Maxar Vivid Basemap)
- 6) 2022 (NAIP, Aerial)

## Pacific Basin

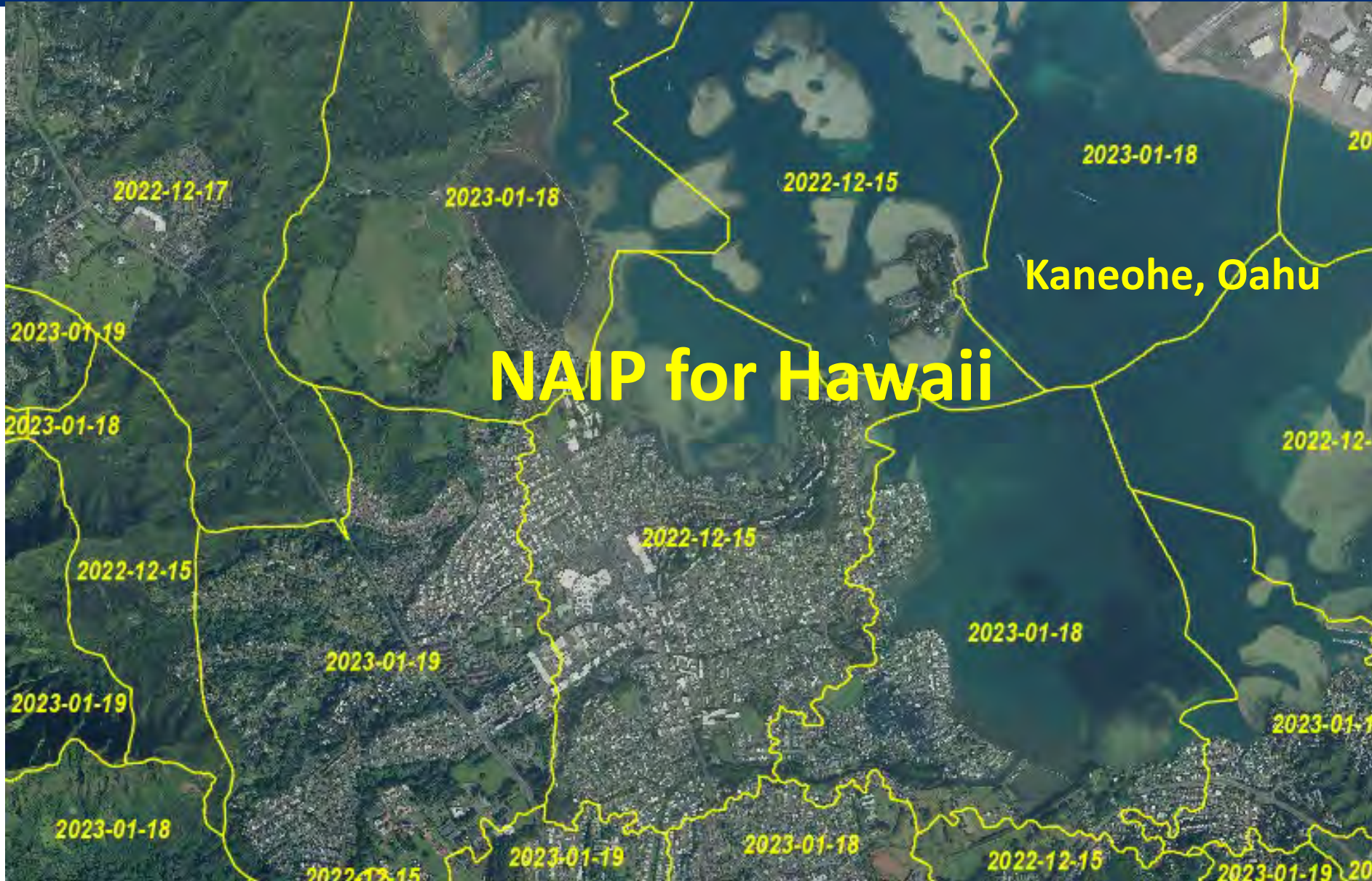
- 1) 2011-2015
- 2) 2016-2019
- 3) 2020-2023 (Maxar Vivid Basemap)

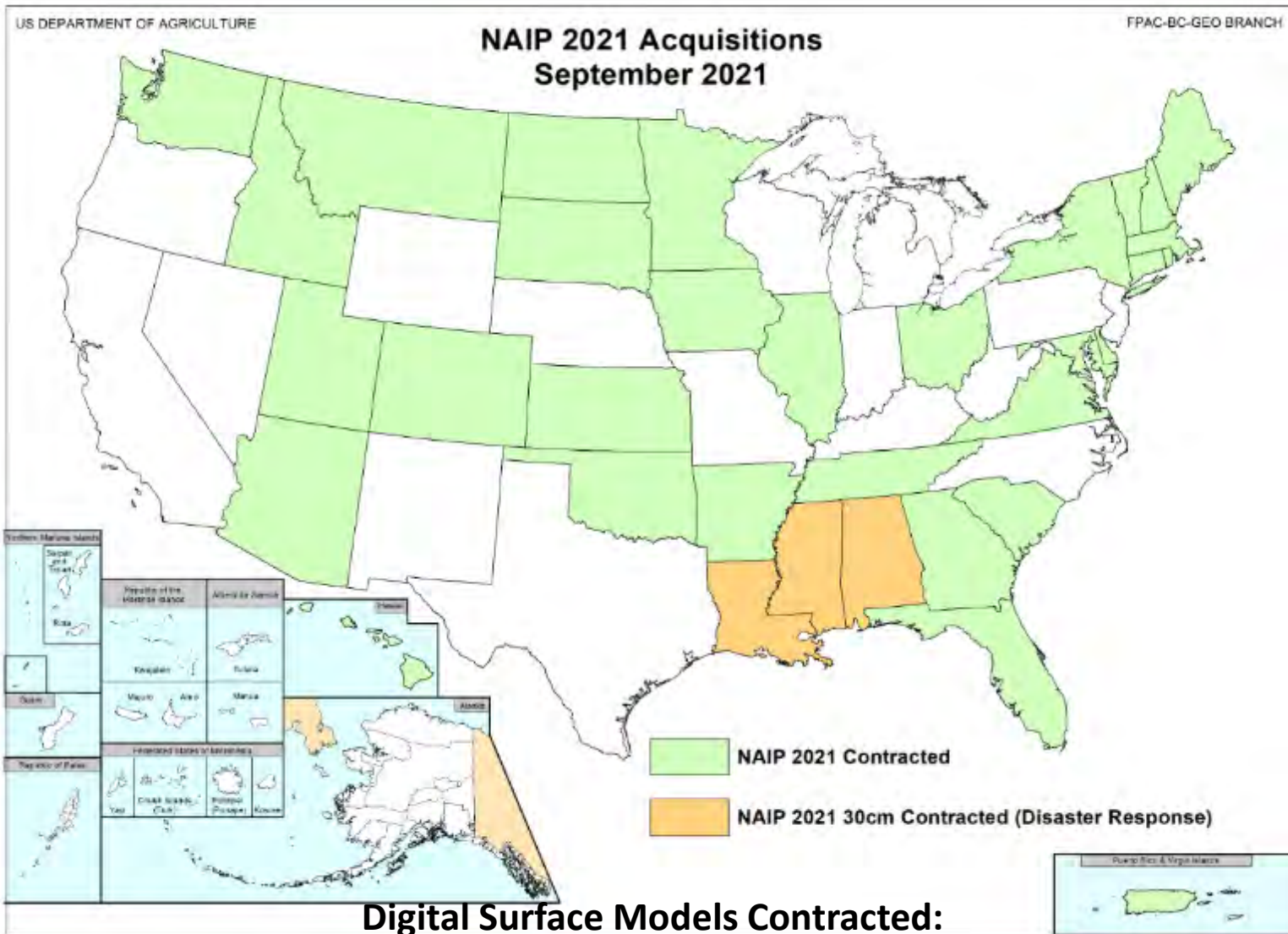
## Pacific Basin Island Groups

- Guam
- Commonwealth of the Northern Mariana Islands
- American Samoa
- Palau
- Federated States of Micronesia
- Marshall Islands
- NW Hawaiian Islands (2023)

Most of the Hawaiian Islands and Pacific Basin Datasets are available at the USDA Gateway:

<https://nracs.app.box.com/v/gateway/folder/22451256226>





**Digital Surface Models Contracted:**  
 ME, NH, VT, MA, CT, RI, VA, SC, MN and AR.

- NAIP funding goal is for a 2-3 year acquisition cycle.
- **Hawaii and Puerto Rico-US Virgin Islands were being collected for the first time as part of NAIP Program.**
- Hawaii and Puerto Rico-US Virgin Islands were contracted and collected in late 2021-early 2023.
- USDA received March 2023, 60cm Imagery (GeoTIFF, Flight Seamlines and MrSID Mosaics). This dataset is public domain.

# NAIP Hawaii

New NAIP data at 60cm is currently available:

- Most imagery was collected in 2022
- Multi-Spectral bands: 4 (R-G-B-NIR)
- Natural Color and Color Infrared Available
- Compressed Mosaics by Island (MrSID in Natural Color and CIR)\*
- Web Map Service (After Final QA/QC, ~ June 2023)\*\*
- GeoTIFF files (After Final QA/QC, ~ June 2023)\*\*



Hawaii NAIP  
Natural Color  
March 2023

\* Data available on 3/15/2023



# NAIP Hawaii



Hawaii NAIP  
CIR  
March 2023

New NAIP data at 60cm is currently available:

- Most imagery was collected in 2022
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- Compressed Mosaics by Island (MrSID in Natural Color and CIR)\*
- Web Map Service (After Final QA/QC, ~ June 2023)\*\*
- GeoTIFF files (After Final QA/QC, ~ June 2023)\*\*

\* Data available on 3/15/2023

- You are here: [Home / GDGHome.aspx](#)
- [Natural Resources Conservation Service](#)
  - [Farm Services Agency](#)
  - [Rural Development](#)
  - [National Geospatial Center of Excellence \(NGCE\)](#)
  - [Aerial Photography Field Office \(APFO\)](#)
  - [Web Soil Survey](#)
  - [eFORS](#)
  - [GeoData.Gov](#)
  - [USGS Maps, Imagery and Publications](#)
  - [National Atlas](#)
  - [National Map Viewer 2.0](#)
  - [US Census Bureau Geography](#)
  - [Download TIGER/Line Shapefiles](#)
  - [Download Public Land Survey System Data](#)
  - [United States Elevation Inventory](#)

**Welcome to GDG**

**System Status:**  
01/11/2022: NAIP 2021 has contracted 33 states/affiliated territories. The following were contracted as part of NAIP 2021 acquisitions: AL, AR, AZ, CO, CT, DE, FL, GA, IA, ID, IL, KS, LA, MA, MD, ME, MN, MS, MT, NH, NY, OH, OK, RI, SC, SD, TN, UT, VA, VT, WA, HI and PR/USVI. NAIP 2021 Compressed County Mosaics (CCM) are arriving at the USDA-FPAC-BC-GEO Branch.

These states are available at the following NAIP weblink as of 01/11/2022: CO, CT, DE, IA, ID, IL, KS, MA, MN, MT, ND, NH, OK, RI, SC, SD, VA, VT and WA. (Expected soon in 2022: AR, TN and OH.) <https://nrcs.app.box.com/folder/179264902517v-naip>

Most NAIP 2021 states were completed for aerial acquisition by November, 2021. However some states were not completed due to smoke from fires and weather issues. These states are being collected later in 2021 and potentially into 2022: AZ, LA, MS, AL, GA, FL, HI and PR/USVI.

More states are expected to be received at USDA soon. Please revisit the USDA Gateway for further updates to NAIP 2021 CCM's.

As of December 31, 2019 the Raster Soil Survey datasets are only available through the Direct Download option on the home page and are no longer available through the Gateway ordering process.



The Geospatial Data Gateway (GDG) provides access to a map library of over 100 high resolution vector and raster layers in the Geospatial Data Warehouse. It is the One Stop Source for environmental and natural resource data, at any time, from anywhere, to anyone. It allows you to






**GET DATA**

**GEOSPATIAL DATA GATEWAY**

Place a Data Order **GDG**

- I Want To...**
- [Direct NAIP Download](#)
  - [Direct Data Download](#)
  - [Order by County/Countries](#)
  - [Order by State](#)
  - [Order by Place](#)
  - [Order by entering Latitude/Longitude Bounding Rectangle](#)
  - [Order by Interactive Map using custom Area Of Interest](#)

## Gateway > US Pacific Basin Islands > Hawaii

NAME	UPDATED ↓	SIZE
 2022	Today by Tony Kimmet	18 Files
 2016_2018	Aug 4, 2020 by Tony Kim...	17 Files
 2013_2015	Aug 4, 2020 by Tony Kim...	31 Files
 2010_2012	Aug 4, 2020 by Tony Kim...	16 Files
 Readme_MrSID_ECW_files.pdf	Feb 1, 2019 by A Prior Col...	1.8 MB

**New NAIP Island Mosaics (Natural Color and CIR) are available at the link below.**

<https://nrcs.app.box.com/v/gateway/folder/65475258667>

## Hawaiian Islands NAIP File Information

### Hawaii FIPS Codes List by Island

- HI001\_01 - Hawaii Island
- HI003\_01 - Oahu
- HI007\_01 - Kauai
- HI007\_02 - Niihau with Lehua
- HI009\_01 - Maui with Molokini Crater
- HI009\_02 - Lanai
- HI009\_03 - Molokai
- HI009\_04 - Kahoolawe

### Directory Name:

- mrsid\_cir = Color Infrared Mosaics
- mrsid\_natural\_color = Color Infrared Mosaics

### Mosaic Names:

- ortho\_1-1\_hn... = Natural Color Mosaic
- ortho\_1-1\_hc... = Color Infrared (CIR) Mosaic

### Seamline:

Complete Shapefile of all aerial acquisitions by flight lines

US Pacific Basin Islands > Hawaii > 2022

NAME	UPDATED ↓	SIZE
#Seamlines	Today by Tony Kimmet	1 File
mrsid_cir	Today by Tony Kimmet	9 Files
mrsid_natural_color	Yesterday by Tony Kimmet	9 Files

Hawaii > 2022 > mrsid\_natural\_color

NAME	UPDATED ↓	SIZE
ortho_1-1_hn_s_hi001_01_hawaii_2021_1.zip	Mar 16, 2023 by Tony Kimmet	2.3 GB
ortho_1-1_hn_s_hi001_02_hawaii_2021_1.zip	Mar 16, 2023 by Tony Kimmet	2.2 GB
ortho_1-1_hn_s_hi009_03_molokai_2021_1.zip	Mar 16, 2023 by Tony Kimmet	402.9 MB
ortho_1-1_hn_s_hi009_01_maui_2021_1.zip	Mar 16, 2023 by Tony Kimmet	949.3 MB
ortho_1-1_hn_s_hi003_01_oahu_2021_1.zip	Mar 16, 2023 by Tony Kimmet	894.2 MB
ortho_1-1_hn_s_hi009_04_kahoolawe_2021_1.zip	Mar 16, 2023 by Tony Kimmet	149.9 MB
ortho_1-1_hn_s_hi007_01_kauai_2021_1.zip	Mar 16, 2023 by Tony Kimmet	568.5 MB
ortho_1-1_hn_s_hi009_02_lanai_2021_1.zip	Mar 16, 2023 by Tony Kimmet	223.1 MB
ortho_1-1_hn_s_hi007_02_niihau_2021_1.zip	Mar 16, 2023 by Tony Kimmet	228.5 MB

Layer Properties

General Source Key Metadata Extent Display Symbology Time

Show:  
 Vector Field  
 Stretched  
 RGB Composite

Draw raster as an RGB composite

Channel	Band
<input checked="" type="checkbox"/> Red	Band_1
<input checked="" type="checkbox"/> Green	Band_2
<input checked="" type="checkbox"/> Blue	Band_3
<input type="checkbox"/> Alpha	1

Display Background Value: (R, G, B) as    as 
  
 Display NoData as

Stretch  
 Type: None   Invert

Apply Gamma Stretch:

Statistics  
 From Each Raster Dataset

Red Green Blue


Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

1:1,200,000

Drawing

Layers

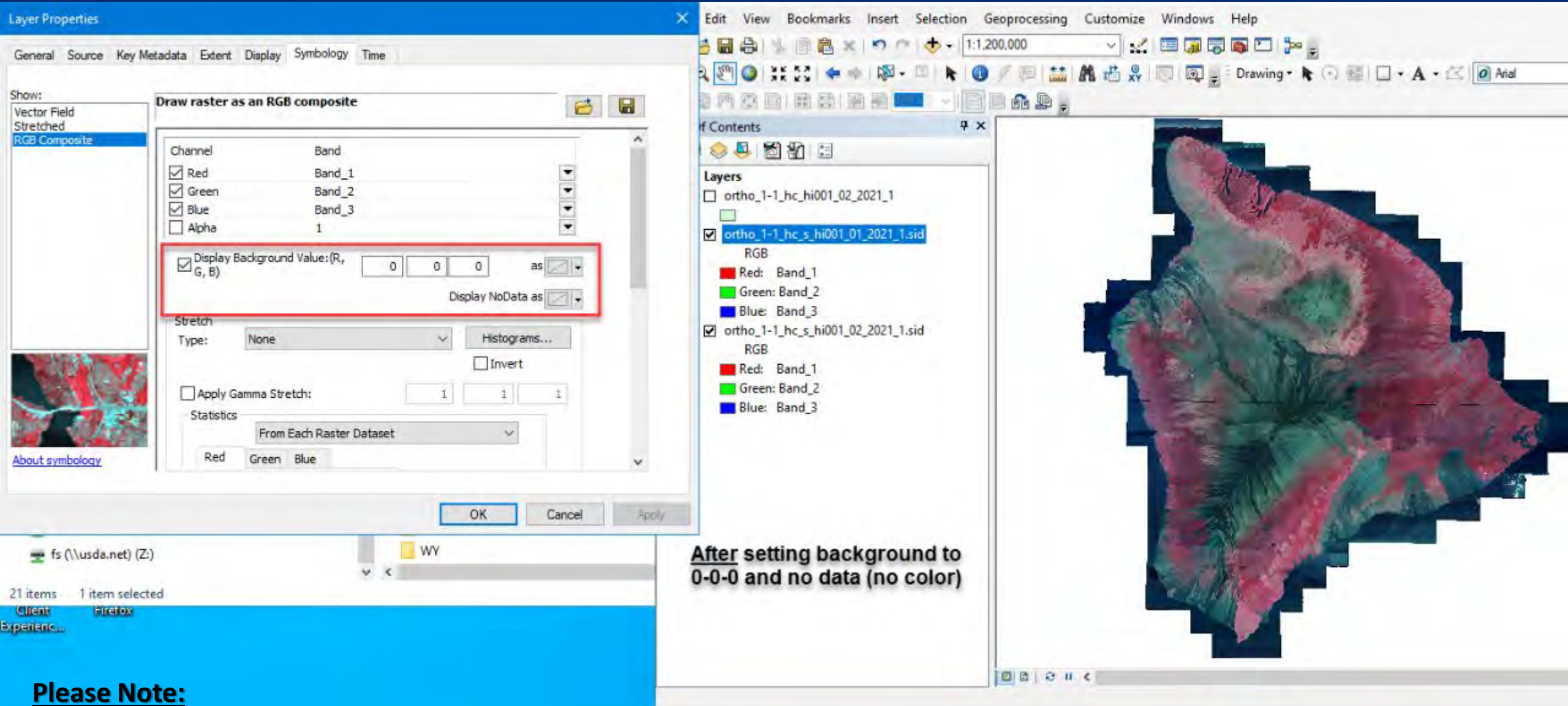
- ortho\_1-1\_hc\_hi001\_02\_2021\_1
- ortho\_1-1\_hc\_s\_hi001\_01\_2021\_1.sid
  - RGB
  - Red: Band\_1
  - Green: Band\_2
  - Blue: Band\_3
- ortho\_1-1\_hc\_s\_hi001\_02\_2021\_1.sid
  - RGB
  - Red: Band\_1
  - Green: Band\_2
  - Blue: Band\_3



Before setting background to 0-0-0 and no data (no color)

**Please Note:**  
**Must set background values for 0-0-0 to No Color**

# USDA Compressed County Mosaics

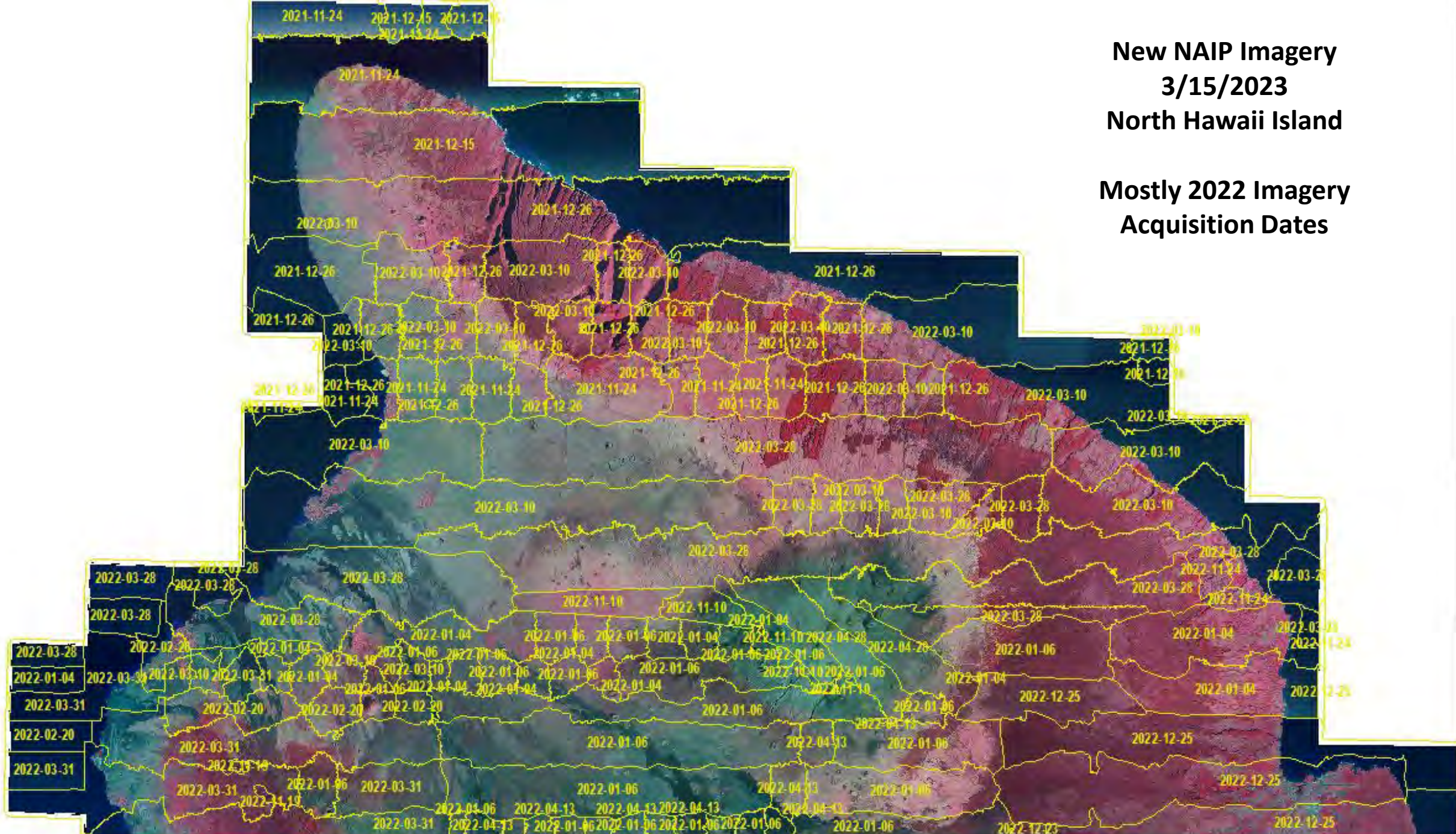


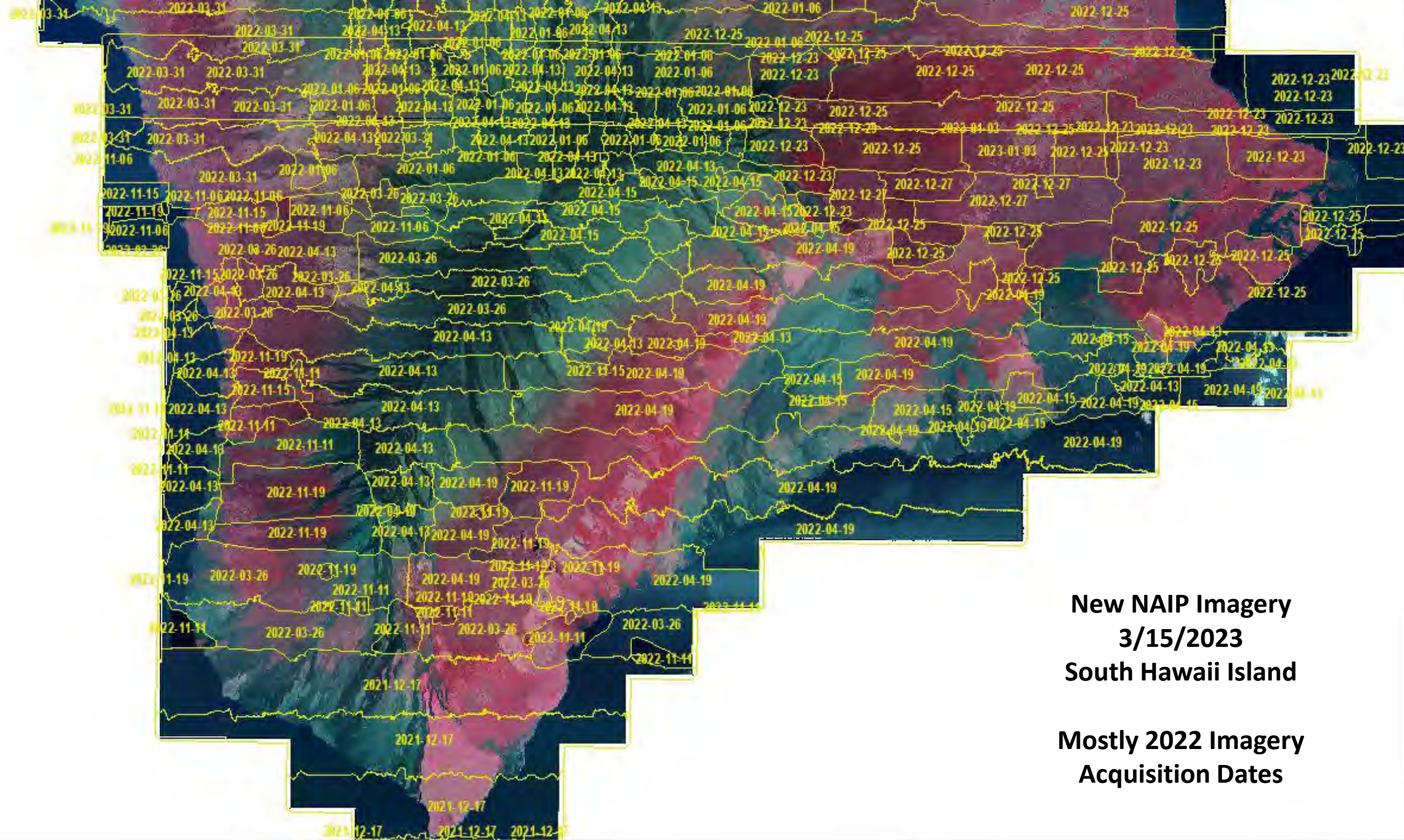
After setting background to 0-0-0 and no data (no color)

**Please Note:**  
**Must set background values for 0-0-0 to No Color**

**New NAIP Imagery  
3/15/2023  
North Hawaii Island**

**Mostly 2022 Imagery  
Acquisition Dates**





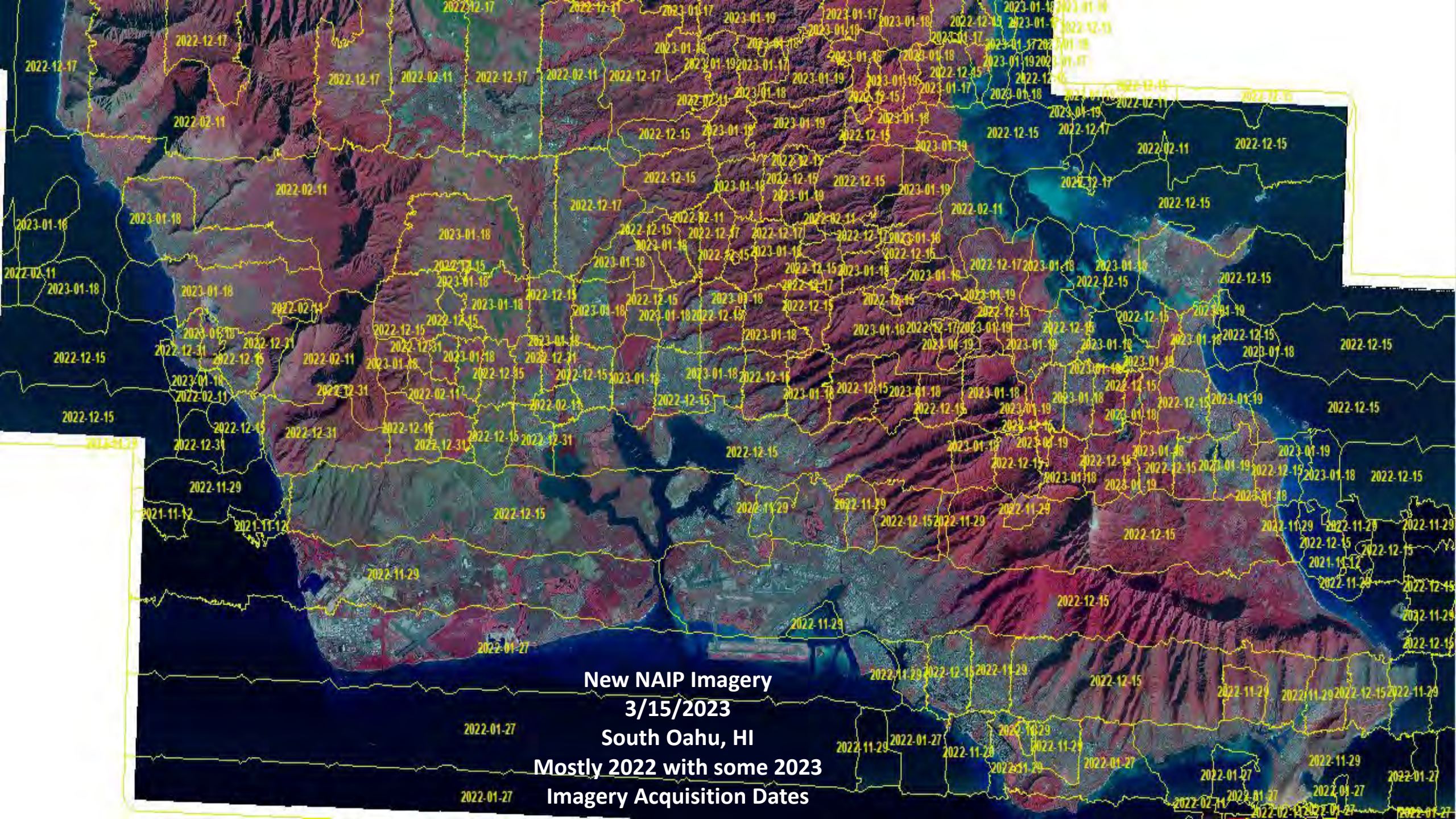
**New NAIP Imagery  
3/15/2023  
South Hawaii Island  
Mostly 2022 Imagery  
Acquisition Dates**

**New NAIP Imagery  
3/15/2023  
North Oahu, HI**

**Mostly 2022 with some 2023  
Imagery Acquisition Dates**



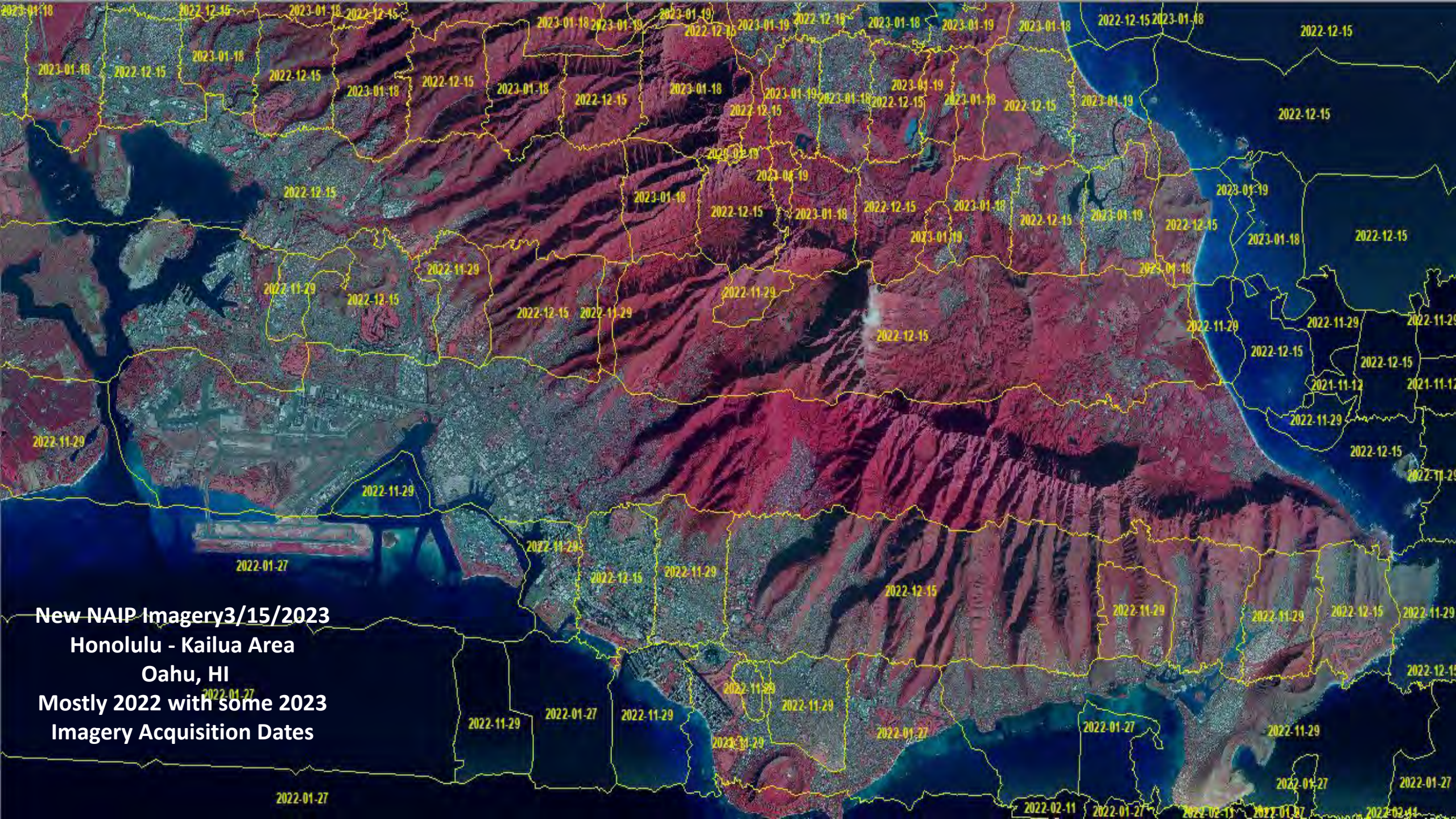




**New NAIP Imagery  
3/15/2023  
South Oahu, HI  
Mostly 2022 with some 2023  
Imagery Acquisition Dates**



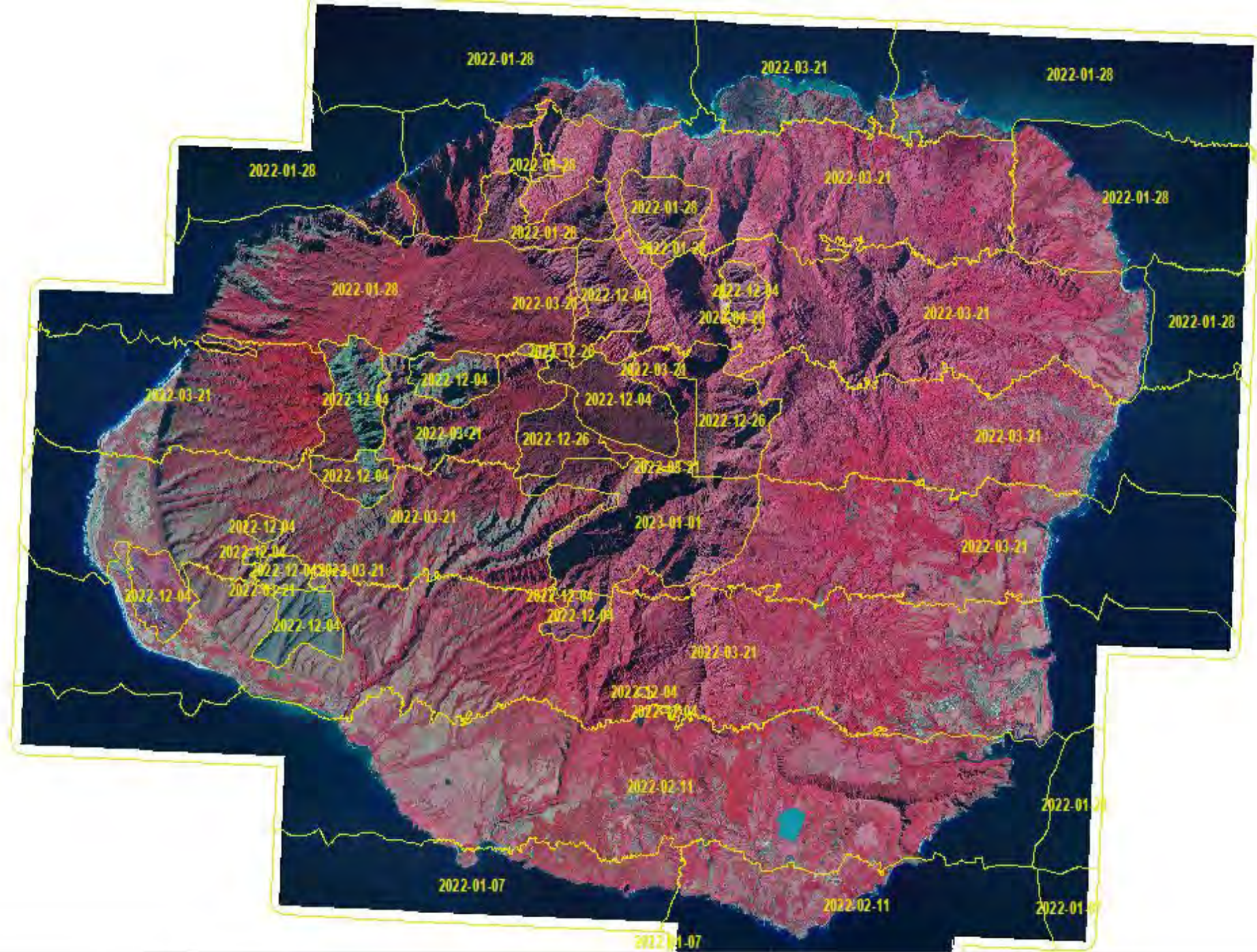
**New NAIP  
Imagery 3/15/2023  
Honolulu Area  
Oahu, HI  
Mostly 2022 with  
some 2023 Imagery  
Acquisition Dates**



**New NAIP Imagery 3/15/2023**  
**Honolulu - Kailua Area**  
**Oahu, HI**  
**Mostly 2022 with some 2023**  
**Imagery Acquisition Dates**

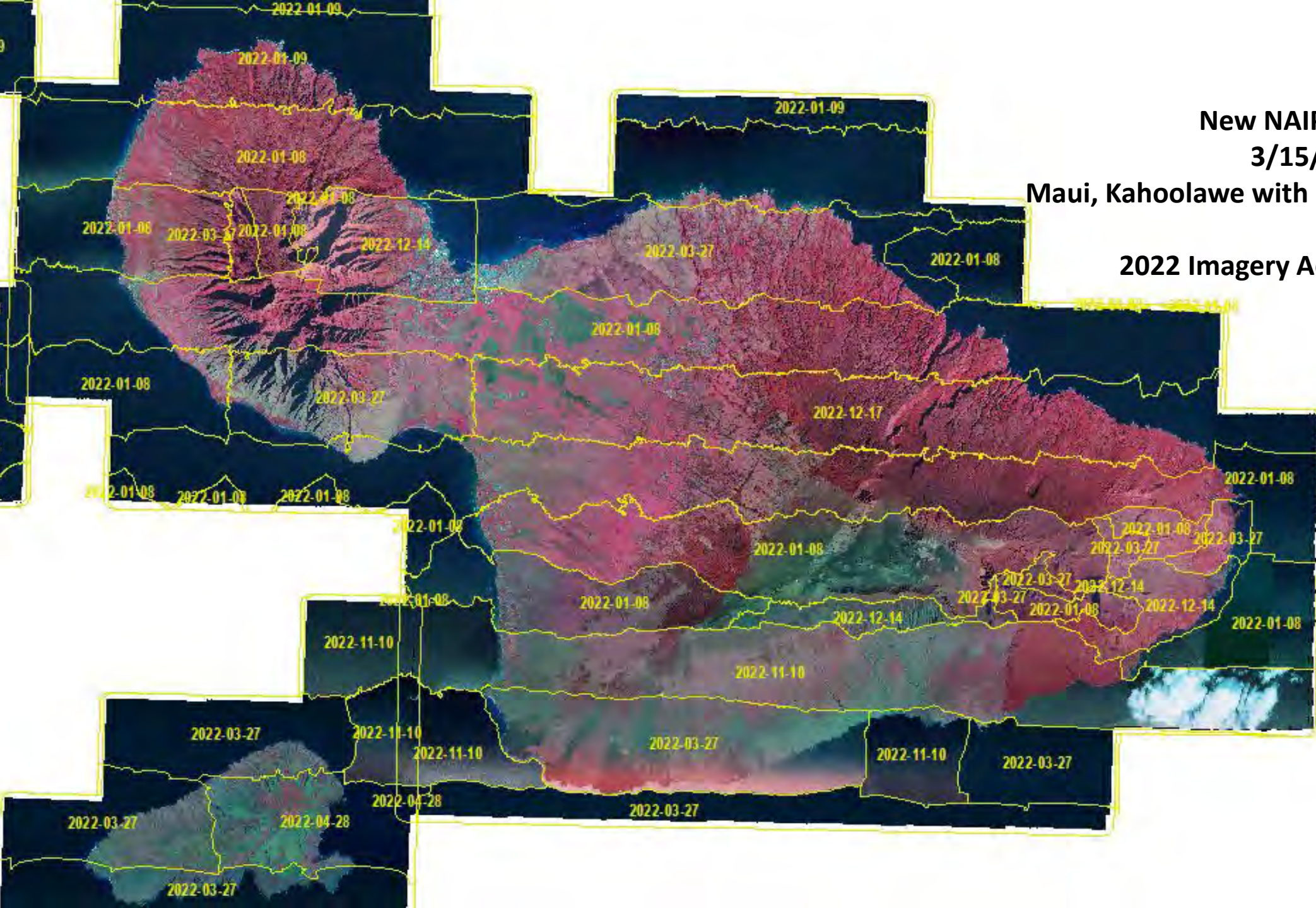
**New NAIP Imagery  
3/15/2023  
Kauai, Hawaii**

**Mostly 2022 with some 2023  
Imagery Acquisition Dates**



**New NAIP Imagery  
3/15/2023  
Niihau with Lehua, Hawaii  
2022 Imagery Acquisition Dates**





New NAIP Imagery  
3/15/2023

Maui, Kahoolawe with Molokini Crater, Hawaii

2022 Imagery Acquisition Dates

New NAIP Imagery  
3/15/2023  
Maui, Hawaii  
2022 Imagery Acquisition Dates

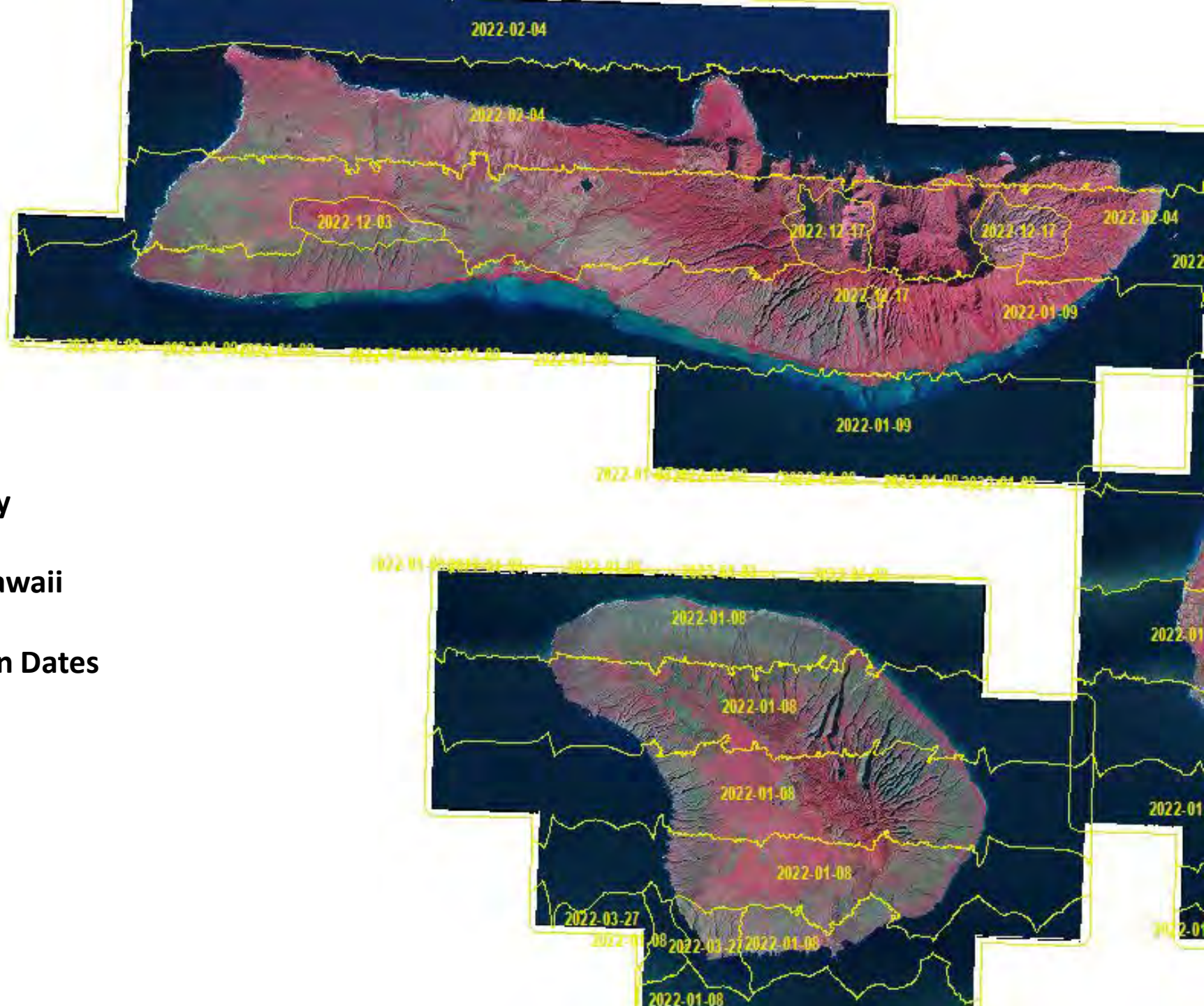
2022-12-14

2022-03-27

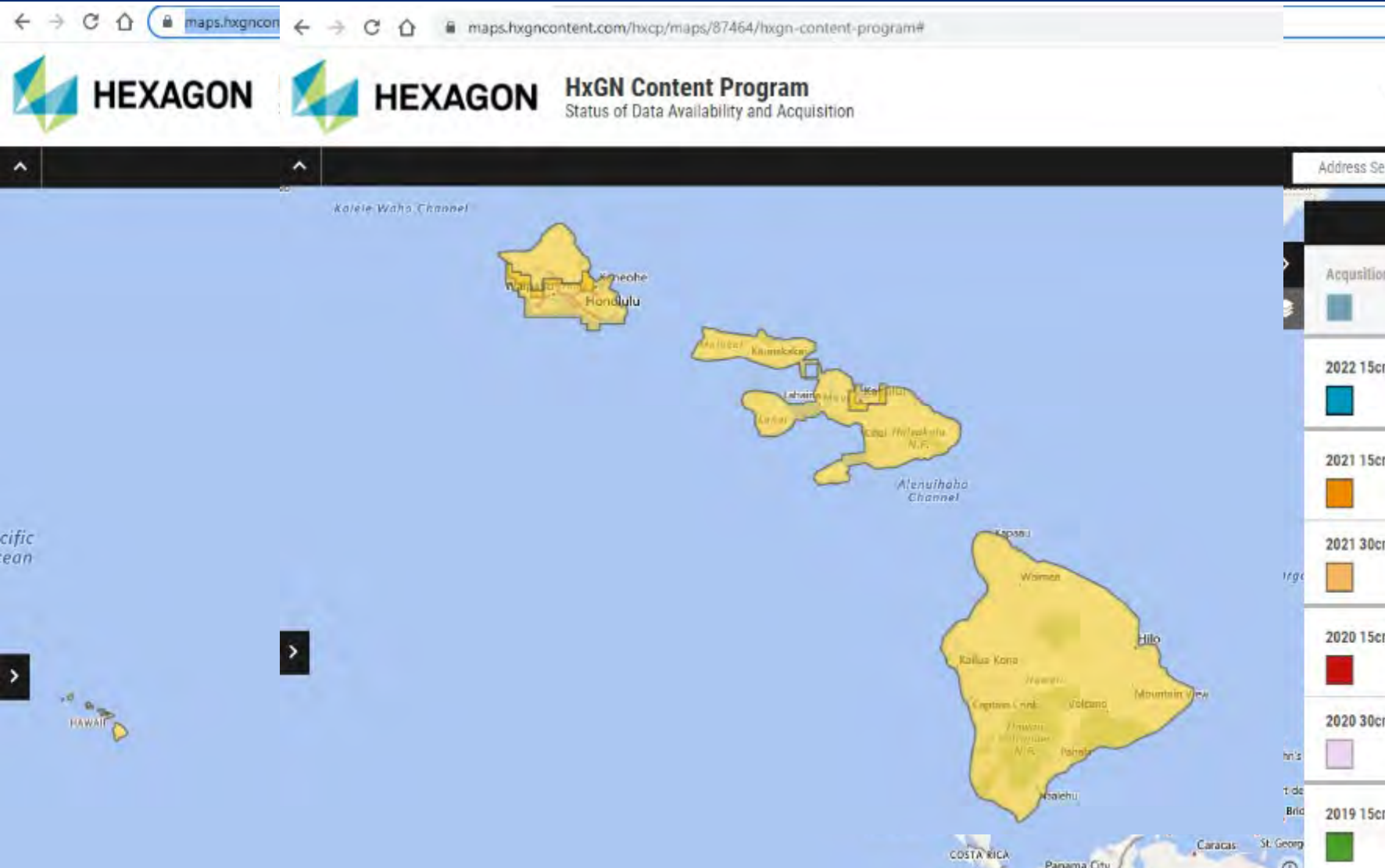
2022-01-08



**New NAIP Imagery  
3/15/2023  
Molokai and Lanai, Hawaii  
2022 Imagery Acquisition Dates**







## Hexagon HxGN

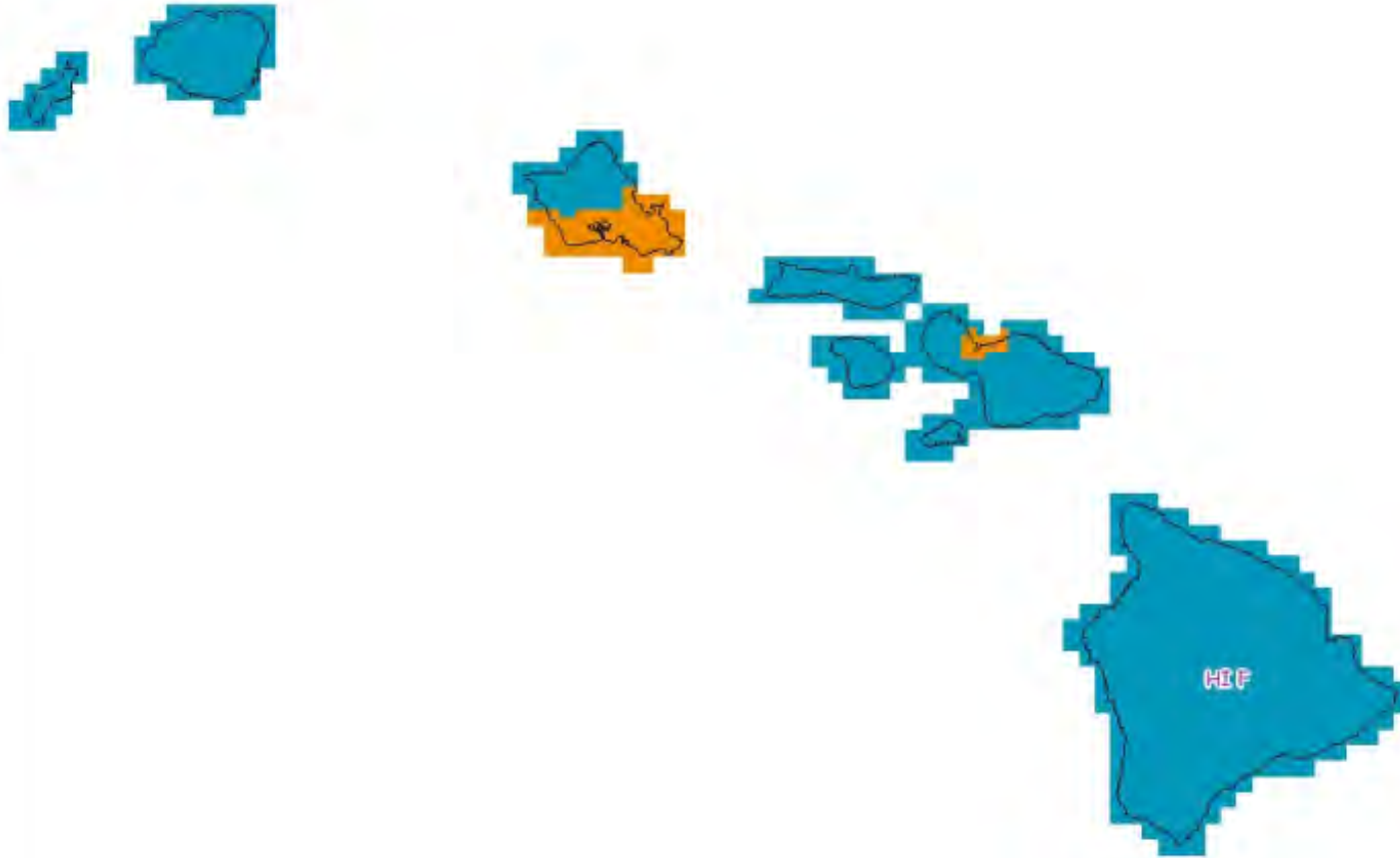
USDA has all NAIP datasets for Hawaii at 60cm resolution.

Hexagon collects NAIP imagery at high resolution and makes it available via subscription service.

Hawaii has been completely collected at 30cm and 15 cm for select areas.

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<https://maps.hxgncontent.com/hxcp/maps/87464/hxgn-content-program#>

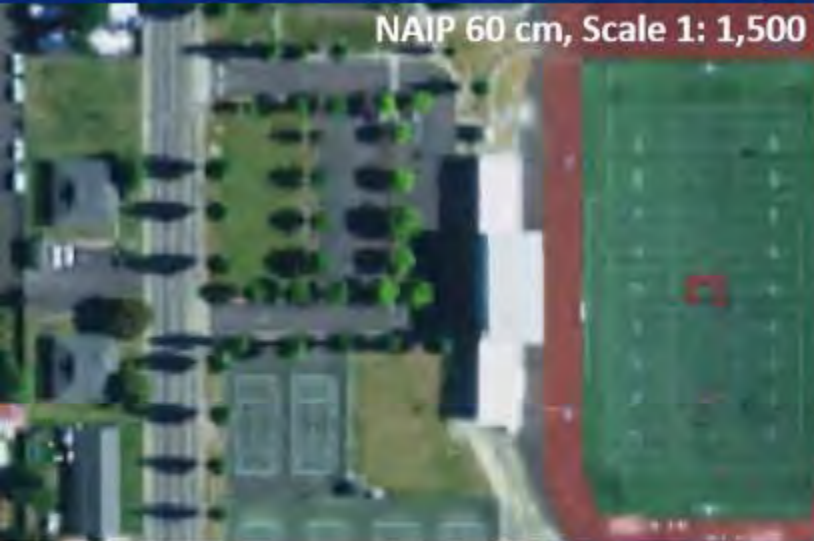


## Hexagon HxGN

- Hawaii has been completely collected at 30cm plus at 15 cm for select areas.
- Most imagery was collected in 2022.
- New Hawaii 30/15cm data should be available soon.

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## NAIP Imagery Resolution Comparison (30cm and 60cm)



Polk County  
Oregon  
NAIP 2020

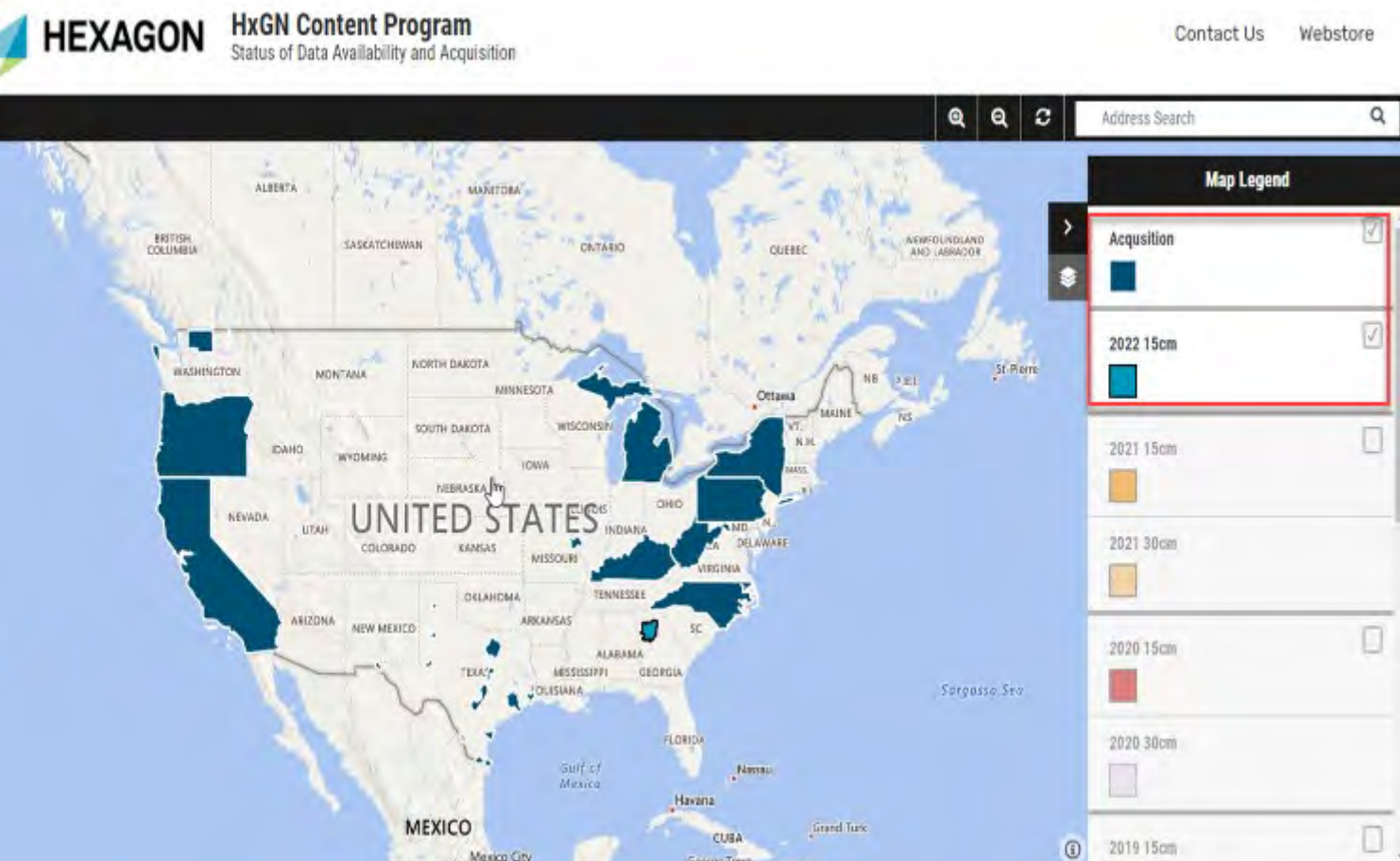


Agricultural  
and  
Urban  
Areas



If your work involves looking at imagery around a scale of 1: 1,500 or below, then you would likely benefit from imagery at 30cm or higher.

# What is Hexagon HxGN?



- Hexagon HxGN is a high-resolution aerial imagery, elevation data, 3D models and analytics WMS streaming service. Used in many applications.
- HxGN streaming service uses NAIP as the imagery base (Natural Color, CIR) for most of the United States. Some non-NAIP datasets include such as Urban areas and some leaf-off acquisitions.
- Hexagon has announced that all NAIP 2022-2023 states awarded will be collected at 15cm resolution.
- Hexagon HxGN requires a license to use their datasets. License costs vary depending on products/services.
- NRCS has licensed ~ 70-100 Floating licenses from 2015-2022.
- NRCS Urban Agricultural initiative will increase the number of floating licenses to accommodate more users in FY 2024. Data downloading is available.

# Hexagon HxGN Samples

## Scale of Imagery and Resolution

- If your work involves examining larger areas such as scales of 1: 4,800 to 1:1,000,000 then you will not see little difference between 60cm data and 30-15cm imagery.
- It is if you are using imagery at scale of around 1: 500 - 1:2,400 is where the higher resolution is most noticeable.

2022 Imagery, 60cm Resolution

Queens Medical Center  
Honolulu, Hawaii

2016 Imagery, 15cm Resolution



# Hawaii, US Pacific Basin and Alaska High Resolution Satellite Imagery

## Acquisition Time to production of Web Map Services

- **From 2004-2020 it would take somewhere around 3-5 years to acquire(tasking), process and publish to a Web Map Service for Hawaii and US Pacific Basin.**
- **We live in a society where GIS users want much more rapid access to imagery updates.**
- **GEO has changed our imagery acquisition strategy to where we are updating NAIP imagery in the continental US every 2-3 years.**
- **There is a potential to update the US Insular areas in a similar timeline using both Satellite data and USDA Imagery BPA (NAIP).**
- **Usage of pre-made mosaics from satellite vendors is critical for faster deployment.**

## Maxar offers off the shelf and on-demand imagery basemap products

### Vivid

- Product to defined product specifications
- Produced annually on a defined production schedule, aligned with planned collection window
- Available "off the shelf" for defined coverage areas
- Use of Maxar hybrid DTM (*edited blend of SRTM, NED, etc*)

### Dynamic

- Produced to defined order parameters
- Produced to defined order schedule
- Available "on demand" for any area of interest
- Use of Maxar DEM coming in 2022

Product	GSD	Accuracy	Currency	Bands	Coverage
Vivid Premium	15cm HD	2m CE90	90%<12mo	3 (RGB)	Defined cities (200)
Vivid Advanced	30cm HD	5m CE90	75%<12mo	3 (RGB)	Defined cities (2,200)
Vivid Standard	30cm HD and 50cm	5m CE90	50M km2 <12mo	3 (RGB) 4 (BGRN)	Global landmass
Vivid Basic	50cm	8.5m CE90	50M km2 <12mo	3 (RGB)	Global landmass

GSD	Accuracy	Currency	Bands	Coverage
30cm HD	5m CE90	Best available	3 (RGB)	Any AOI
through	or	or	or	
15 meter	10m CE90	Defined start and end dates	4 (BGRN)	

Maxar (DigitalGlobe) offers Vivid Basemap updates every 12 months for Vivid Standard.

USDA has invested funding to acquire Vivid Basemap:

- Hawaiian Islands (2020/2021)
- Guam (2020)
- CNMI (2020)
- Palau (2020)
- American Samoa (2020)
- FSM (2021)
- Marshall Islands (2021)

USDA upgraded the Vivid Basemap End User License Agreement.



## New Imagery Services

- **Maxar-DG provided USDA-FPAC a new version of high-resolution satellite imagery Called Vivid Basemap that has more recent imagery and easier to process by USDA.**
- **Maxar-DG creates updates approximately every year for Vivid Basemap Services.**
- **USDA has created a new ImageServer Services for the following:**
  - **Hawaiian Islands**
  - **Guam**
  - **Commonwealth of the Northern Mariana Islands**
  - **American Samoa**
  - **Palau**
  - **Federated States of Micronesia**
  - **Marshall Islands**
  - **Additional Imagery and Remote Sensing layers**



### Imagery Specifications

- **.5 meter/50 cm Resolution**
- **Four Bands (Natural Color, Color Infrared)**
- **Accuracy CE 90 <5-meter**
- **Image Currency ~ 75% is two years or less**

**Satellite data is typically licensed for use from private companies. End User License Agreement (EULA) available with the following requirements:**

- **Distribute licensed data to all Federal/State/Local/Tribal government, Universities, Non-Profit Organizations, and cooperators.**
- **Contractor grants perpetual license to USDA and the organizations listed above.**
- **Satellite data can be used in all reports, presentations, training materials, books, posters, and blogs.**
- **Available for public websites and social media.**
- **Public facing websites would not allow downloading of the original received licensed imagery data from satellite contractor.**
- **Data will not be provided to third-party resellers.**

## Vivid Basemap 2020-2023

- **USDA GEO collected all areas of the US Pacific Basin 2020-2022.**
- **USDA will acquire new updated Maxar-DG Vivid Basemap for the following in US Pacific Basin in FY 2023.**
  - **Guam**
  - **Commonwealth of the Northern Mariana Islands**
  - **American Samoa**
  - **Palau**
  - **North West Hawaii Islands (Arrived at GEO in late 2022)**
- **May have enough funding to acquire new imagery in other locations (Federated States of Micronesia and the Marshall Islands).**
- **USDA will create new ImageServer services similar too the recently completed Hawaii datasets.**
- **Likely two satellite versions of Hawaii and US Pacific Basin will be available.**
- **Maxar End User License Agreement will be uplifted to allow access by the public.**

**Guam**



**American Samoa**

# Hawaii, US Pacific Basin and Alaska High Resolution Satellite Imagery Data Deployment Information

2021-02-20

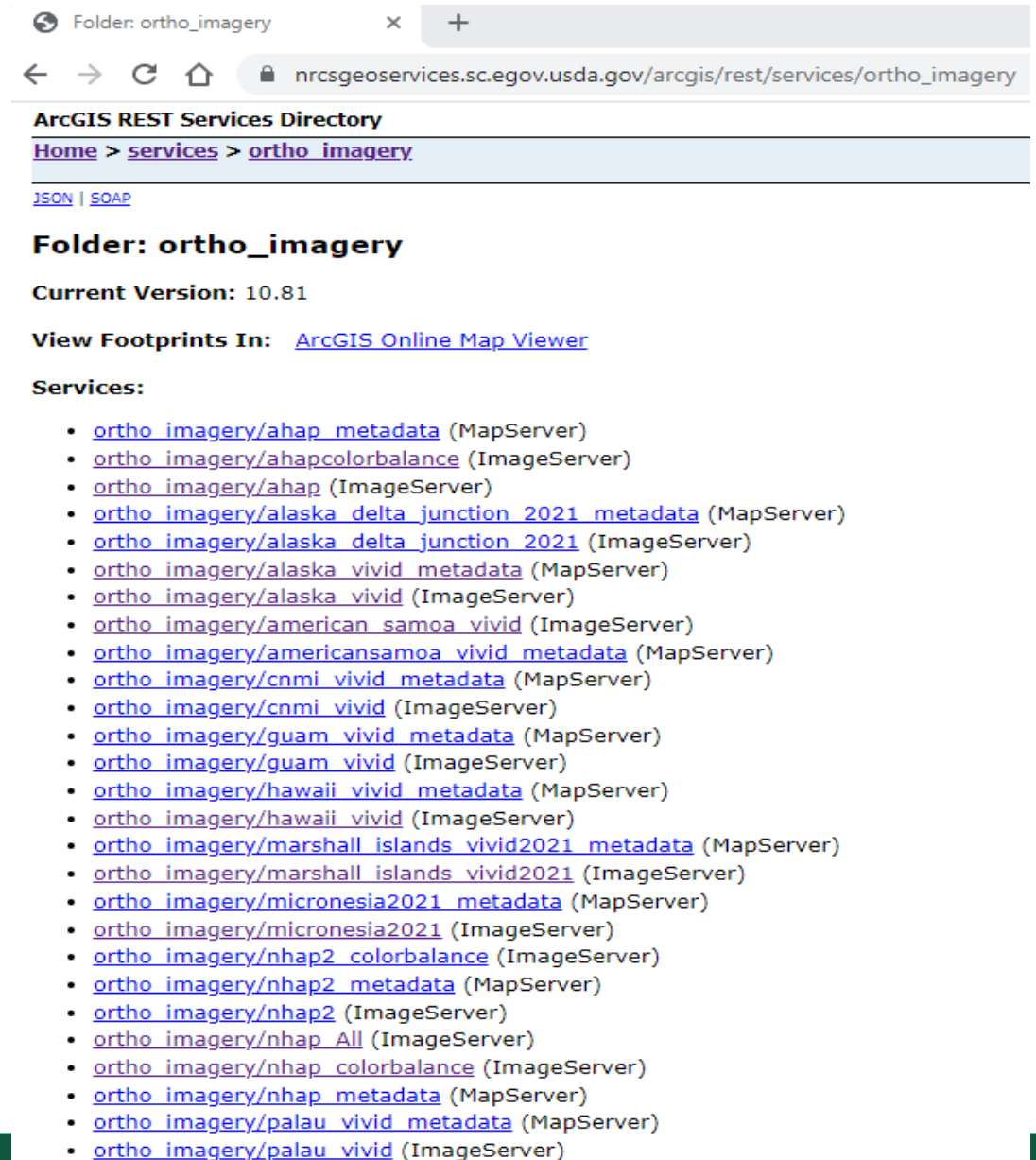
Eastern Majuro, Marshall Islands

## USDA Satellite and other Web Map Services Site

[https://nrcsgeoservices.sc.egov.usda.gov/arcgis/rest/services/ortho\\_imagery](https://nrcsgeoservices.sc.egov.usda.gov/arcgis/rest/services/ortho_imagery)

### New Imagery Services

- Maxar-DG provided USDA new versions of high-resolution satellite imagery Called Vivid Basemap that has more recent imagery and easier to process by USDA.
- Metadata is available for all Ortho\_Imagery layers.
- Maxar-DG creates updates approximately every year for Vivid Basemap Services.
- USDA has created a new ImageServer Services for the following:
  - Hawaiian Islands
  - Guam
  - Commonwealth of the Northern Mariana Islands
  - American Samoa
  - Palau
  - Federated States of Micronesia
  - Marshall Islands
  - Additional Imagery and Remote Sensing layers



Folder: ortho\_imagery

nrcsgeoservices.sc.egov.usda.gov/arcgis/rest/services/ortho\_imagery

ArcGIS REST Services Directory

Home > services > ortho\_imagery

JSON | SOAP

**Folder: ortho\_imagery**

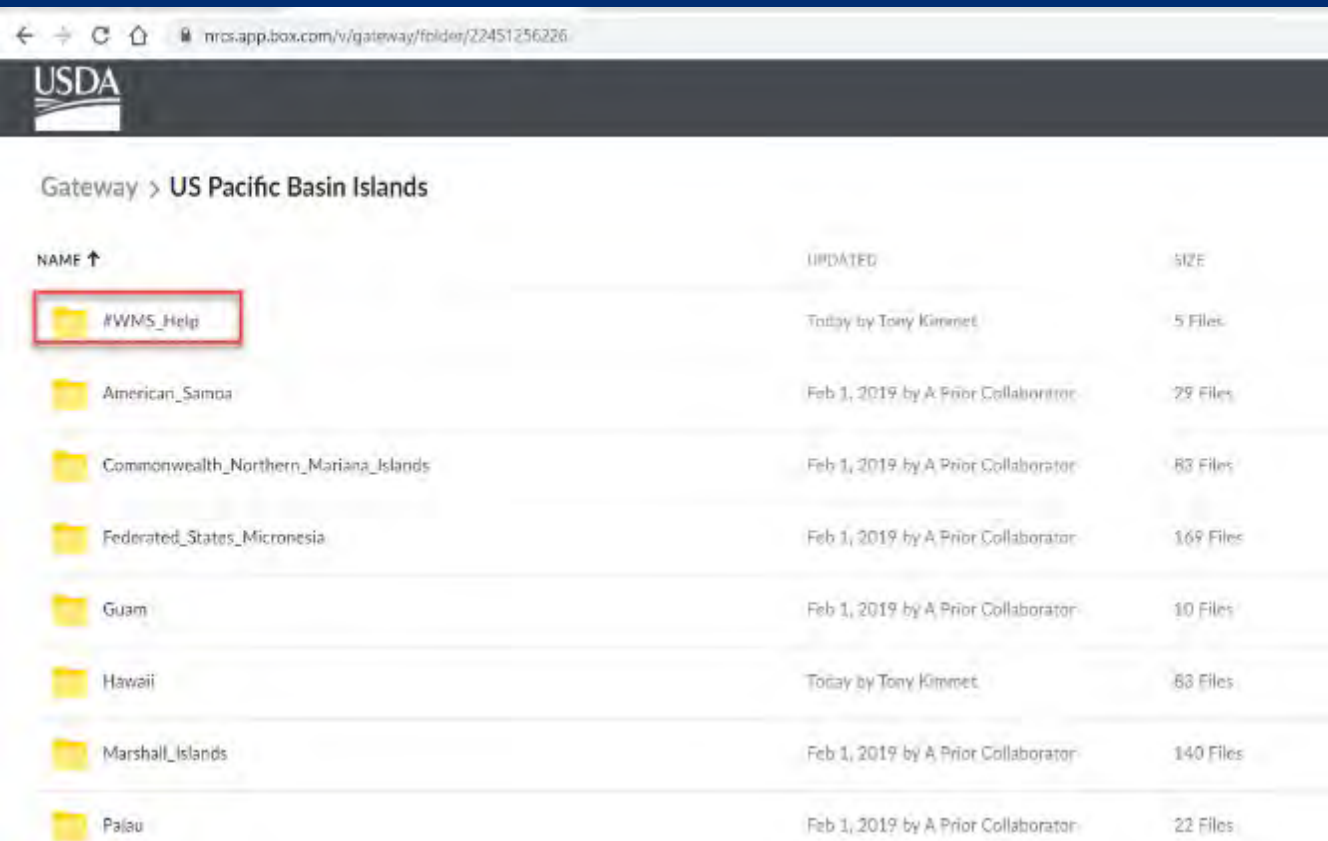
Current Version: 10.81

View Footprints In: [ArcGIS Online Map Viewer](#)

Services:

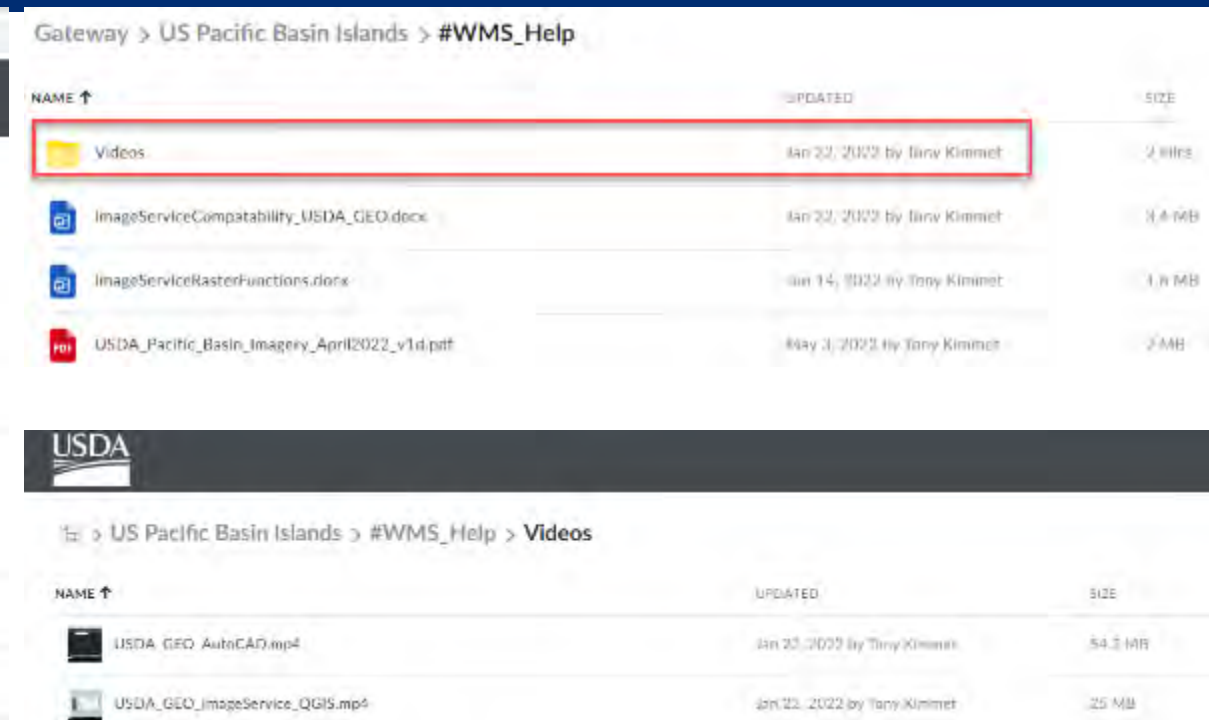
- [ortho\\_imagery/ahap\\_metadata](#) (MapServer)
- [ortho\\_imagery/ahapcolorbalance](#) (ImageServer)
- [ortho\\_imagery/ahap](#) (ImageServer)
- [ortho\\_imagery/alaska\\_delta\\_junction\\_2021\\_metadata](#) (MapServer)
- [ortho\\_imagery/alaska\\_delta\\_junction\\_2021](#) (ImageServer)
- [ortho\\_imagery/alaska\\_vivid\\_metadata](#) (MapServer)
- [ortho\\_imagery/alaska\\_vivid](#) (ImageServer)
- [ortho\\_imagery/american\\_samoa\\_vivid](#) (ImageServer)
- [ortho\\_imagery/americansamoa\\_vivid\\_metadata](#) (MapServer)
- [ortho\\_imagery/cnmi\\_vivid\\_metadata](#) (MapServer)
- [ortho\\_imagery/cnmi\\_vivid](#) (ImageServer)
- [ortho\\_imagery/guam\\_vivid\\_metadata](#) (MapServer)
- [ortho\\_imagery/guam\\_vivid](#) (ImageServer)
- [ortho\\_imagery/hawaii\\_vivid\\_metadata](#) (MapServer)
- [ortho\\_imagery/hawaii\\_vivid](#) (ImageServer)
- [ortho\\_imagery/marshall\\_islands\\_vivid2021\\_metadata](#) (MapServer)
- [ortho\\_imagery/marshall\\_islands\\_vivid2021](#) (ImageServer)
- [ortho\\_imagery/micronesia2021\\_metadata](#) (MapServer)
- [ortho\\_imagery/micronesia2021](#) (ImageServer)
- [ortho\\_imagery/nhap2\\_colorbalance](#) (ImageServer)
- [ortho\\_imagery/nhap2\\_metadata](#) (MapServer)
- [ortho\\_imagery/nhap2](#) (ImageServer)
- [ortho\\_imagery/nhap\\_All](#) (ImageServer)
- [ortho\\_imagery/nhap\\_colorbalance](#) (ImageServer)
- [ortho\\_imagery/nhap\\_metadata](#) (MapServer)
- [ortho\\_imagery/palau\\_vivid\\_metadata](#) (MapServer)
- [ortho\\_imagery/palau\\_vivid](#) (ImageServer)

# Help on Using USDA Web Map Services



Gateway > US Pacific Basin Islands

NAME ↑	UPDATED	SIZE
#WMS_Help	Today by Tony Kimmet	5 Files
American_Samoa	Feb 1, 2019 by A Prior Collaborator	29 Files
Commonwealth_Northern_Mariana_Islands	Feb 1, 2019 by A Prior Collaborator	83 Files
Federated_States_Micronesia	Feb 1, 2019 by A Prior Collaborator	169 Files
Guam	Feb 1, 2019 by A Prior Collaborator	10 Files
Hawaii	Today by Tony Kimmet	63 Files
Marshall_Islands	Feb 1, 2019 by A Prior Collaborator	140 Files
Palau	Feb 1, 2019 by A Prior Collaborator	22 Files



Gateway > US Pacific Basin Islands > #WMS\_Help

NAME ↑	UPDATED	SIZE
Videos	Jan 20, 2022 by Tony Kimmet	2 files
ImageServiceCompatability_USDA_GEO.docx	Jan 20, 2022 by Tony Kimmet	1.4 MB
ImageServiceRasterFunctions.docx	Jan 14, 2022 by Tony Kimmet	1.6 MB
USDA_Pacific_Basin_Imagery_April2022_v1.d.pdf	May 3, 2022 by Tony Kimmet	2 MB

USDA Gateway > US Pacific Basin Islands > #WMS\_Help > Videos

NAME ↑	UPDATED	SIZE
USDA_GEO_AutoCAD.mp4	Jan 20, 2022 by Tony Kimmet	54.2 MB
USDA_GEO_ImageService_QGIS.mp4	Jan 20, 2022 by Tony Kimmet	25 MB

There is helpful documentation and videos on how to use USDA Satellite WMS in ArcMap, ArcPro, QGIS-AutoDesk/AutoCAD.

<https://nrcs.app.box.com/v/gateway/folder/154646807634>

# Satellite Based Hawaii Web Map Services

The screenshot shows the ArcMap interface. On the left, the 'Table Of Contents' panel displays a list of layers. The layer 'ortho\_imagery\hawaii\_vivid' is selected and highlighted in blue. Below it, the 'Layers' panel shows the RGB color scheme: Red: Band\_3, Green: Band\_2, and Blue: Band\_1. A red arrow points from this layer to the 'Layer Properties' dialog box. The 'Layer Properties' dialog box has several tabs: 'General', 'Source', 'Key Metadata', 'Extent', 'Display', 'Symbology', 'Processing Templates', and 'Mosaic'. The 'Processing Templates' tab is selected and highlighted with a red box. In this tab, the 'Function' dropdown menu is open, showing options: 'Natural Color', 'Natural Color', 'Color Infrared (CIR)', 'NDVI Colorized', and 'None'. The 'Natural Color' option is selected and highlighted with a blue background. Below the dropdown, the 'Help' text reads: 'Natural Color: Red: Band 3, Green: Band 2, Blue: Band 1, Stretch type: 6.5 standard deviations'. The 'Inputs' section at the bottom is empty.

Hawaiian Islands ImageServer Services has three layers

- Natural Color
- Color Infrared
- NDVI (Testing Phase)

- In both ArcMap or ArcPro, select "ortho\_imagery\hawaii\_vivid" and then layer properties.
- You will see a tab for processing templates. Select this and then the Function (Natural Color, Color Infrared (CIR) and NDVI.

# Satellite Based Hawaii Web Map Services - Metadata

## Hawaii ImageServer Service Metadata

- Select any polygon to find out what the image acquisition date, satellite sensor etc...
- Over 300 Satellite Scenes were mosaics together.

Table Of Contents

Layers

- ortho\_imagery/hawaii\_vivid\_metadata
- hawaii\_vivid\_metadata
- ortho\_imagery\hawaii\_vivid

Identify

Identify from: <Top-most layer>

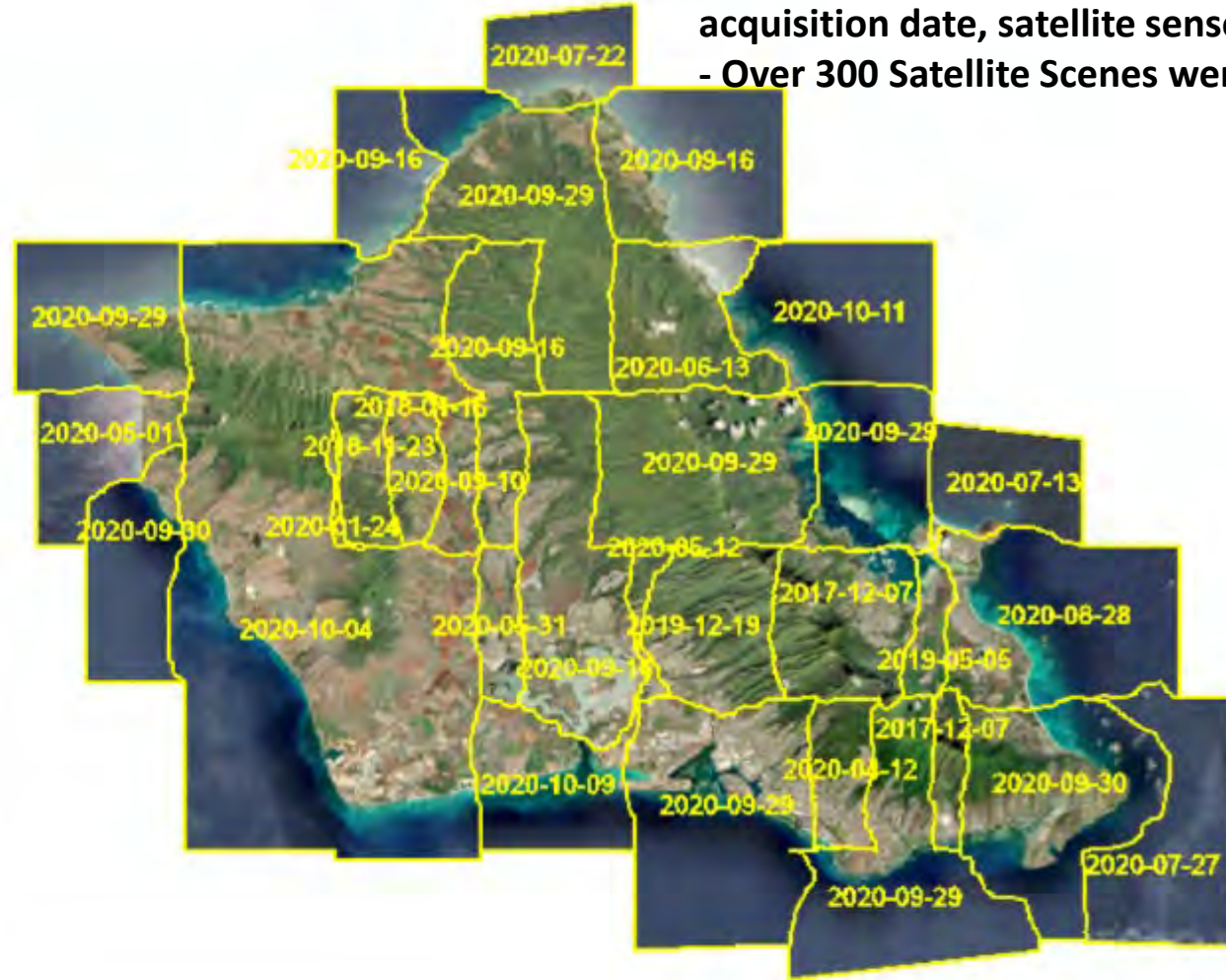
hawaii\_vivid\_metadata

104001006074DB00

Location: -17,574,500.815 2,430,727.983 Meters

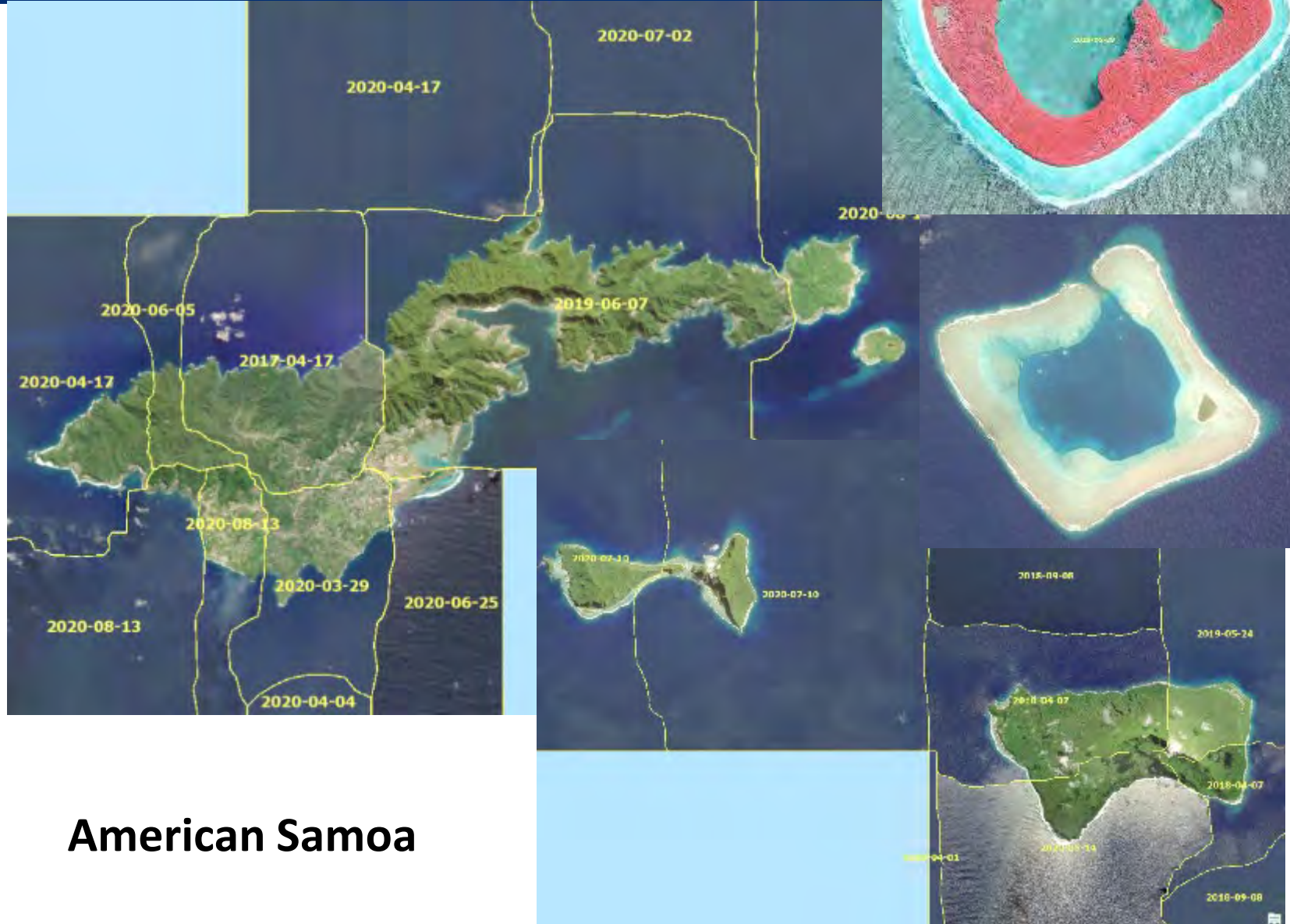
Field	Value
OBJECTID	53
catalog_id	104001006074DB00
acq_date	2020-09-29
sensor	WV03
off_nadir	18.71416
sun_elev	61.394398
cloudcover	0
accuracy	5
Shape	Polygon
Shape.STArea()	0.014517
Shape.STLength()	0.544001

Identified 1 feature





## Guam



## American Samoa

# Palau

# Vivid Basemap 2021

USDA acquires land masses and shallow water coral reef areas.



## **Imagery Acquisitions 2021+ USDA-FPAC-BC-GEO**

- 1) New USDA imagery Blank Purchase Agreement (NAIP) for Hawaii**
- 2) Completed satellite imagery acquisitions (Vivid Basemap for all areas of Hawaii and US Pacific Basin).**
- 3) Potentially new satellite acquisitions for Alaska, Hawaii and US Pacific Basin (2023+).**
- 4) USDA has funded over 2.5 M in new imagery acquisitions 2021-2023 for AK-HI-US Pac Basin**

## USDA GIS-Imagery Data Availability Links

- **Current Satellite based Web Map Services (Alaska, Hawaii and US Pacific Basin):**  
[https://nrcsgeoservices.sc.egov.usda.gov/arcgis/rest/services/ortho\\_imagery](https://nrcsgeoservices.sc.egov.usda.gov/arcgis/rest/services/ortho_imagery)
- **Documentation and Videos on loading of the above WMS:**  
<https://nrcs.app.box.com/v/gateway/folder/154646807634>
- **Compressed Mosaics of the Hawaiian Islands and Pacific Basin Datasets are available at the USDA Gateway:**  
<https://nrcs.app.box.com/v/gateway/folder/22451256226>
- **Future NAIP WMS for Hawaii (~June 2023):**  
<https://gis.apfo.usda.gov/arcgis/rest/services>

**End of Presentation  
Thank You for your time!**