The View from Above: How to Access and Use New Aerial Imagery

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COLLEGE OF AGRICULTURE, HEALTH AND NATURAL RESOURCES
Extension

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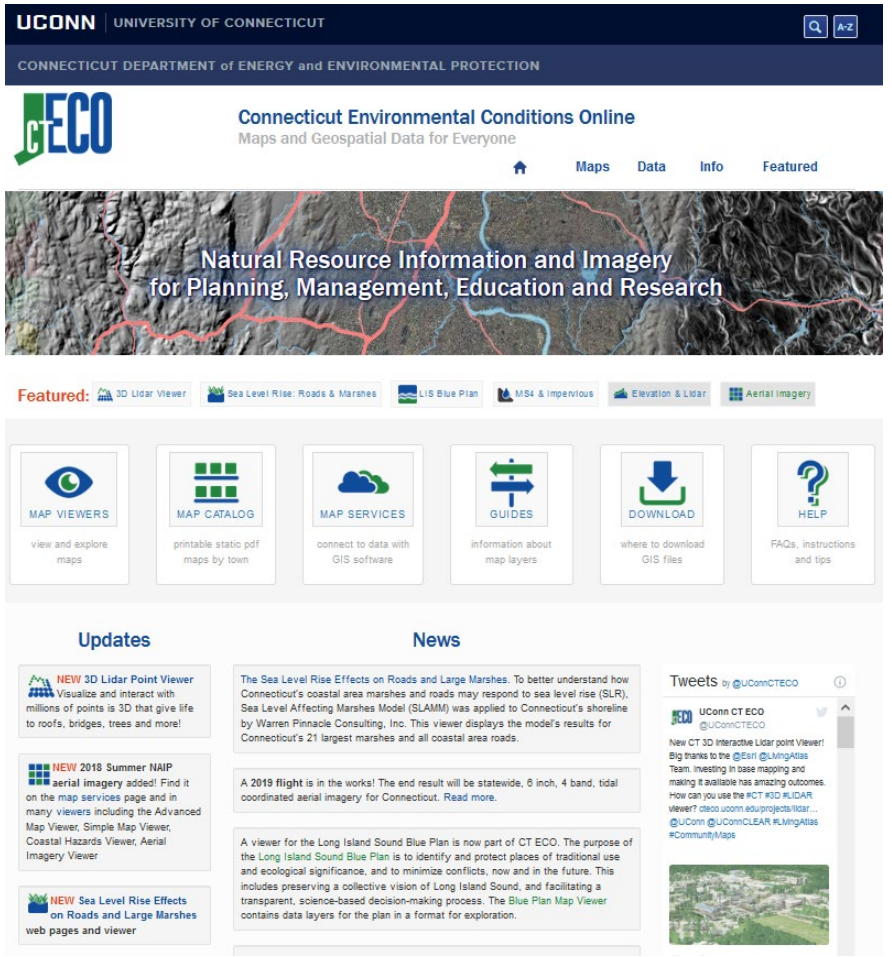
@UConnCTECO

- a website containing Connecticut's statewide, geospatial information
- a partnership between CT Dept. of Energy and Environmental Protection and the University of Connecticut



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CT ECO

cteco.uconn.edu

Outline

- Aerial Imagery on CT ECO
  - Info pages
  - Aerial Imagery Viewer
- 2019 Imagery
  - Overview
  - Services
- Connect to Services
  - ArcGIS Online
  - ArcPro
- Download
- Questions

Aerial Imagery Datasets on CT ECO

Similarities

- Captured with a camera on an airplane
- Have requirements for
  - minimal clouds
  - high sun angles (reduce shadows)
  - NADIR (looking straight down)
- Corrected for terrain (orthophotography)

Differences

- Pixel size (spatial resolution)
- Season (leaf off vs leaf on)
- Number of bands (true color, false color near infrared)
- Year & dates of capture

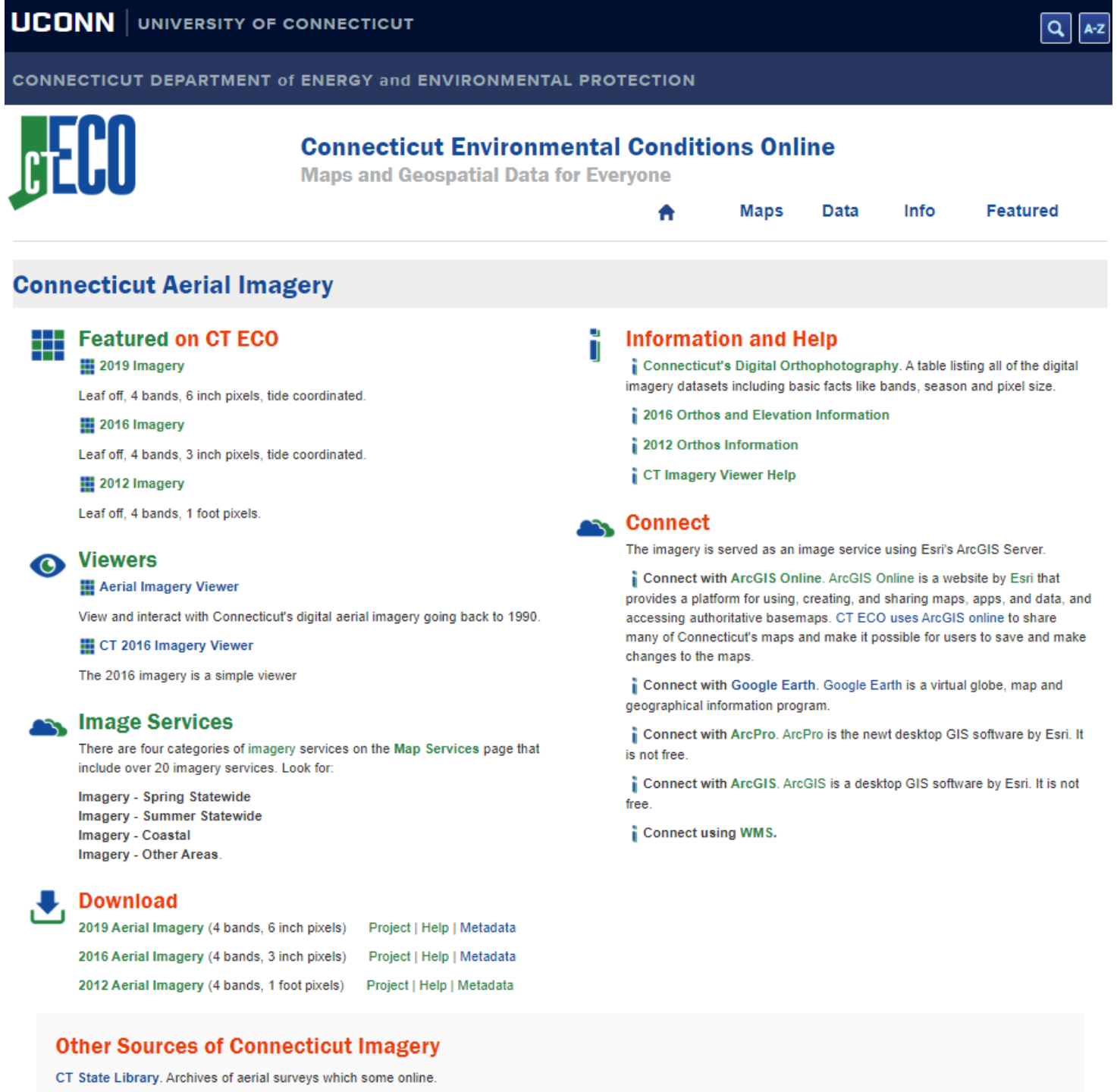
20 Datasets!

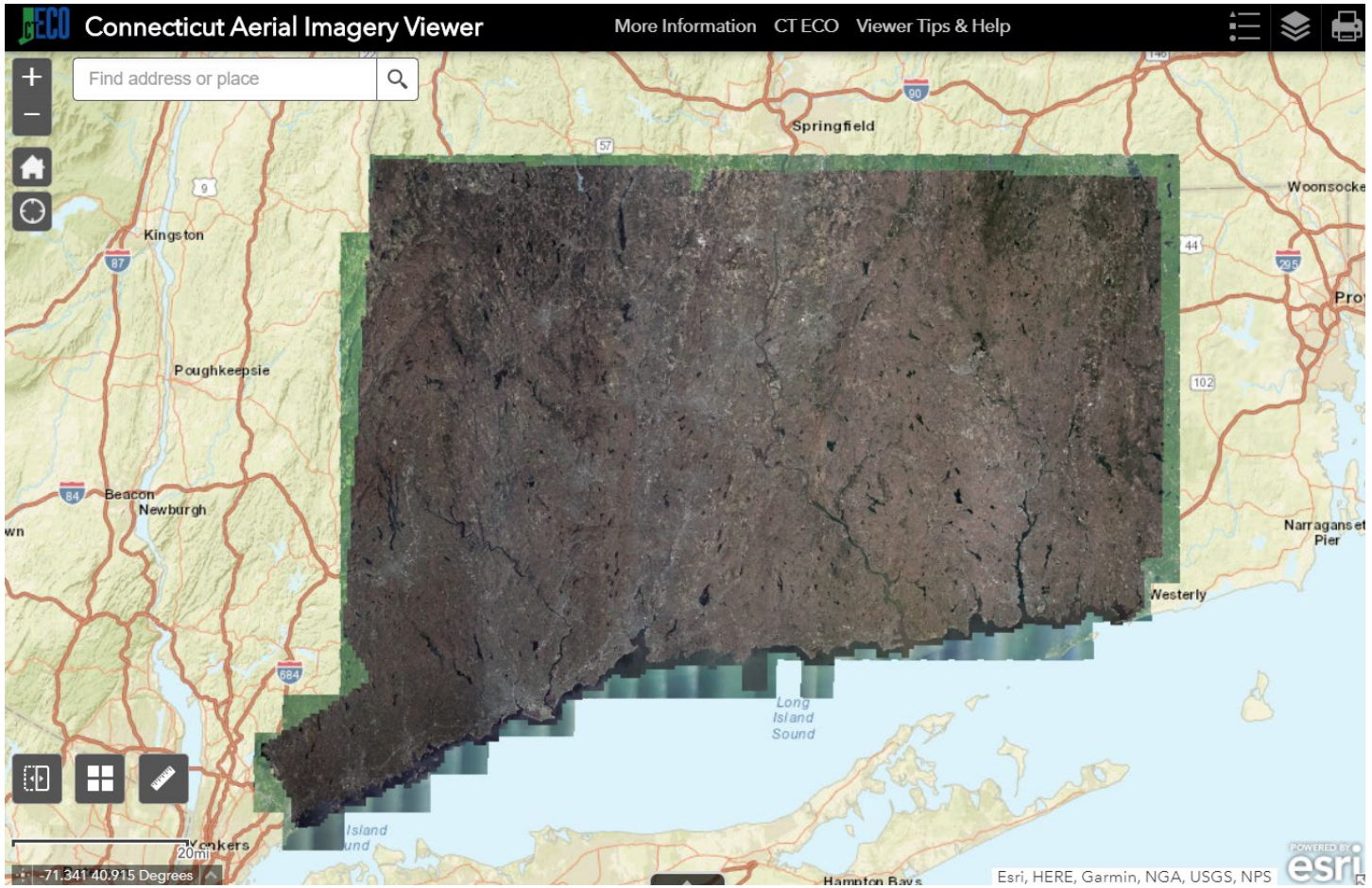
Glossary

- Ortho = orthoimagery which as been corrected for terrain
- NAIP = National Agriculture Imagery Program
  - United States Department of Agriculture (USDA) Farm Service Agency
  - National coverage, flown during the growing season
  - CT digital: 2006, 2008, 2010, 2012, 2016, 2018
- NIR or IR = Near Infrared band combination
  - Near infrared band of the imagery paired with the red of the computer so healthy vegetation is red (has to do with photosynthesis and reflectance)
- Imagery naming
  - Year of capture + color or infrared + season + pixel resolution

CT ECO Imagery One-stop

cteco.uconn.edu/data/imagery/





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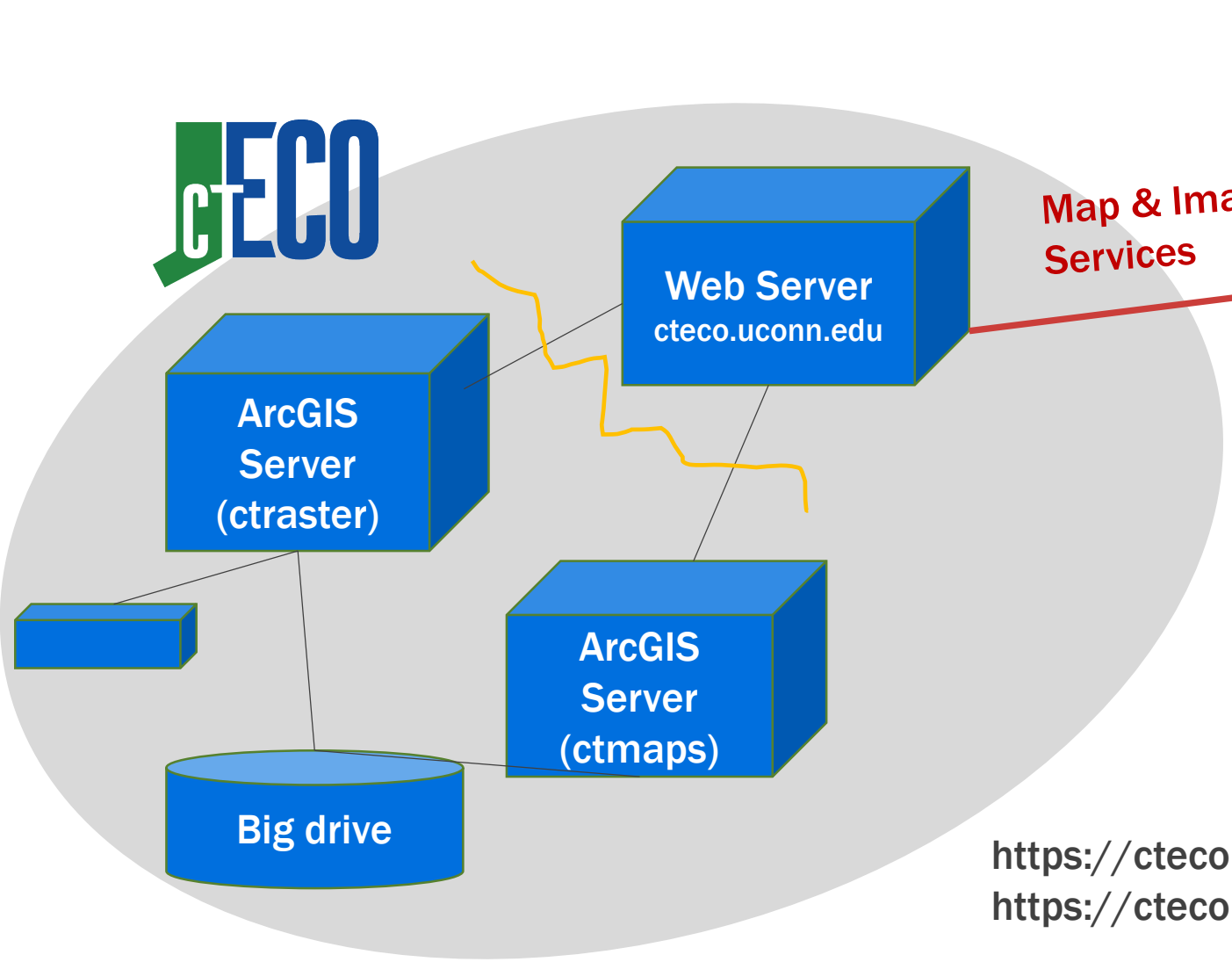
CT ECO Aerial Imagery Viewer

http://cteco.uconn.edu/viewers/index.htm#aerial

http://s.uconn.edu/aerialviewer/

Services



Map & Image Services

Cloud: ArcGIS Online

Desktop GIS: ArcPro, ArcMap
Open Source: WMS

Viewers

Others

https://cteco.uconn.edu/ctmaps/rest/services/
https://cteco.uconn.edu/ctraster/rest/services/

Services

- **Map service**

  ArcGIS server service to make maps available via the web.

- **Image service**

  ArcGIS server service to make pixel-based imagery available through the web.

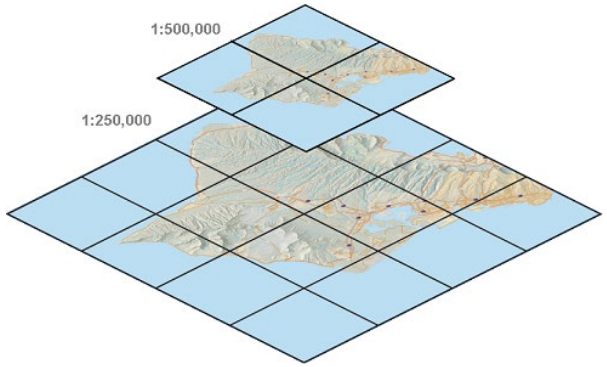
  Image services support on-the-fly processing such as symbology and raster functions.

- **Dynamic service**

  data access through a service.

- **Tiled or cached service**

  pre-created tile access through a service. How: many, many pre-made tiles (pictures) of the data are created and stored. The result is faster access.



Map and Image Services

Map and Image Services are a means of dynamically accessing GIS data over the Internet. This is an advanced section of the CT ECO website meant for GIS software users interested in using services from CT ECO with their own GIS software and geographic data. Scroll down the list for imagery.

Notice that most Map Services contain multiple layers. After adding the map service to your GIS, expand the group and turn on (check) the data layers.

HOW TO CONNECT

FAQS | CT IMAGERY INFO

- Base Maps
- Bioscience
- Built Environment
- Coastal
- Elevation
- Geology
- Hydrography
- Land Cover
- Open Space
- Political Boundaries
- Soils
- Watershed
- Water Resources
- **Imagery - Spring Statewide**
- Imagery - Summer Statewide
- Imagery - Coastal
- Imagery - Other Areas

2019 Spring 4 band, 6inch

Server URL for dynamic service: https://cteco.uconn.edu/ctraster/rest/services/images/Ortho_2019/ImageServer

This service has a stretch applied for better viewing. Change to NIR or remove stretch with raster functions in ArcGIS Online, ArcMap or ArcPro.

Server URL for cached service: https://cteco.uconn.edu/ctraster/rest/services/images/Ortho_2019_tiled/ImageServer

help: dynamic vs tiled/cached service

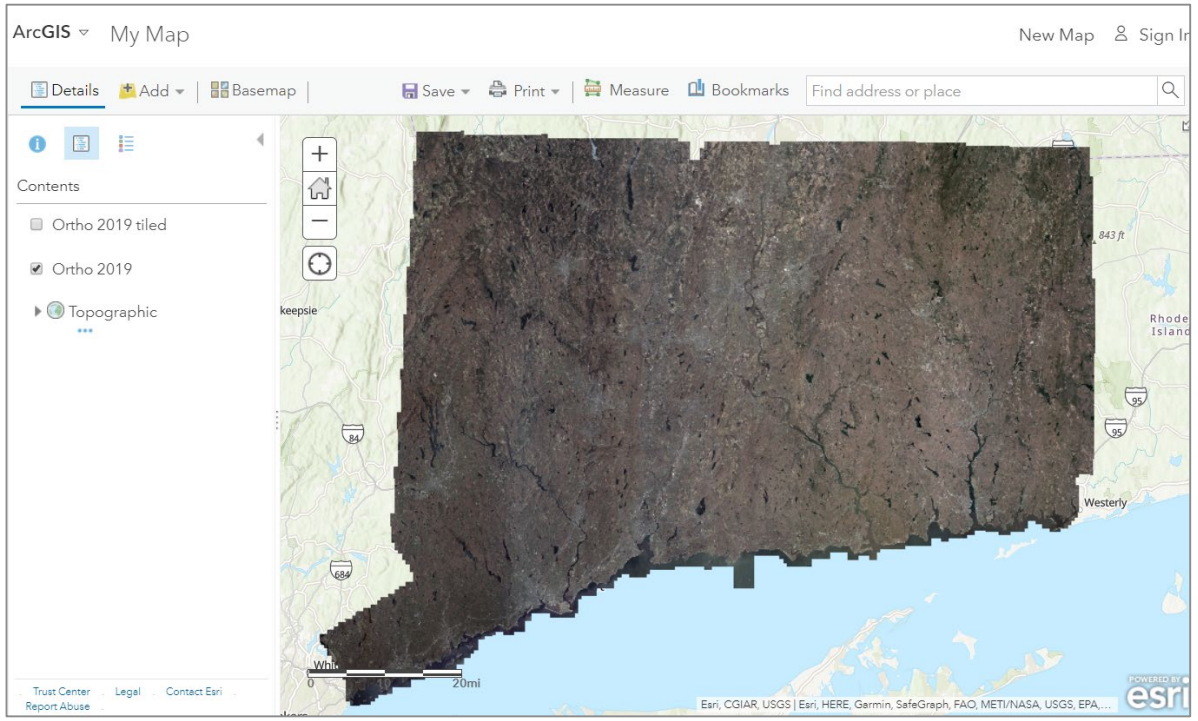
Server URL for 4-band dynamic service: https://cteco.uconn.edu/ctraster/rest/services/images/Ortho_2019_orig/ImageServer

This service is the original, 4-band imagery and is best for connecting in a GIS.

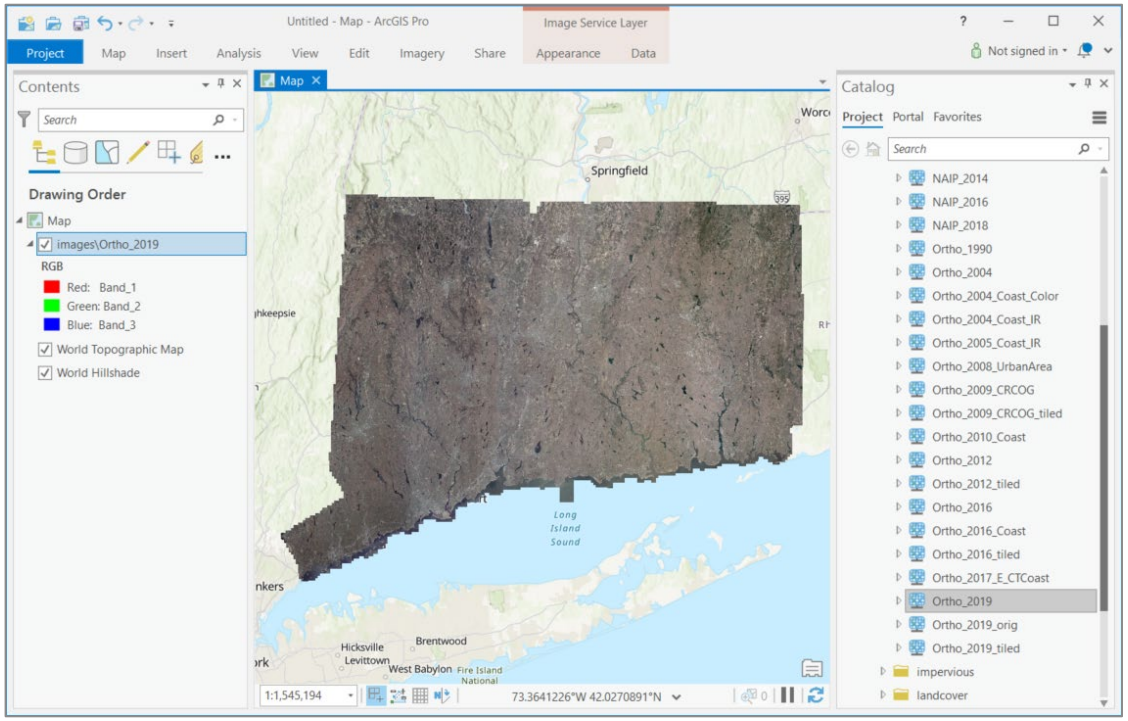
Layer List

2019 Spring Imagery Metadata | Download

ArcGIS Online



ArcGIS Pro



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Add Services

2019

6 inch pixels

- Tiles (23,381)
  - Tif (195Mb)
- Town mosaics
  - MrSID (615Mb - 5.8Gb)

2016

3 inch pixels

- Tiles (23,381)
  - Tif (391Mb)
  - MrSID tiles (14Mb – 20Mb)
- Town mosaics
  - MrSID (1Gb – 12Gb)
- Elevation files

2012

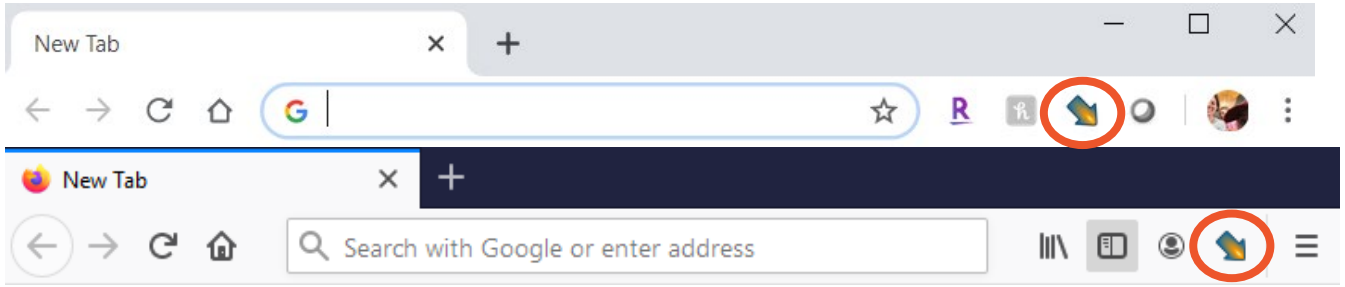
1 foot pixels

- Tiles (6131)
  - Tif (97Mb)
  - MrSID tiles (14Mb – 20Mb)

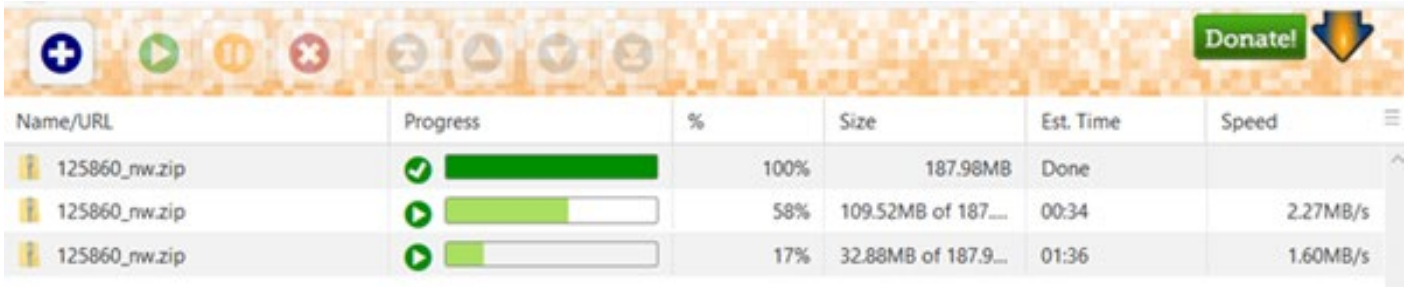
Download

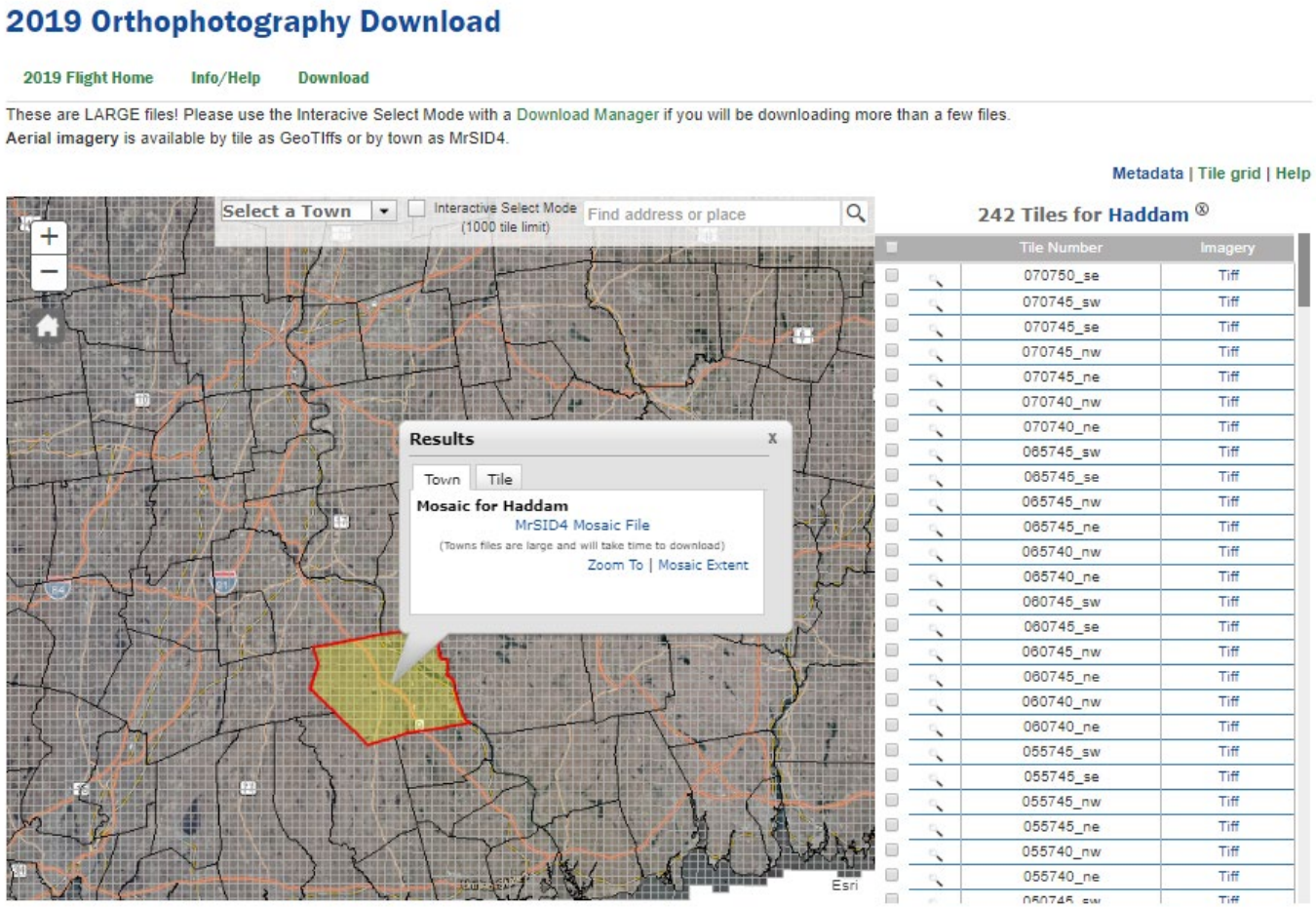
Download Manager

- *DownThemAll* but use what you like
- Firefox, Chrome, Opera



- Puts download files in line




2019 Orthophotography Download
2019 Flight Home
Info/Help
Download
These are LARGE files! Please use the Interacive Select Mode with a Download Manager if you will be downloading more than a few files.
Aerial imagery is available by tile as GeoTIffs or by town as MrSID4.
Metadata | Tile grid | Help
Select a Town
Interactive Select Mode
(1000 tile limit)
Find address or place
Results
Town
Tile
Mosaic for Haddam
MrSID4 Mosaic File
(Towns files are large and will take time to download)
Zoom To | Mosaic Extent
242 Tiles for Haddam
Tile Number
Imagery
070750_se Tiff
070745_sw Tiff
070745_se Tiff
070745_nw Tiff
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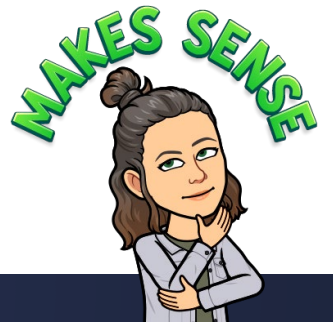
Team Effort, again

- CT Office of Policy and Management (OPM)
- United States Geologic Survey (USGS)
- US Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS)
- CT Department of Transportation (DOT)
- CT Department of Emergency Services and Public Protection (DESPP)
- CT Department of Energy and Environmental Protection (DEEP)

There are real people in each of these agencies making this happen.

Take Home Message

- Each flight happens when mapping folks at different agencies are able to find enough money.
- The imagery benefits each of these agencies along with other state, regional and municipal government, businesses, non-profits, utilities, education and many others.
- A more predictable funding mechanism and data collection cycle would
  - Reduce redundant data collection by different entities
  - Provide predictability and planning
  - Save money!



Questions & Thank you

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