GRIME-AI User Guide
v0.0.5.9

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DOWNLOAD USGS DATA

This feature facilitates downloads of USGS HIVIS imagery. If streamflow (stage and discharge) data are available from a co-located gauge, those are also downloaded automatically.

1. Open GRIME-AI. This may take up to a minute.

2. Select the USGS Sites tab.

3. Select a USGS HIVIS site of interest. The latest available image and site metadata will be displayed, sometimes including information on sensor data availability.

4. Select the USGS Download Manager tab. Three key components are highlighted below: Image count, Date range selector, and Download folder.

Selected image count
(this may be blank initially).

Date range selector.

Download folder

5. Click the browse button to navigate to and select a download folder location.

2. After navigating to or creating the desired folder, click Select Folder

1. Click here to open folder explorer

6. Now that a download folder is selected, choose the desired date range for imagery. Currently, the Start Time and End Time options are not functional for USGS (only NEON).

7. Click the browse button to navigate to and select a download folder location.

Click Download to acquire imagery and
streamflow data (if available).

8. …

DOWNLOAD PhenoCam and NEON DATA

This feature facilitates downloads of PhenoCam imagery at NEON Aquatic-Terrestrial Interface sites. NEON data products can also be downloaded.

1. Open GRIME-AI. This may take up to a minute.

2. Select the NEON Sites tab (this is currently the default tab when GRIME-AI opens).

3. Select a NEON site of interest. The latest available PhenoCam image (if available) and site metadata will be displayed. Other NEON data products will also be listed.

4. Select desired data products. Hold the control (Ctrl) and click to select multiple products.

5. Select the NEON Download Manager tab. Three key components are highlighted below: Image count, Date range selector, and Download folder.

6. A fourth feature of the NEON Download Manager is the ability to choose a daily time window for imagery download. This can significantly shorten the required download time. For example, entering 12:00 and 13:30 in the Start Time and End Time boxes will result in a download with imagery that is only from noon to 1:30 pm (e.g., about 6 images/day if images were collected at 15-minute intervals).

7. Click the browse button to navigate to and select a download folder location.

2. After navigating to or creating the desired folder, click Select Folder

1. Click here to open folder explorer

8. Now that a download folder is selected, choose the desired date range for imagery. If desired, set the Start Time and End Time to reduce the number of images that will download.

9. Click the browse button to navigate to and select a download folder location.

Click Download to acquire imagery and streamflow data (if available).

10. Data products that are available for the selected time period will appear in the selected folder location. Individual sub-folders will hold data and metadata for each product.

COMPOSITE SLICE

This feature will create slices of all images in a folder and assemble into composite image(s) that can be quickly reviewed for qualitative insights.

Example of original imagery in a folder (top) and a composite slice (bottom) to qualitatively explore these images for water level, location of the calibration target, etc.
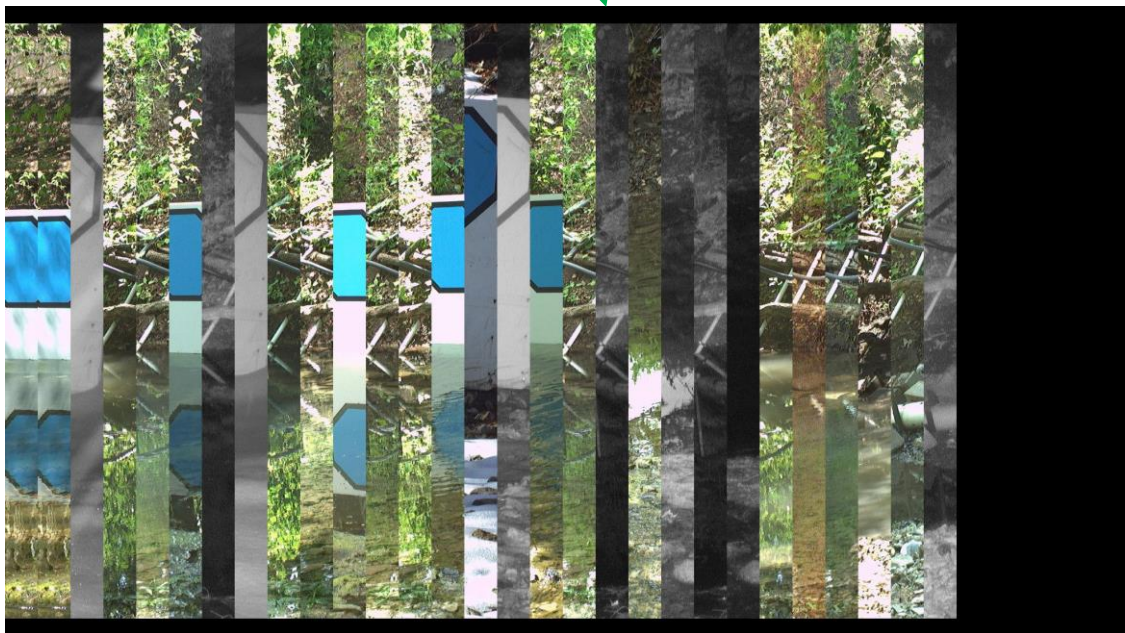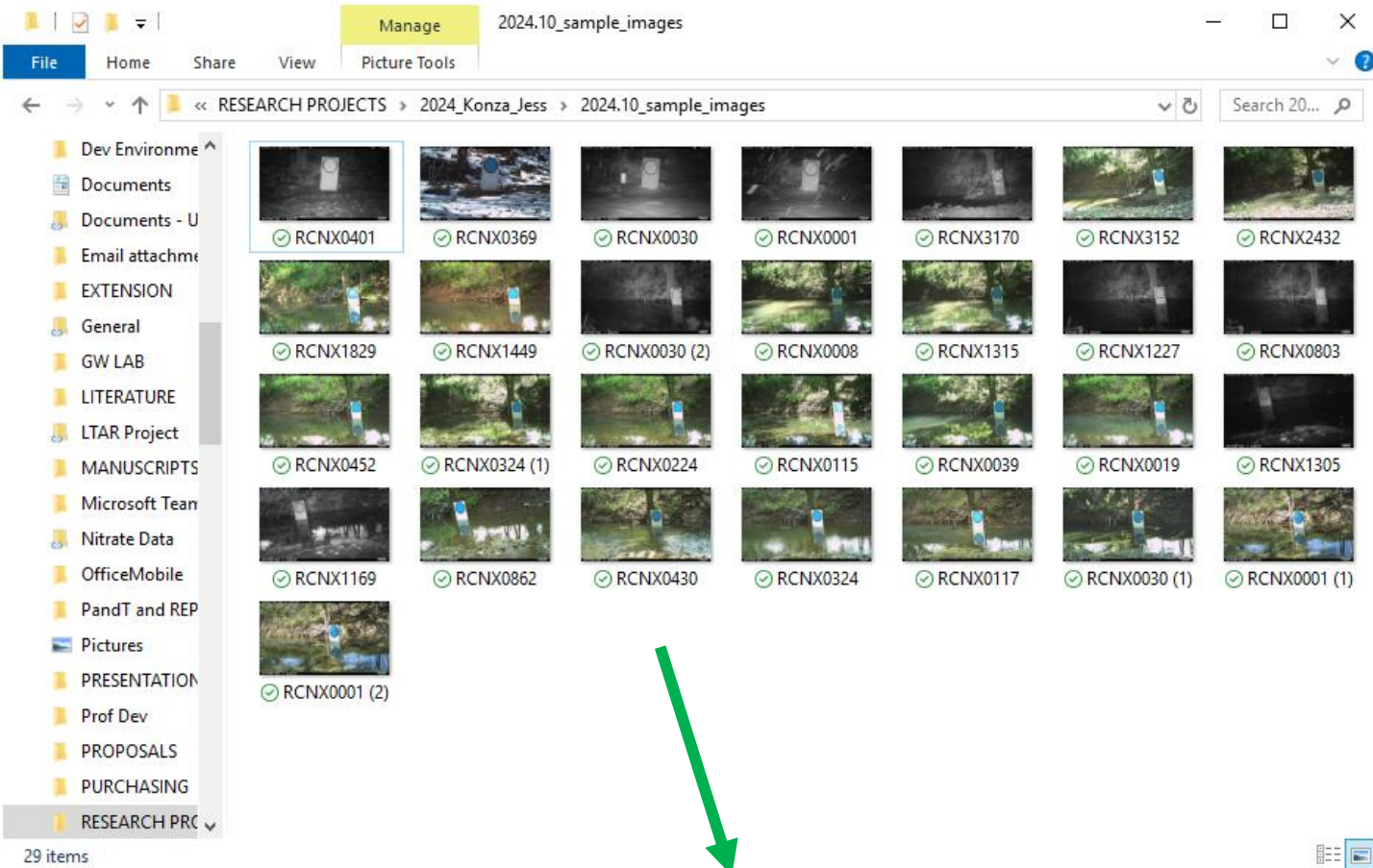
Composite images are the same size as the first image in the folder. Some black space may appear. Or, if the original image size is not large enough to hold all slices, then multiple composite images will be created..

First, you need to select a folder of images to slice. Click the Folder Operations icon in the upper left corner of GRIME-AI, then select a folder of images.
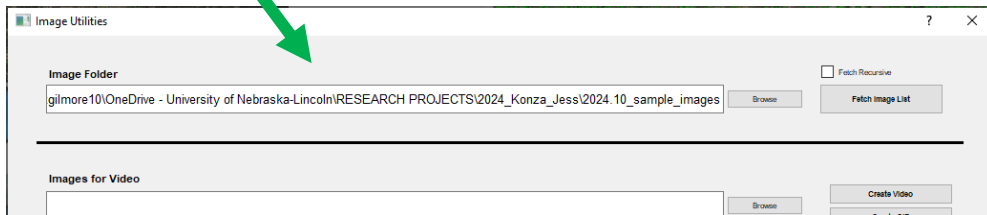
Click browse to select the folder of images

After selecting folder, click Fetch image list
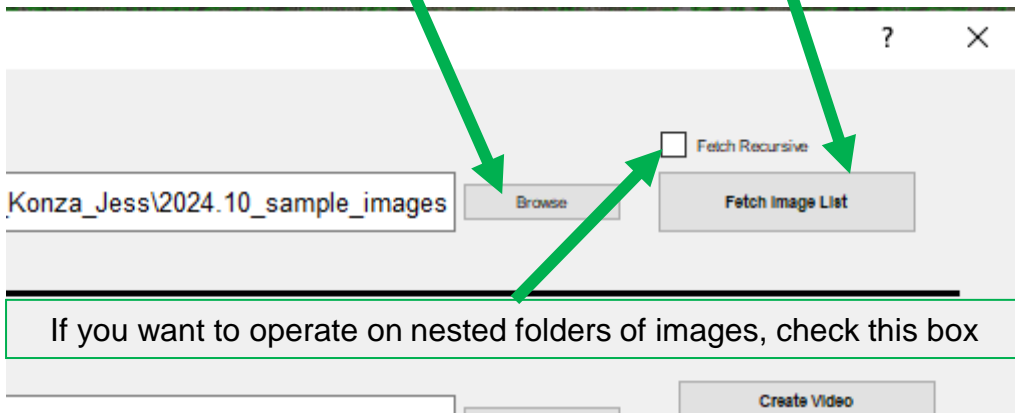
If you want to operate on nested folders of images, check this box

After clicking Fetch Image List, you should see a navigation tool pop up. If you do not, be sure it's not hidden behind the main GRIME-AI window or located on another screen (if you're using multiple monitors).
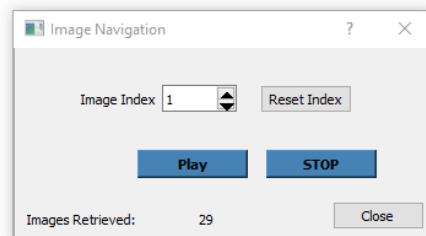
Before slicing, you can manually view images in the folder.

Use this toggle on the Image Navigation tool to click view different images. If you want to jump ahead or back, type a number in the Image Index text box.
(NOTE: Play/Stop buttons are currently in development and may not be operational.)

Go to the Composite Slice tool in the menu bar.
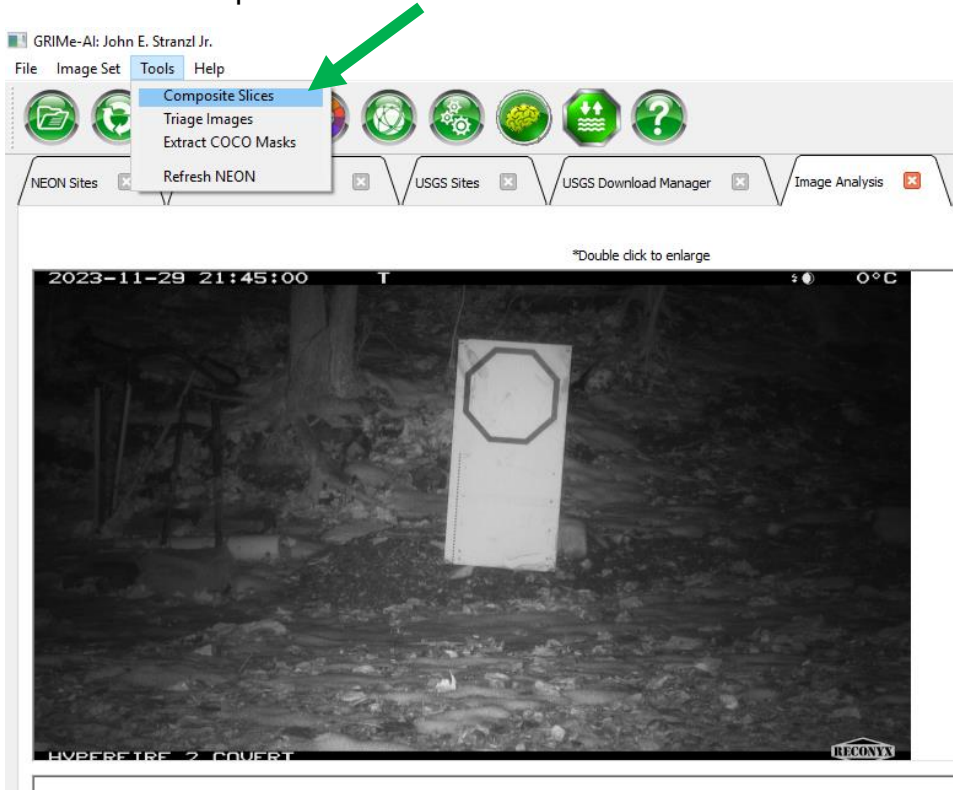
Choose the slice location and width in the Composite Slice tool.

Slice location slider

Slice width selector

Generate composite image(s)!
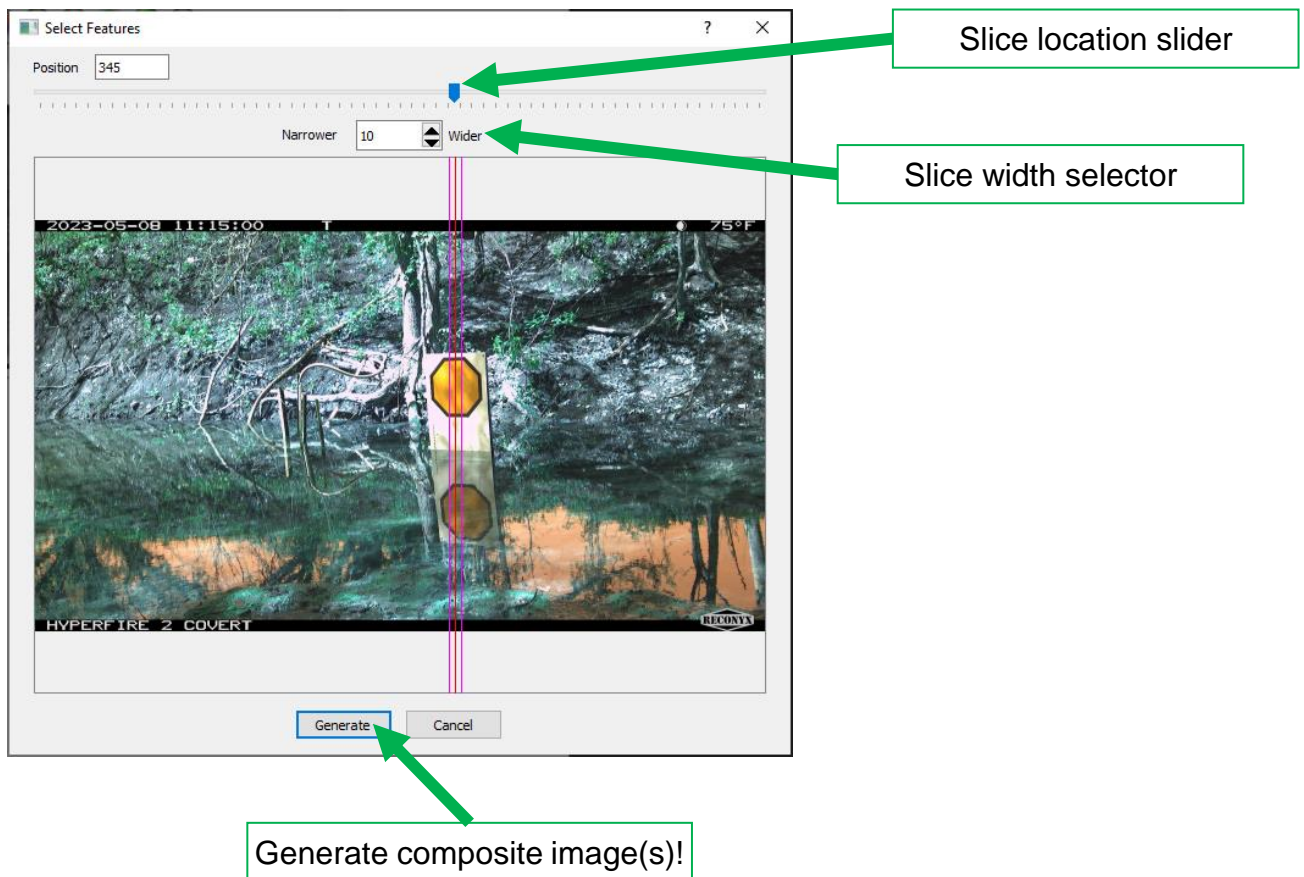
EXAMPLE APPLICATION: Using composite image slices to determine optimal locations for calibration target search ROI and water edge (line find) ROI for use in GRIME2 software.

Approximate vertical location and height of Target search ROI needed to encompass octagons in all of these images.

Top of the water level (Line Find) search ROI need to be BELOW this height to avoid erroneous detection of the octagon as if it is the water line.

Water level (Line Find) search ROI needs to extend at least to this height in the image to capture all water levels in this set of images.

CREATE MASKS FROM A COCO FILE

This feature will create a folder of masks from a COCO file. COCO files can be exported from annotation software (e.g., CVAT) for use with this feature.

Adding COCO Files to GRIME-AI

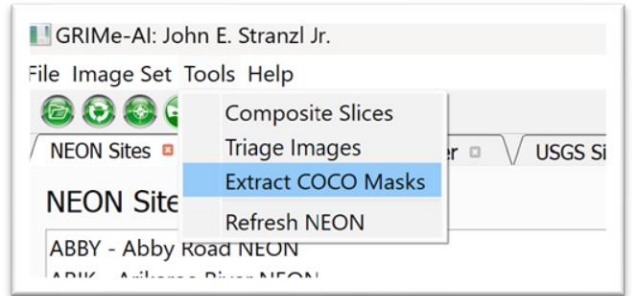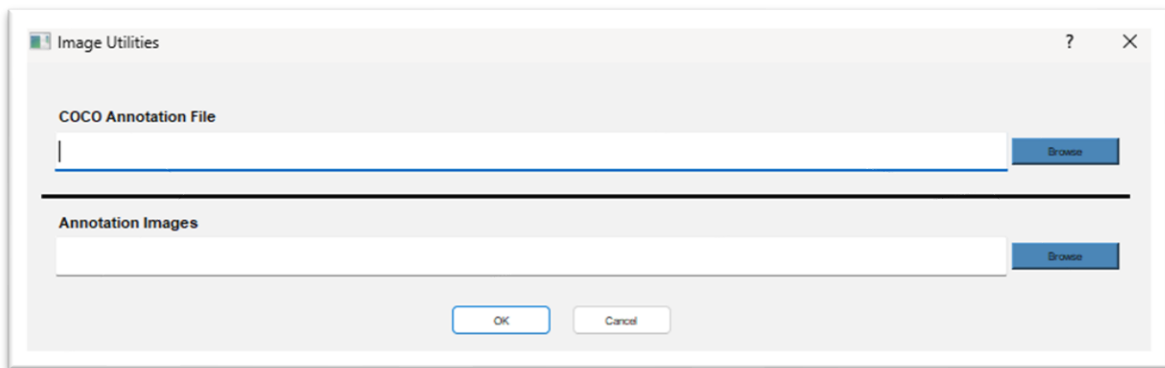Navigate to the 'Extract COCO Masks' section from 'Tools' at the top of the GRIME-AI menu.

A window titled 'Image Utilities' will pop up. Select 'Browse' in the 'COCO Annotation File' section. Select a JSON file in the COCO format. Then, use 'Browse' feature for the 'Annotation Images' section. Select a folder to store the output mask.

Just like that, you should have binary masks for your COCO file!