

Only registered users may access The Sail Cloud. To sign up for a new account, visit [TheSailCloud.com](http://TheSailCloud.com).

\*The Sail Cloud is mobile-responsive, but initial setup is recommended from a desktop web browser.

\*Chrome is the recommended web browser for use during the Beta Test period of the application.

\* Do not use safari browser

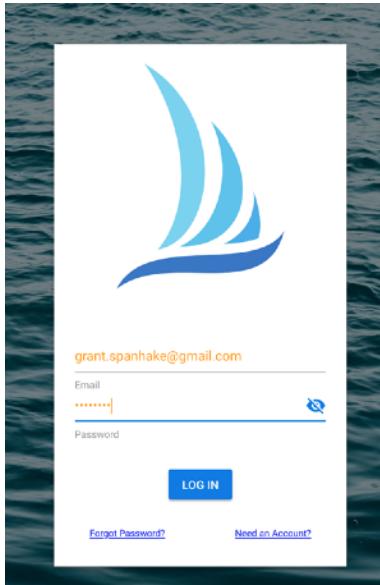
*This page intentionally left blank.*

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## Login



Visit [sailscan.thesailcloud.com](https://sailscan.thesailcloud.com) to login.

## Help button



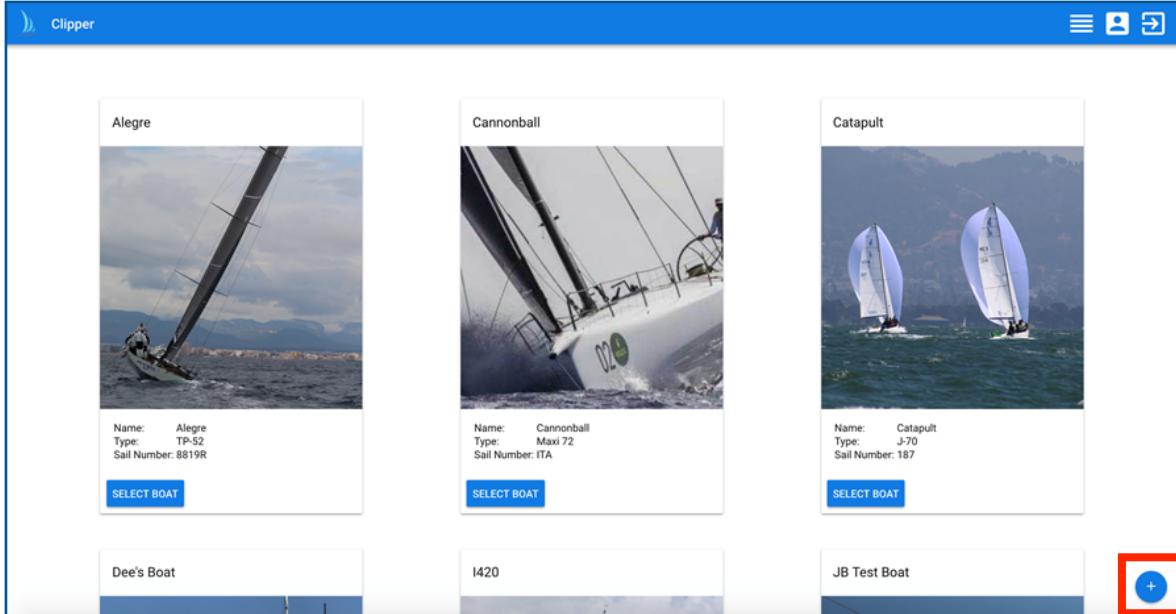
There is a help button which takes you to the video links on the sail cloud web site:  
<https://www.thesailcloud.com/videos>

## Getting started flowchart



# Adding a boat

Video Tutorial



New Boat

Choose an image

Name

Type

Sail Number

Notes

SAVE CANCEL

A screenshot of a 'New Boat' creation form. The form has a light gray background. At the top, it says 'New Boat'. Below that is a large input field labeled 'Choose an image' with a placeholder image of a sailboat. Underneath are four text input fields: 'Name', 'Type', 'Sail Number', and 'Notes', each with a horizontal line for input. At the bottom are two buttons: 'SAVE' in blue and 'CANCEL' in green.

Once logged in to the application, you will see your landing page. Once you're all setup, this will display your collection of boats (folders) so that you can easily access the information you need.

To add a new boat, click the "+" button on the bottom right of the page.

A pop-up window will appear, prompting you to fill in a few basic fields to identify the new boat.

None of these fields are mandatory, but it is helpful to include a photo for quick identification upon login etc.

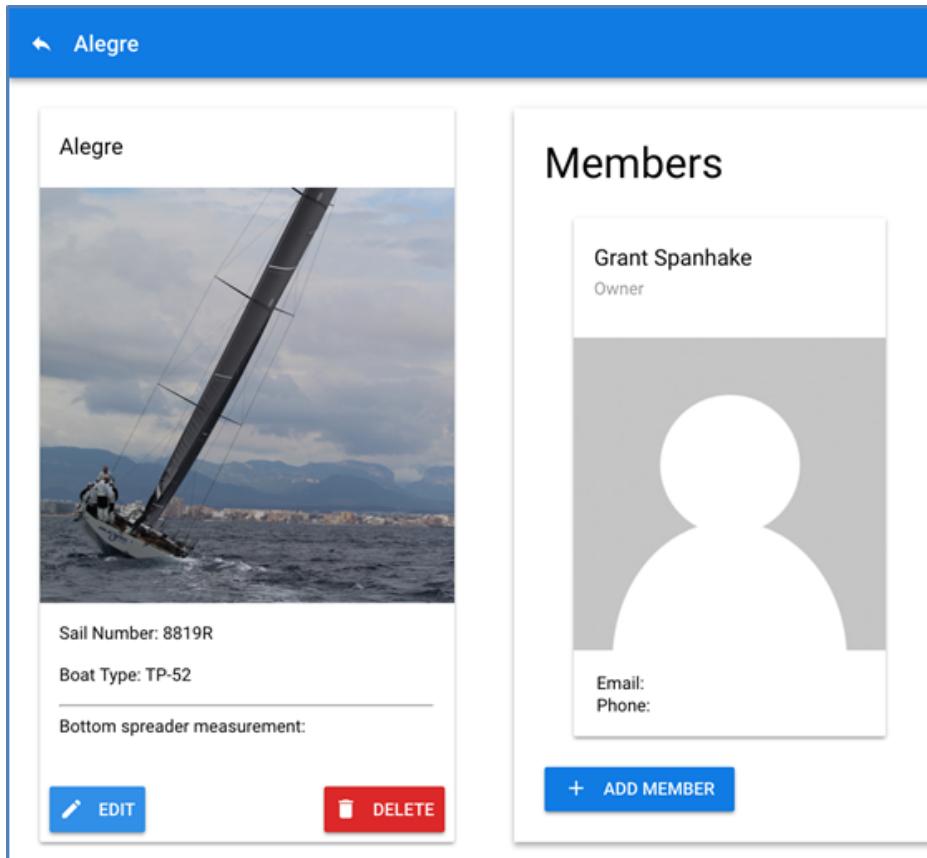
Also, consider utilizing the notes section to store known measurement lengths (i.e. spreaders and stanchion lengths) that you may need for scaling and absolute measurement references.

## Editing a boat (sail inventory, team members etc.)

[Video Tutorials](#)

[Adding a Team Member](#)

[Updating Mast Inventory](#)



By clicking on particular boat on your home page, you'll be taken to that boat's page.

Here, you'll see important information related to shared access, sail inventory, and log variables.

The Sail Cloud allows you to easily share a boat's folder with your team members.

To share access to your boat's folder, click the "Add Member" button. You'll be prompted to enter the email address that you wish to add. If the email address is already associated with a registered user, that person will automatically be added to the folder. If not, an invitation to join The Sail Cloud.

# Updating your sail inventory

To take full advantage of all The Sail Cloud has to offer, it is important to maintain your sail inventory.

Your sail inventory forms the basis of all sail measurements. Storing draft stripe position at the individual sail level makes the measurement process repeatable and more accurate. And, for corporate users, the order number makes it easy to link a sail's performance over time to the original design process.

To add a new sail, click the "Add Sail" button on the bottom of the sail inventory section.

Sail Inventory

Headsails

Headsail | J1  
J1-A-1B  
Stripe 1: 25 %  
Stripe 2: 50 %  
Stripe 3: 75 %  
Order #:  
**ACTIONS**

Mainsails

Mainsail | AP Mainsail  
AP-3  
Stripe 1: 25 %  
Stripe 2: 50 %  
Stripe 3: 75 %  
Stripe 4: 87 %  
Stripe 5: 100 %  
Order #:  
**ACTIONS**

Mainsail | Light Mainsail  
LTMN-B-18  
Stripe 1: 25 %  
Stripe 2: 50 %  
Stripe 3: 75 %  
Stripe 4: 87 %  
Stripe 5: 100 %  
Order #:  
**ACTIONS**

Downwind

Downwind | A1.5  
A1.5-A  
Stripe 1: 25 %  
Stripe 2: 50 %  
Stripe 3: 75 %  
Order #:  
**ACTIONS**

Downwind | A1.5  
A1.5-B  
Stripe 1: 25 %  
Stripe 2: 50 %  
Stripe 3: 75 %  
Order #:  
**ACTIONS**

**+ ADD SAIL**

## Category:

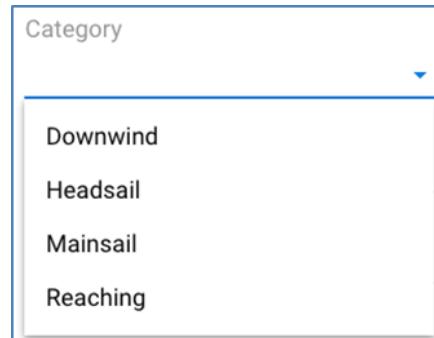
You'll be prompted to select, from a dropdown, the category of sail

- Headsail
- Mainsail
- Downwind
- Reaching

## Type:

Select the sail's type and code

You have many preselected sail types here or you add your custom sail.



<b>New Sail</b>
Category Downwind
A1 A1.5 A2 A4 A6 G1 G2 G-Zero Mizzen Asym Mizzen Spin S1 S1.5 S2 S4 <b>S6</b> Other
Category Headsail
Type Genoa Heavy Genoa Light Genoa Light/Medium Genoa Medium <b>Genoa Medium/Heavy</b> J1 J1.5 J2 J2.5 J3 J3.5 J4 J5 J6 Solent Storm Jib Other

**Downwind**

A1  
A1.5  
A2  
A4  
A6  
G1  
G2  
G-Zero  
Mizzen Asym  
Mizzen Spin  
S1  
S2  
S4  
**S6**

**Other**

Category Downwind
Type Other
Custom Type
Code
Order #

If you select Other then you can enter a custom sail type

**Headsail**

Genoa #2  
Genoa#3  
Genoa#4  
Genoa Heavy  
Genoa Light  
Genoa Light/Medium  
Genoa Medium/Heavy  
J1  
J1.5  
J2  
J2.5  
J3  
J3.5  
J4  
J5  
J6  
Solent  
Storm Jib  
Other

Category
Mainsail
Type
AP Mainsail
Heavy Mainsail
Light Mainsail
Mainsail
Mainsail - Offshore
Mizzen
trysail
Other

J5  
J6  
Solent  
Storm Jib  
Other

**Mainsail**

AP Mainsail  
Heavy Mainsail  
Light Mainsail  
Mainsail  
Mainsail - Offshore  
Mizzen  
Trysail  
Other

Category
Reaching
Type
A3
A5
Blast Reacher
Code 50
Code 60
Code 70
Code Zero
FRO
Code Zero
FR0
Genoa Staysail
Jib Top
MH0
Mizzen Staysail
R1
R2
R3
Reacher
S3
S5
Spin staysail
Spin Staysail
Other

**Reaching**

A3  
A5  
Blast Reacher  
Code 50  
Code 60  
Code 70  
Code Zero  
FRO  
Genoa staysail  
Jib Top  
MH0  
Mizzen staysail  
R1  
R2  
R3  
Reacher  
S3  
S5  
Spin staysail  
Spin Staysail  
Other

Draft Stripes	
Position 25	% Height
Length	<span style="color: red;">■ REMOVE</span>
Position 50	% Height
Length	<span style="color: red;">■ REMOVE</span>
Position 75	% Height
Length	<span style="color: red;">■ REMOVE</span>
<span style="color: blue; font-weight: bold;">+ ADD</span>	
<span style="background-color: blue; color: white; padding: 2px 10px;">SAVE</span>	<span style="background-color: green; color: white; padding: 2px 10px;">CANCEL</span>

The 1st two fields are mandatory. You must use the drop down menu to populate

Draft stripes are defaulted to 25%, 50%, and 75% but can be edited as necessary.

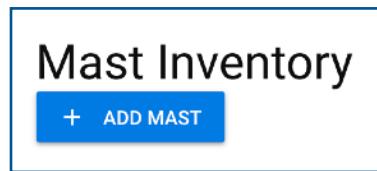
As a rule of thumb, headsails will have stripes at 25%, 50%, and 75% of the leech and mainsails will have stripes at 25%, 50%, 75% and 90%, but it is worth confirming with your sail designer.

**Note:** If you have a square top sail. Enter to Gaff as a stripe at %100

To add draft stripes, and their positions, select the "Add Stripe" button, and enter the appropriate % position of the stripe.

*Note: If you do not create draft stripes here, you will not be able to measure a headsail or mainsail.*

## Updating your Mast inventory:



Similarly to storing sail information, you can store mast profiles (with relative spreader height) that will help you better visualize mast bend.

A screenshot of a form titled "New Mast". It includes fields for "Name" (Southern Spars -1), "Hounds%" (70), "Position" (with a "REMOVE" button), and a "Spreads" section. Buttons for "+ ADD" and "SAVE" are at the bottom.

On the boat's homepage, select "Add Mast". Enter a name and relative spreader positions (% up the rig) and click "Save".

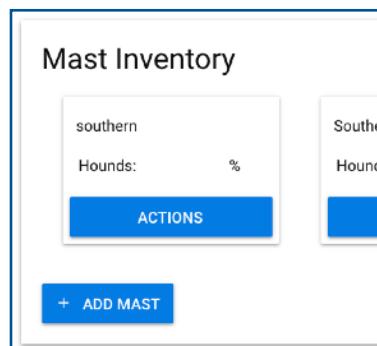
Type in a name for the mast. Then you can reference multiple spars.

Type in the position of the hounds (%) from the deck to the top of the rig

Then add a spreader by clicking the add button

Type in the position of the spreaders (%) from the deck to the top of the rig

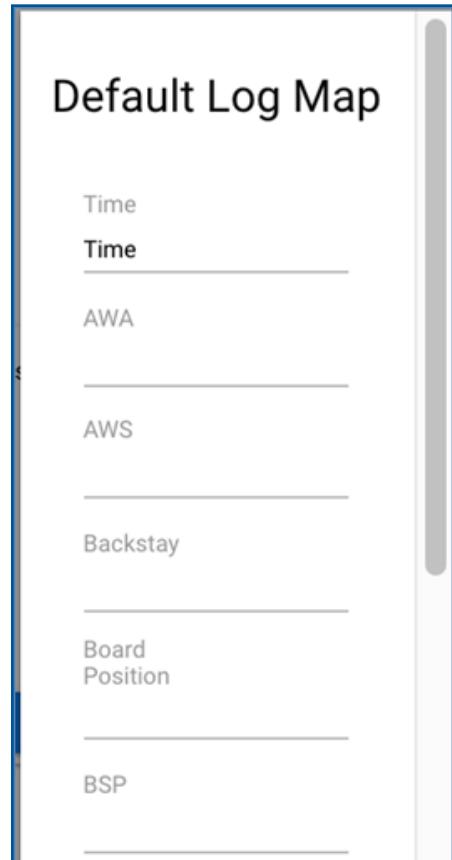
Click save.



The new mast will appear in your mast inventory.

# Mapping Log Variables

## [Video Tutorial](#)



To automatically link recorded instrument data with uploaded images, you'll need to map out the variables as they are labeled in your log file.

Typically, each boat's log files have the same format day to day, unless your navigator decides to change the name of a variable.

It is important that the labels that you enter match those in your log file (usually in a .txt or .csv file). To ensure that you do not run into mismatch errors down the line, copy and paste column headers directly from your log file to the correct variable in the log map section.

*\*These log maps may be edited at the individual log level later on if need be.*

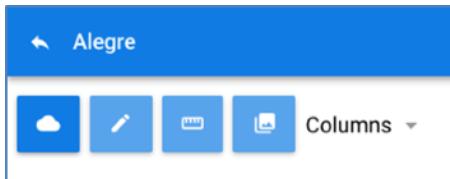
*\*Your log may not contain all of the variables listed as options in the default log map section.*

# Uploading Logs

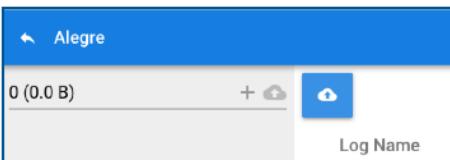
**\*IMPORTANT:** Log time format should be in decimal time with sufficient decimal places so that each row is unique. To convert to decimal time, simply change the number format (in Excel) of the time column to decimal format.



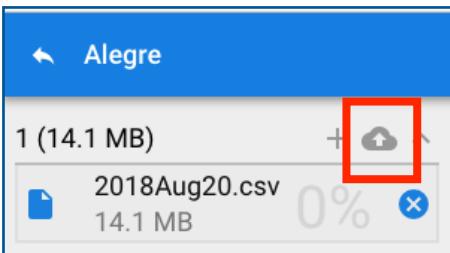
Select "Logs" tab from the menu bar in the upper righthand corner of your screen.



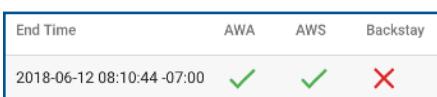
Select Upload "Cloud" icon. A file upload tab will appear on the left with a "+" and "upload" button.



Select the "+" button. A file explorer window will appear. Select the .csv or .txt log file(s) that you wish to upload.



Select the "upload" button. Upload progress will be displayed and successful log file uploads will be displayed in the log table view along with the list of variables that have been identified in the log.



Green check marks indicate successful variable mapping. Red "X"s indicate that variable has not been found.

**Note:** When uploading the log file, make sure the log map details match the headers exactly (including upper or lowercase). It's often helpful to copy/paste the header from the spreadsheet into the relevant field in the log map to avoid errors.

## Images Database

Image Name	Tags	Date	Sails	Venue	Mau	Helm	Event	Race Number	Mode
Stay1 Rain	IMG_0117.JPG	2017-07-21 10:22:23 +02:00							
AP-Mae Vong off.jpg	Yangtze	2017-09-03 14:58:36 +02:00	A-9-1	Poms					
Atym Iaff	IMG_5042.JPG   Left edge	2018-05-04 10:42:38 +02:00	A-15-1						
Alegre leeching	Alegre Leech	2018-05-17 13:23:11 +02:00	A-5-1						
Sed leech.jpg	Sed leech	2018-05-17 13:23:11 +02:00	A-5-1						
JH-Looose currie.jpg	(IMG_20203) New Head Loosie currie	2018-09-13 11:57:28 +02:00	JH-A-18	Gascals, Portugal	Southern				VMG
JH-A-Currie on.JPG	(IMG_0704.JPG) New Head currie on	2018-09-13 18:14:09 +02:00	JH-A-18	Gascals	Southern				VMG
UTNN-B-18.JPG	IMG_0151.JPG	2018-09-15 13:13:10 +02:00	UTNN-B-18	Gascals	Southern				VMG
Rgs Sideways	IMG_7492.jpg	2018-09-18 11:06:56 +02:00							
Stay1 Sed	IMG_7542.jpg	2018-09-18 12:46:58 +02:00							
Stay1 Alegre -2	IMG_7169.jpg	2018-09-18 11:18:35 -01:00							
Stay1 Alegre	IMG_7129.jpg	2018-09-18 12:38:26 -01:00							
Stay1 Alegre after race	IMG_7942.jpg	2018-09-19 15:12:20 +02:00							



Through the header menu bar, navigate to the Images page. Here, you can upload new images as well as view and filter the image database.

The default page view displays 25 records (but this can be changed via the dropdown menu at the bottom of the page).

The table fields (all can be manually edited) include the image file name, timestamp, comment tags, sail tags, venue, helm, and performance variables that can be filled automatically from an uploaded data log or manually.

**1** – The Images menu is located on the upper left with four buttons (Upload, Batch Edit, Measure, Compare)

**2** – Records per page. Select between 25, 50, and ALL.

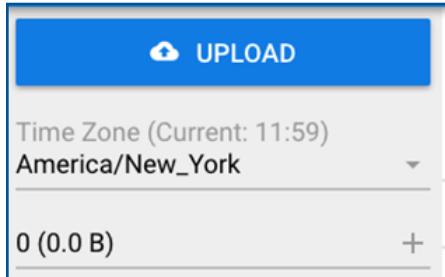
**3** – Filter image records by combining multiple filters. Filters include sail, sail type, helm, TWS, TWA, Forestay etc.

# Uploading an Image



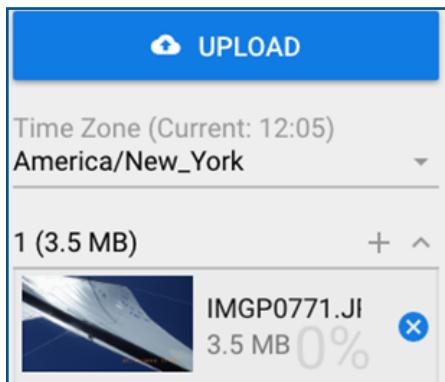
**Upload (Cloud)**

Click the Upload cloud button and an upload box will appear on the left.



The time zone will default to your current location. If you are uploading photos taken in another timezone (i.e. you took photos over in Europe but are now back in the US), make sure you update to the correct timezone.

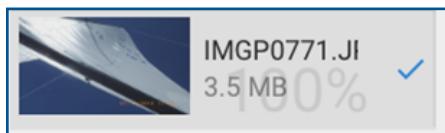
\*The timezone can be edited after the image is uploaded but will prevent accurate syncing of log data until corrected.



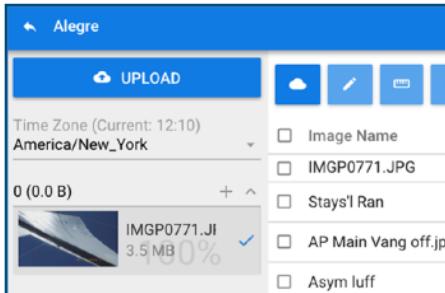
To select images to upload, click the "+".

A file explorer will pop-up. Select one or multiple images to upload.

Once the photo thumbnail appears, click the "Upload" button.



A progress bar will show the upload progress until complete.



Once uploaded, the new image will appear at the top of the image table.

\*If you cannot find the image, display ALL records on the page and wait for page to refresh.



Note 1: If you have an image on a google drive. You have to download first and save to your desktop or folder.

UPLOAD

Time Zone (Current: 11:22)  
America/New\_York

1 (1.9 MB)

IMG\_0818.jpg  
1.9 MB  
0%

Note 2: Even though the image looks good when you open it on your desktop. Sometime when you try and upload the image it appears sideways or upside down. Hit the X and follow Note 3.

UPLOAD

Time Zone (Current: 11:22)  
America/New\_York

1 (1.9 MB)

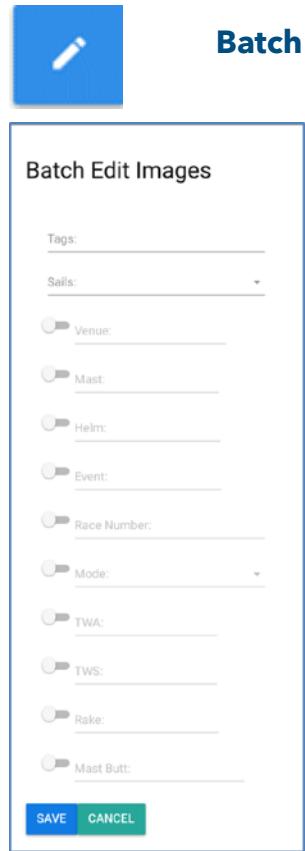
IMG\_0818.jpg  
1.9 MB  
0%

Note 3: To fix this just open up image on your desktop and rotate 360 degrees and resave. Image will be fixed! Then upload again.

## Batch Edits to Images

<input type="checkbox"/>	Image Name	Tags	Date
<input checked="" type="checkbox"/>	June12_131944_J3A.JPG	Training	2018-06-12 13:19:44
<input checked="" type="checkbox"/>	June12_151909_J4A.JPG	Training	2018-06-12 15:19:09
<input checked="" type="checkbox"/>	June13_135408_M1.JPG	Training	2018-06-13 13:54:08

In the Image table, select the images you wish to edit and click the "Batch" button.



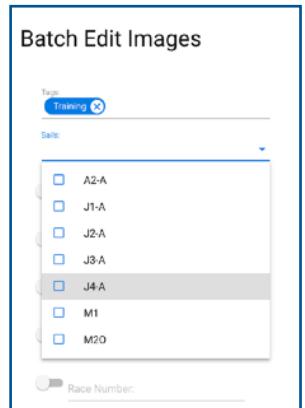
The dialog box has a blue header bar with a pencil icon and the text "Batch Edit". Below the header is the title "Batch Edit Images". The form contains several input fields for tags, sails, and various sailing parameters like Venue, Mast, Helm, Event, Race Number, Mode, TWA, TWS, Rake, and Mast Butt. At the bottom are "SAVE" and "CANCEL" buttons.

A pop-up will appear with the available data fields for edit.

Enter any tags (i.e. "training"), sails, and other data that you wish to save with the selected images.

Click "Save" when done.

Now, you have additional data points by which to filter and find these images in the future.



The dialog box shows the "Batch Edit Images" title. It includes a "Tags" field with "Training" selected, a "Sails" dropdown menu, and a list of sail names: A2-A, J1-A, J2-A, J3-A, J4-A, M1, and M2O. The "J4-A" sail is highlighted with a gray background. At the bottom is a "Race Number" input field.

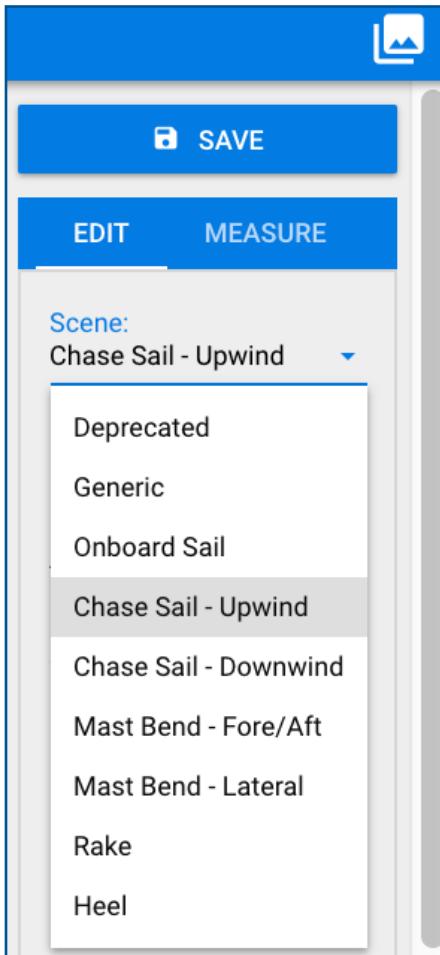
## Selecting a Scene



Select an image and click on the "Measure" button.

A full screen view of the image will appear with an edit/measurement toolbar on the right.

Before measuring, it is important to check that image information is correct.



Under the "**Edit**" tab, you will find the first selection is "scene"

Click on the drop down menu arrow and you will find nine scenes to choose from.

1. Deprecated
2. Generic
3. Onboard Sail
4. Chase Sail-Upwind
5. Chase Sail-Downwind
6. Mast Bend - Fore & aft
7. Mast Bend - Lateral
8. Rake
9. Heel

# Scene Types

1. **Deprecated:** This is an old scene that should be deleted.
2. **Generic:** This is use for a future item.
3. **Onboard Sail:** Use this scene for taking look up shots of any sail. Here you can measure sail Camber, Draft position, Twist, Fore camber, Back camber, Entry and Exit angles.
4. **Chase Sail-Upwind:** Use this scene to measure, Luff curve, (Forestay sag), Mitre curve (Imaginary vertical centerline of the sail), Leech curve, Mast square.
5. **Chase Sail-Downwind:** Use this scene to measure, Luff curve, Mitre curve (Imaginary vertical centerline of the sail), Leech curve.
6. **Mast Bend - Fore & Aft:** Use this scene to measure, Fore & Aft mast bend
7. **Mast Bend - Lateral:** Use this scene to measure Lateral mast bend, Mast square, Mast tip.
8. **Rake:** Use this scene to measure Mast rake, Hull line, Mast line.
9. **Heel:** Use this scene to measure Heel angle, Horizontal angle, Heel angles.
10. **On all scenes:** We also have extra tools. Length reference. Measurements, Points, Lines, Squares, Curves.

## Editing Image Data

The screenshot shows the 'Edit' tab selected in the top navigation bar. Below it, there are various input fields for metadata: Scene (Onboard Sail), Name (Marblehead main-3), Time Zone (America/New\_York), Date (2018-09-06 14:41:19), Tags (IMG\_1864.jpg), Sails (Marblehead mai...), Mast, Venue (Marblehead), Helm, Event, Race Number, Mode, AWA, AWS, Backstay, Board Position, BSP, and Checkstay.

Under the “**Edit**” tab you can edit the image data.

Name the file. This will be the name that will show up when comparing sails, and on the photos  
The image name will automatically be saved as “Original name”

You can also add tags for any comment.

Ensure that the time zone for the image is correct.

Enter performance data such as helmsman, event name, race number. If you’ve uploaded a log, much of these data fields will already be populated here.

**Select a sail. This is a mandatory step if you’re going to measure an onboard sail.**

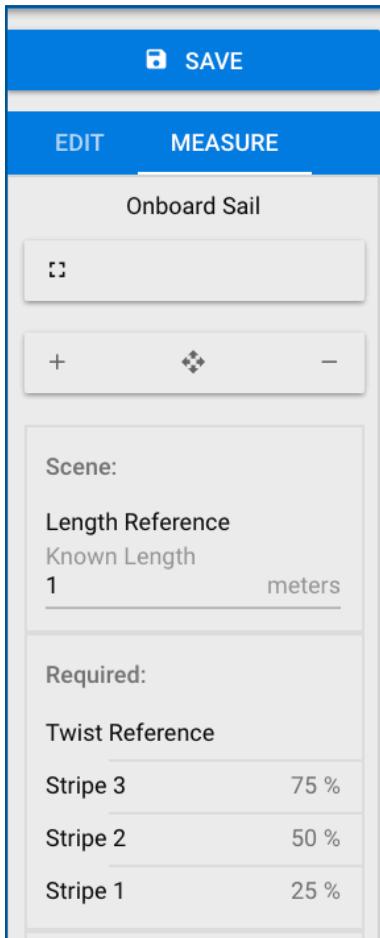
Click on the “Sails” dropdown to select the sail from your sail inventory. This will load the appropriate stripe information to ensure that your measurements are accurate.

**Select a mast. This is important (but not mandatory) step if you’re going to measure lateral mast bend.**

The screenshot shows a dropdown menu titled "Sails" containing four items: Doyle jib, Flat head jib, J-6, and LM Prototype. Each item is preceded by a small checkbox.

Click “Save”.

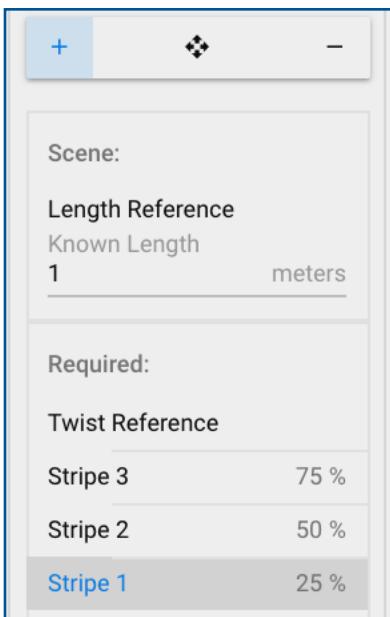
## Measurement Controls



- Zoom out to full screen.
- Place a point on the image.
- Remove a point from the image.
- Move existing points on the image.

**Zoom** in/out by holding the shift key and scrolling in with the mouse wheel.

**Pan** along to the image by holding the *shift* key and the left mouse button/trackpad at the same time.



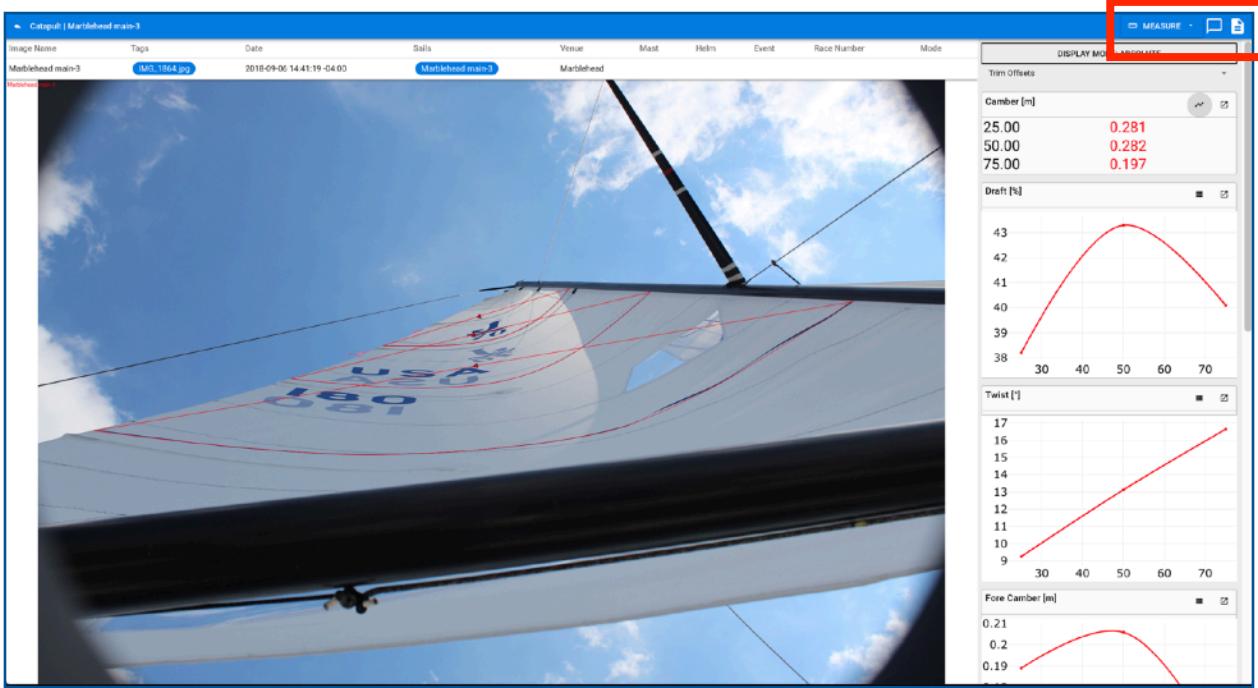
To place a point(s), select the line/stripe that you would like to identify on the image. Once selected, its text will turn blue.

Once a stripe is active, select the "+" and click on the image to place the point.

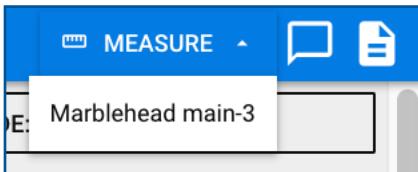
To move an existing point, select the and click/drag the point on the image.

To delete an existing point, select the "-" and click the point to delete.

# Results Page



The results page is divided into the image section and graph/table results sections. Image names/data is presented in table view above the images. Results are available in both **relative** and **absolute** views. In the upper right hand corner of the screen you will find the measure, comment, & Create PDF buttons. Results can be viewed in both **relative** and **absolute** numbers. Click on the top button to toggle between views.



## Table View

Graphs can be viewed in a table view.



## Fullscreen

Graphs can also be viewed in fullscreen. This is good for presentations on a TV.

## Help button

Camber [%] 

A help button will bring up a pop up window to show what the graph is measuring.



Camber %/m



Draft %



Twist °



Fore camber %/m



Back camber %/m



Entry angle °

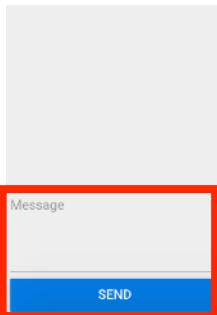


Exit angle °

## Adding Comments

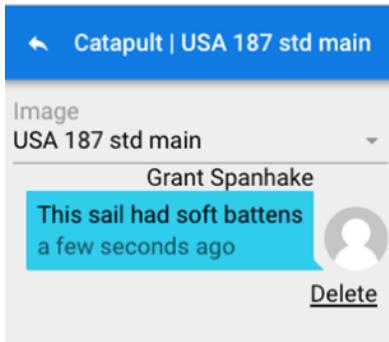


On the right side of the results window, you will find the "Notes" button.



Clicking on this will open up the comments thread, where you and your team members can exchange notes that will remain as part of the image's record.

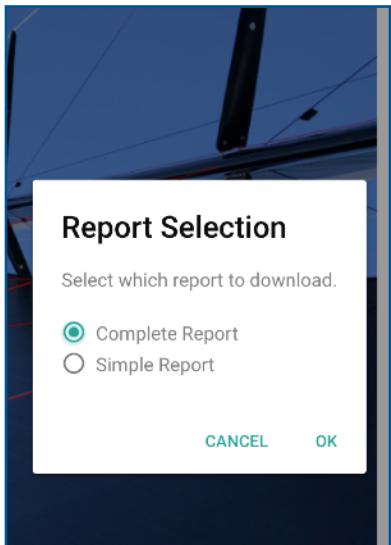
Type in your note at the bottom of the page.  
Then click send!



Your comments will appear on the left side of the screen.

You can collaborate with another viewer by exchanging notes in real time!

## Creating a PDF

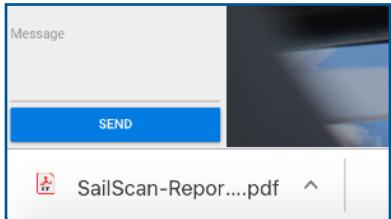


The “**Report**” button is located at the top right of the screen. Click on this button to create a PDF report.

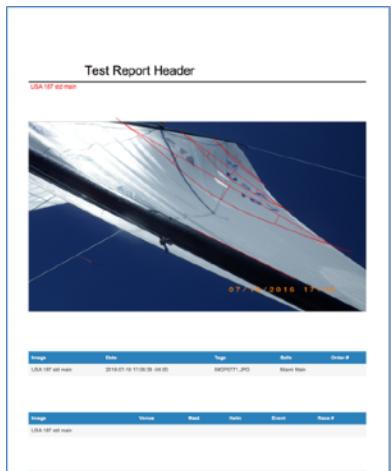
A pop up window will appear asking you to select a complete or simple report.

The simple report will only show boat data, camber, draft, & twist.

The complete report will show boat data, camber, draft, twist, fore camber, back camber, entry angle, exit angle, & notes



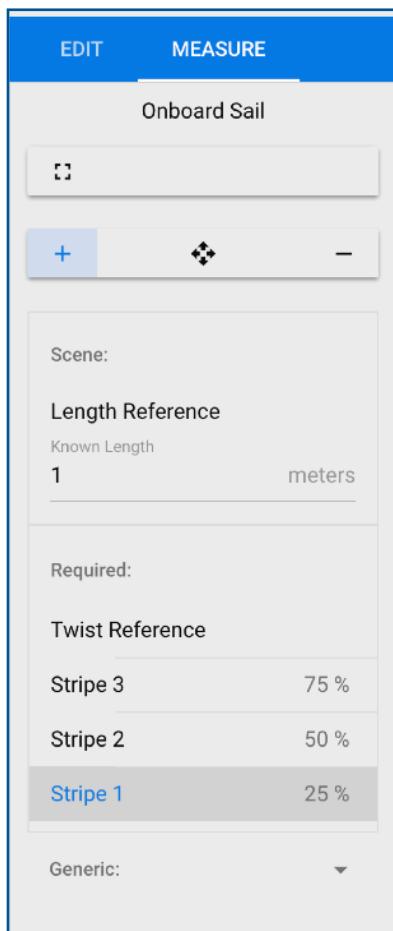
The PDF will automatically start to download. View this at the bottom left corner of your screen.



The PDF report of the image(s) and graph(s) will appear in your download folder that can be shared offline.

# Onboard Sail

## Video Tutorial



To measure an onboard image, you will need to identify the trim stripes in the image.

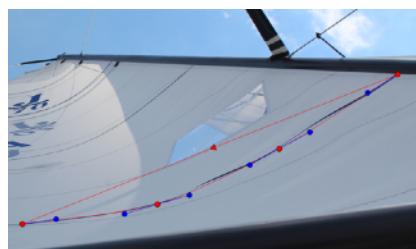
To obtain absolute measurements (meters) you will also need to enter a length reference.

**Length reference:** Provides scaling of a known distance (i.e. spreader length).

*Note: If you want to measure a horizontal measurement (example: Twist amount) then use a horizontal length reference (ie: spreader length)*

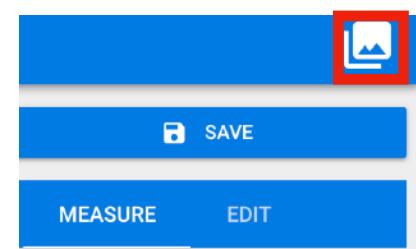
**Twist reference:** Selects the twist reference point (i.e. Boom or mast to forestay)

**Stripe 1, 2, & 3:** Measures draft stripes based on their assigned locations in the sail setup. No stripes will appear if you have not selected a sail from your sail inventory (make sure to do so on the Edit tab)



To draw each trim stripe on the image, click on the stripe name that you want to work on and it will turn blue.

Select the "+" to place points along the image.



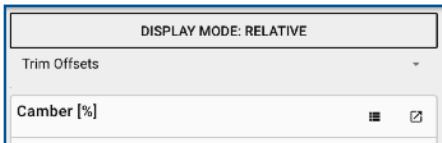
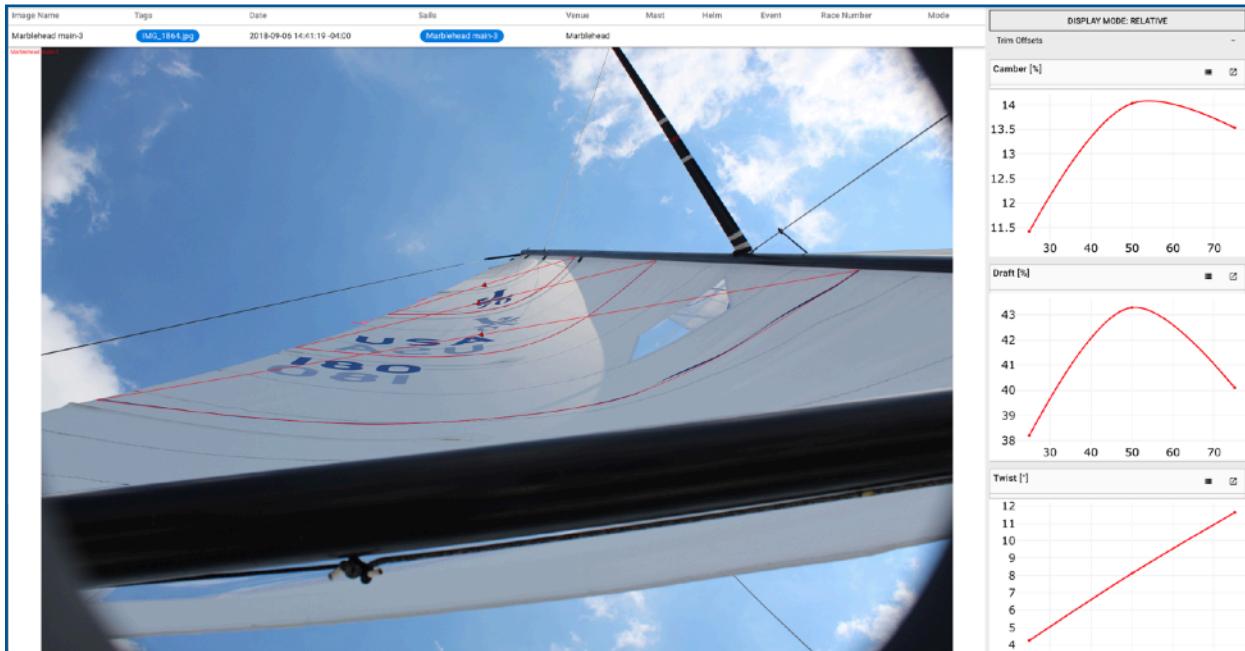
**Draw points from the luff to leach (in the direction of the wind)** along the draft stripe.

Select the to adjust points (red) and blue bezier curves.

Click **Save**. And head to the results page (right hand corner)

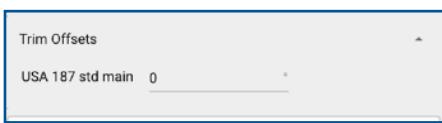
# Onboard Results

## Video Tutorial

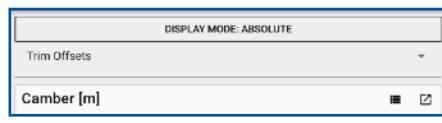


The results page for Onboard Scans includes the following graphs:

1. Camber
2. Draft
3. Twist
4. Fore camber
5. Back camber
6. Entry Angle
7. Exit Angle



Additionally, for Onboard scans, you can enter an offset for a sheeting or boom angle (in degrees) via the **Trim Offsets** field. This will change the twist and entry angle. See Curve overlay section.

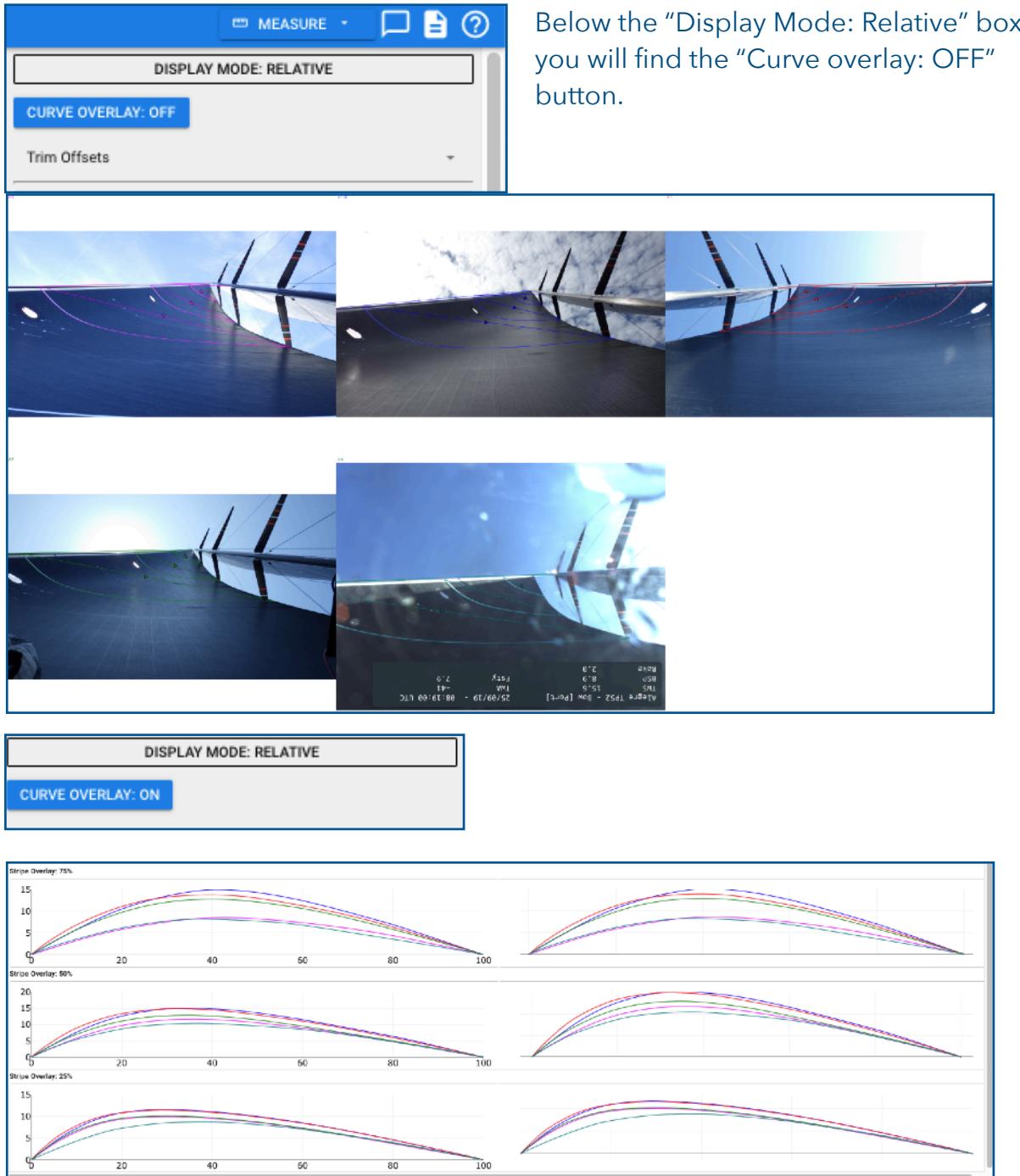


**Absolute** is the actual camber depth in metric (mm).

You can toggle between **relative** and **absolute** display modes by clicking on the name.

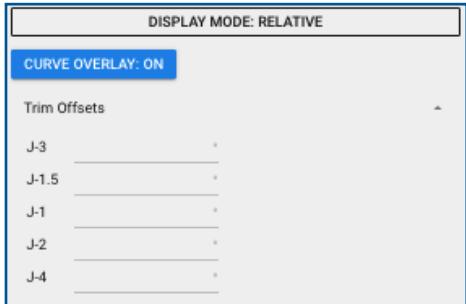
# Curve overlay

## Video Tutorial



If you activate this button the photo graphs of the sails will change to show the sail shape curve overlay.

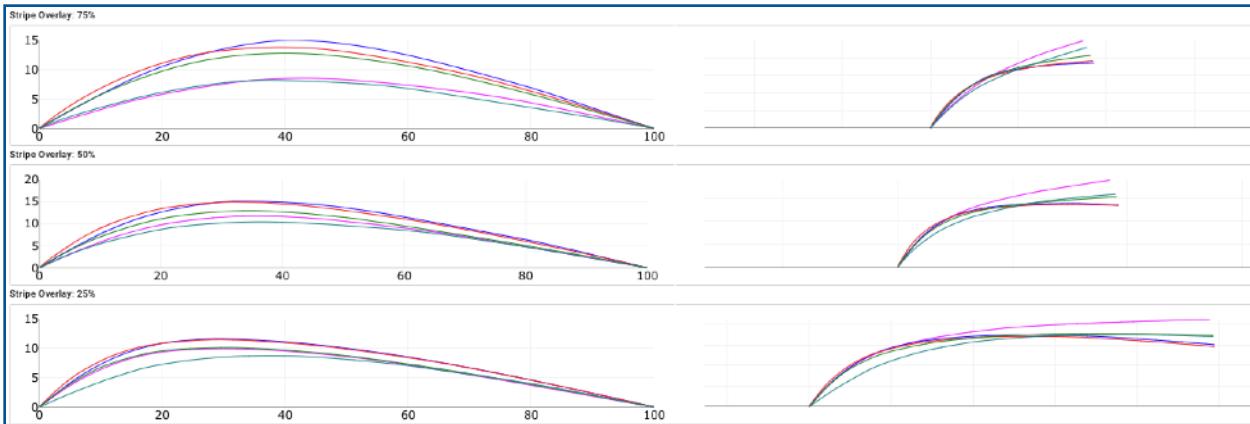
## Trim offset



If you click and activate the "Trim offsets" section a drop down list will appear of your selected sails.

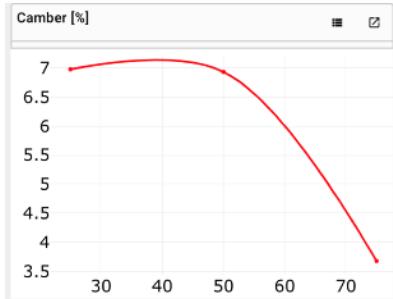


Click on any one of the sails and enter 0

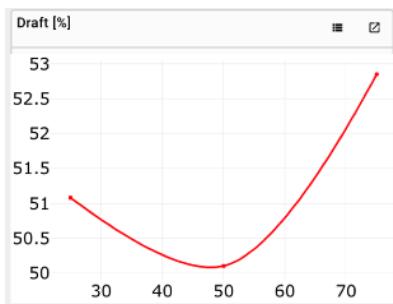


The graphs on the right will rotate to match the measured twist offset of the sails.  
This is very useful to see if the sail is getting old or rounding up in the exit.

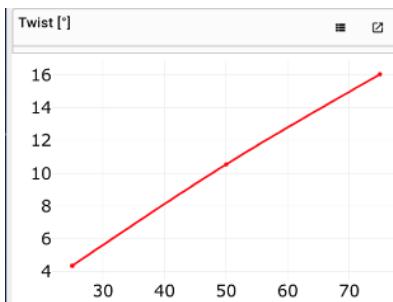
# Onboard Scan Relative Graphs



**Camber %:** The camber in the sail percentage.

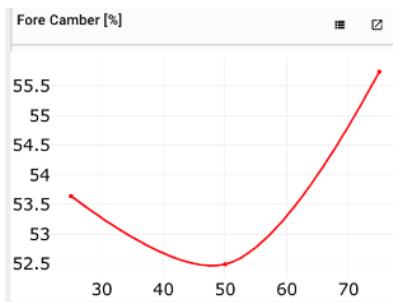


**Draft %:** Location of the draft.

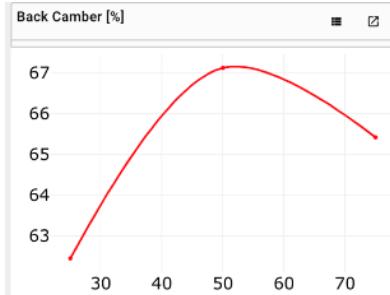


**Twist °:** Twist relative to the twist reference.

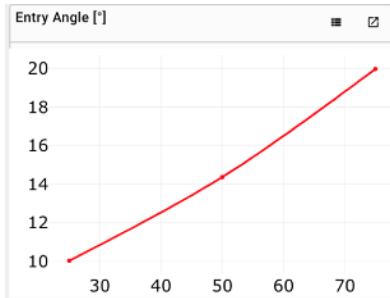
Note: If you have a square top sail. Enter to Gaff as a stripe at %100 this will show the correct twist



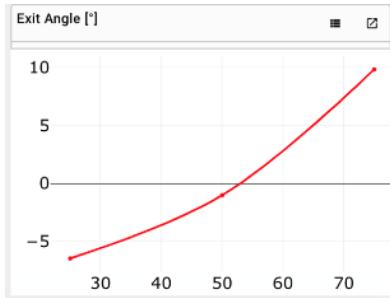
**Fore camber %:** Halfway from the draft position to the luff.



**Back camber %:** Halfway from the draft position to the leech.



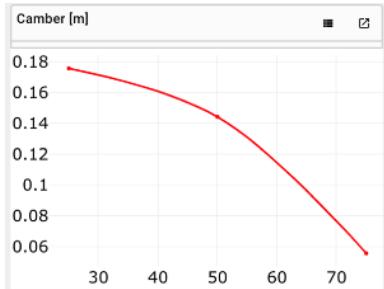
**Entry Angle °:** Angle measured between the twist reference line and a line consisting of the luff point and the point along the curve trace that intersects with a line normal to the chord line at a position along the chord line 5% of the chord length away from the luff point.



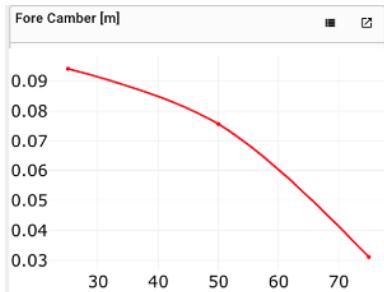
**Exit Angle °:** Angle measured between the twist reference line and a line consisting of the leech point and the point along the curve trace that intersects with a line normal to the chord line at a position along the chord line 10% of the chord length away from the leech point.

*Note: A negative number shows a rounder exit!*

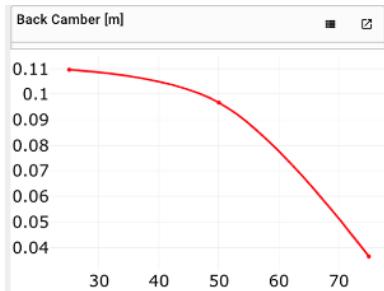
# Onboard Scan Absolute Graphs



**Camber m:** The camber in the sail in meters.

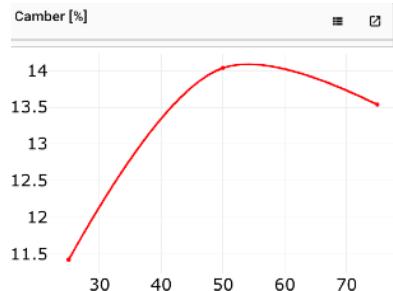


**Fore camber m:** Halfway from the draft position to the luff in meters.



**Back camber m:** Halfway from the draft position to the leech in meters.

## Results Breakdown: Camber

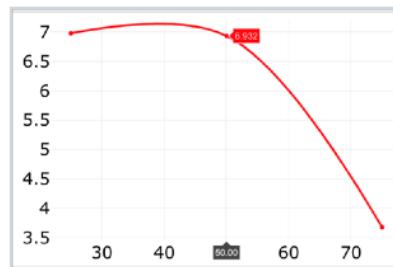


**Relative** is the normal camber percentage.

Y-axis = camber %.

X-axis = position % up the sail.

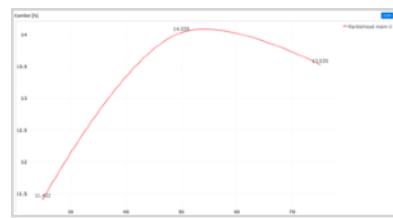
The points correspond to the draft stripes.



Hovering the mouse over the points will display the specific value.

Camber [%]	
25.00	11.422
50.00	14.035
75.00	13.535

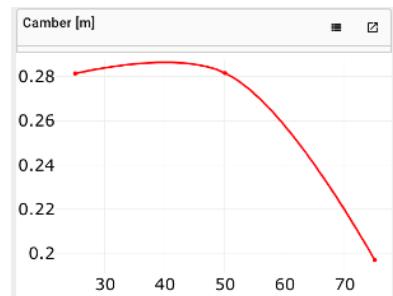
Switching to table view, it's easy to see that at 25% up the luff, this sail has a depth of 11.42% of its chord.



**Absolute** is the actual camber depth in metric (mm).

This will change the Y-axis values from % to meters.

The X-axis still represents the position up the sail.

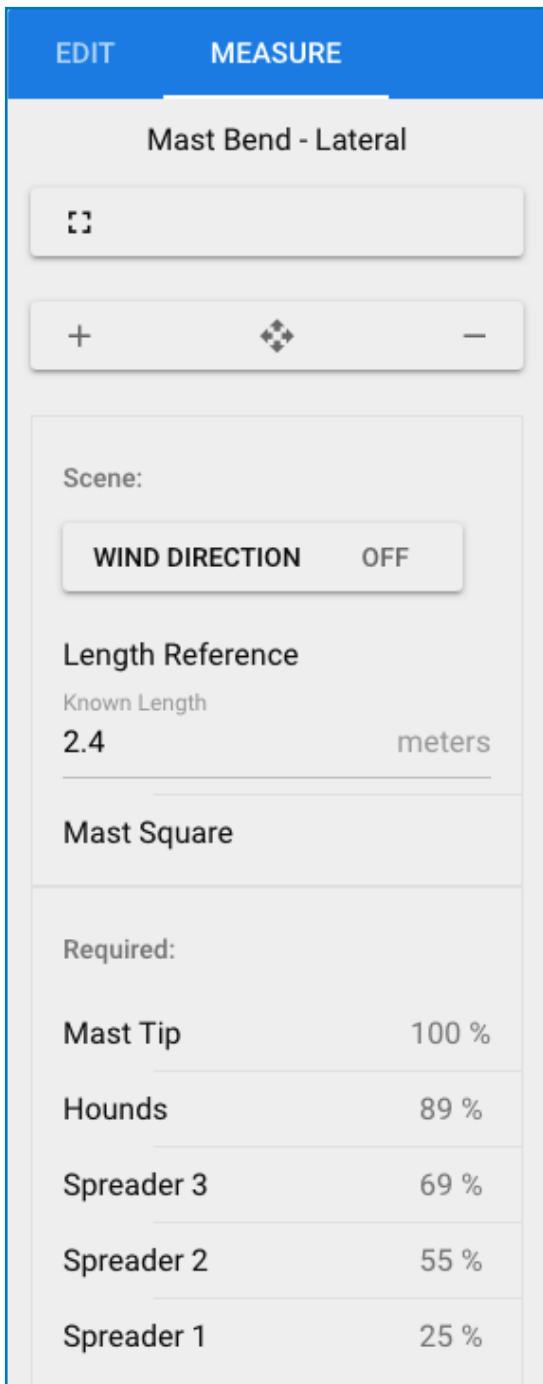


Switching to table view, it's easy to see this sail is 281mm deep at the 25% stripe .

# Mast Bend Lateral

## Video Tutorial

Select "**Mast Bend Lateral**" from the Scene list.



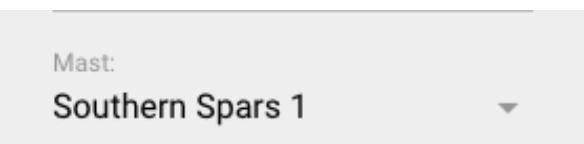
Ensure that you have selected an image taken from directly astern, with the centerline of the boat aligned with the mast.

Select the appropriate mast from the mast dropdown menu. This will import the location of the spreaders and hounds.

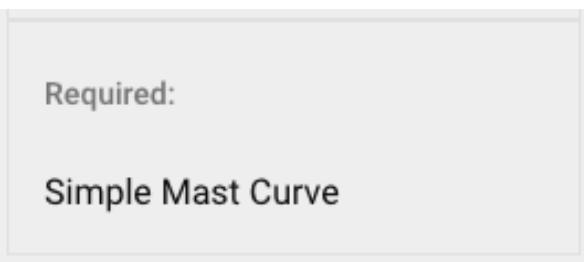
Click on the "**Measure**" tab.

Here, you will see a list of items to mark on the image:

If you select a mast in the edit page you will get the mast bend points preloaded as you see on the left



If you don't select a mast it will default to a simple mast curve.



The screenshot shows the "MEASURE" tab selected in the top navigation bar. A title "Mast Bend - Lateral" is displayed above a camera icon. Below the camera icon are three buttons: a plus sign, a diamond with a crosshair, and a minus sign. A "Scene:" label is followed by a "WIND DIRECTION" button set to "OFF". Under "Length Reference", the "Known Length" is listed as "2.4 meters". The "Mast Square" section is present. The "Required:" section lists points along the mast: "Mast Tip" at 100%, "Hounds" at 89%, "Spreader 3" at 69%, "Spreader 2" at 55%, and "Spreader 1" at 25%.

**Wind Direction:** Click on the "Wind direction text" to turn on. Click on the arrow to set the direction of the wind direction based on your photo.

**WIND DIRECTION** ← →

**Length reference:** Required if you want absolute results (in meters). Select Enter the known length and drop two points on the image at either end of the known measurement.

**Mast Square:** This sets the perpendicular line that is used as the reference line for computing mast lateral fall off. Drop two points, one on either side of the transom. Drop a third point in line with the rig.

**Mast tip:** Place a single point at the tip of the mast. To achieve the most accurate results, drop this point on the windward edge of the mast wall (at the contrast point between the mast and the sky).

**Hounds:** Place single point at the hounds. Place this point on the side of the mast wall.

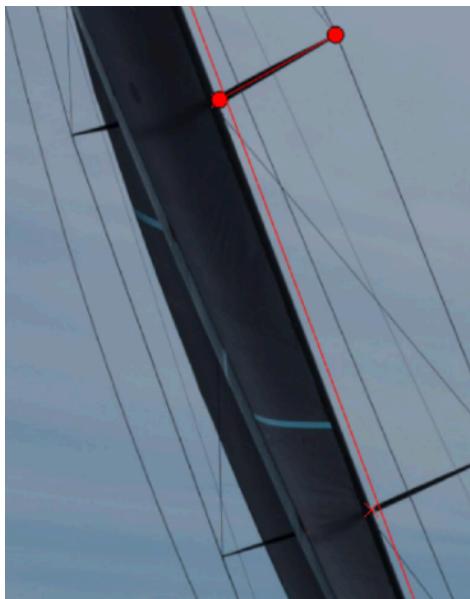
**Spreaders:** Place single points at each spreader's windward connection point to the mast.

## Placing Points on the Image



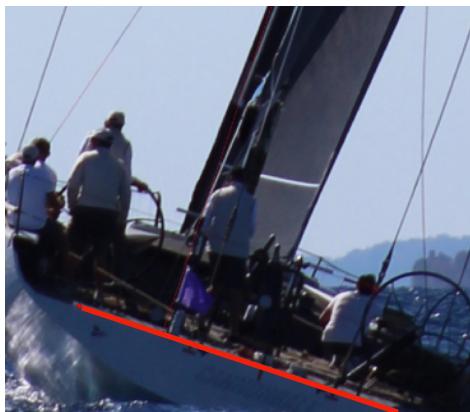
Select the point that you would like to place on the image from the measure tab. Next, select the "+" to add that point to the image.

The text and the "+" will be highlighted in blue, indicating that the object is active.



**Length reference** – In the image to the left, the two red dots indicate the end points of the length reference.

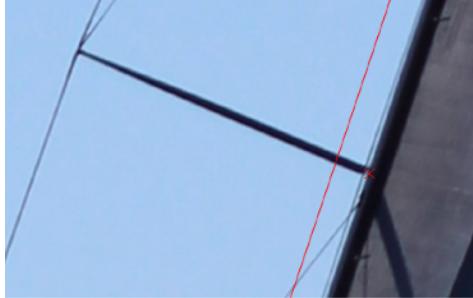
When selecting a length reference, be sure to choose a part of the boat that is unobstructed and that will always appear in full view across multiple photos and angles. Spreaders or transom width are reliable references.



**Mast Square** – In the image to the left, the mast square is represented by the line drawn across the transom and the line drawn perpendicular that runs parallel to the mast.

Place two points, one at either edge of the transom. The third point should be placed along the mast, and will automatically result in a line perpendicular to the transom line. Adjust the position of this line so that it is lined up with either the center of the rig or the side of the mast. The latter is preferable, if you are placing your

spreader/hounds/mast tip points at the windward edge of the mast.



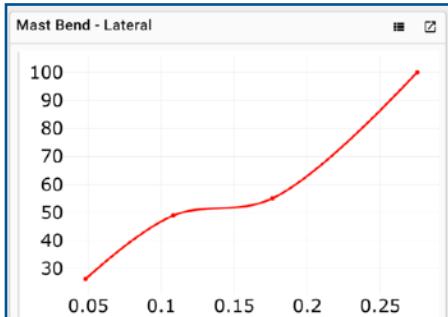
**Spreader Points** – For the best accuracy, place points along the windward edge of the mast, where the contrast is greatest. This is illustrated in the image to the left.



**To view the results**, click the stacked images icon in the upper right corner.

# Mast Bend Lateral Results

## [Video Tutorial](#)



A line graph will indicate the mast's curvature. The y-axis corresponds to the percentage height up the mast. The x-axis, in meters, indicates the lateral sag from the mast square reference line.

Mast Bend - Lateral	
100.00	0.275
55.00	0.176
48.90	0.108
26.35	0.048

To view the results in table form, select the icon to the left of the full screen view icon.

The results are presented in two columns. The left column indicates the height up the mast of the measurement point. The right column indicates the distance in meters from that point to the reference line.

# Comparing Sails



To compare images, select two or more images on the Images page **from the same folder!**

You cannot compare images from different folders



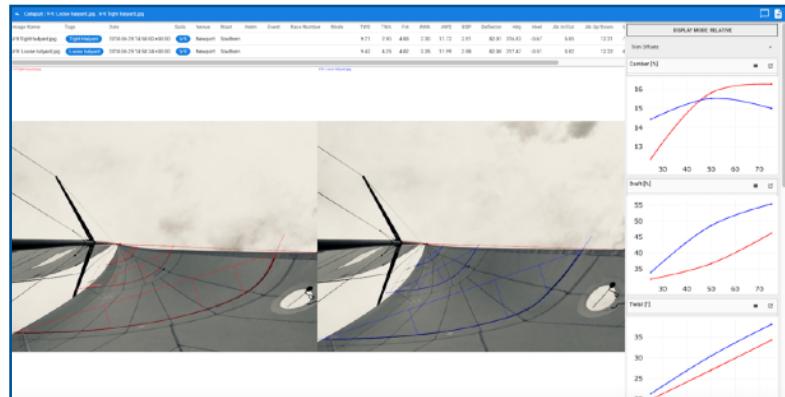
**Compare button**

Then select the “**Compare**” button in the top right corner.

There are no limits of the number of sails to compare, but be practical!

The “**Compare**” page will load all selected images. Graph lines will be color coded with the image titles.

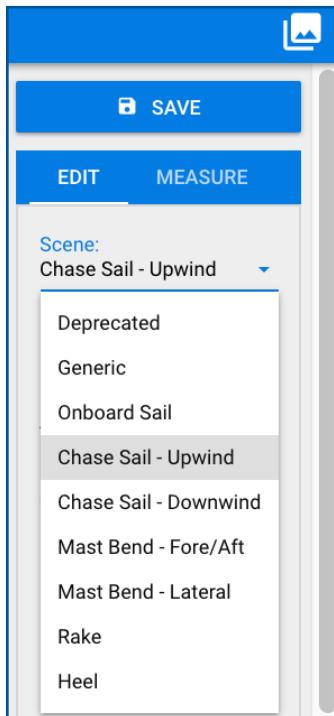
Images can be zoomed and panned just as in the Measure mode.



# Chase Sail - Upwind/Downwind

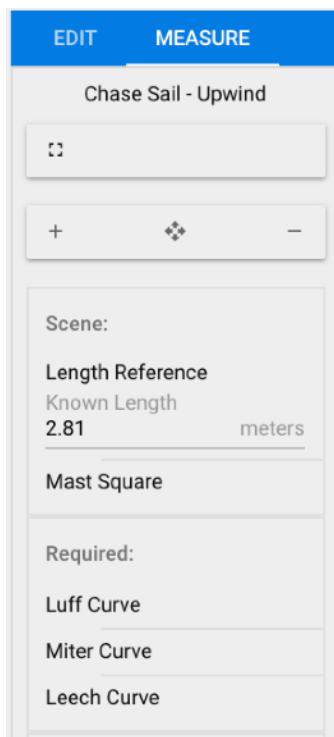
[Video Tutorial-Upwind](#)

[Video Tutorial - Downwind](#)



Select **Chase Sail - Upwind** or **Chase Sail - Downwind** from the Scene dropdown menu.

\* Note: Important: You must have "Mast Square" entered for results to show.



Click on "Measure" to switch to the measurement tab.

To produce accurate measurement results, the following items are required:

1) **Length reference** – Required for absolute results. To do this, select length reference and the "+" to add points to the image. In the number field, enter the known distance for the length reference (i.e. transom width, spreader length).

2) **Mast square** \* – Required for both absolute and relative results as it sets the scene alignment. Select mast square and the "+" to add points to the image. We recommend using the transom for the horizontal



alignment with the and go up to the clew position.

3) **Luff/Miter/Leech Curves** – At least one of these curves must be drawn on the image to produce results. To do this, select a curve and the "+" to add points to the image.

For the drawing the leech curve, see the example below:

Start at the clew and trace the leech curve. Start by placing a point at each batten.

Hold the SHIFT key to pan up or zoom in/out on the image to accurately place points.

Adjust the bezier curves (blue dots/lines) as needed to perfect curve fit.

*Note 1: The miter is an Imaginary vertical centerline of the sail.*

*Note 2: When comparing photos make sure that when the photos were taken, the distance behind the boats similar.*

4) Head and clew angle measurement - You can get the head angle measurement from a cord upper leech to clew



Leech/Head angle is 15.717 degrees

Mast Line Max Depth		
Team 3	Leech	6.048
Mast Line Max Depth Position		
Team 3	Leech	68.200
Leech / Head Angle		
Team 3	Angle	15.717
Leech / Foot Angle		
Team 3	Angle	7.110

Leech/Foot angle is 7.110 degrees

# Chase Sail - Upwind/Downwind Results

[Video Tutorial-Upwind](#)

[Video Tutorial - Downwind](#)



On the results page, the leech/miter/luff curves will be drawn on the image, with horizontal lines (normal to the mast square) drawn at 1/8 intervals along the curve. These lines correspond to the 8 points that are highlighted in the graph/table view.

Two graphs are presented: **Chord Curves** and **Mast Line Curves**.

**Chord Curves** represent the distance relative to the straight line drawn from bottom to top of each respective curve.

i.e. The Leech curve chord curve results show distance from the straight line between the clew and head.

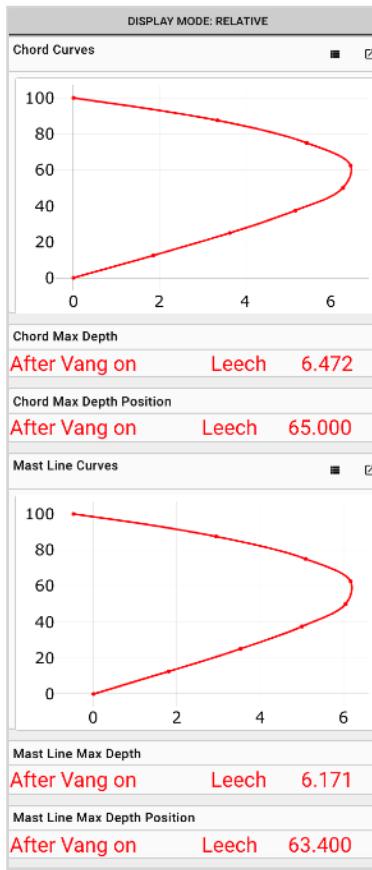
**Mast Line Curves** represent the distance relative to the straight line drawn from the base of the mast to the top (mast square).

i.e. *The Leech mast line curve results show distance from the mast square line that is perpendicular to the transom reference.*

# Chase Sail Upwind/Downwind - Relative Results

[Video Tutorial-Upwind](#)

[Video Tutorial - Downwind](#)



**Relative** chord curves are shown to the left.

## For upwind results:

The y-axis represents the vertical position up the sail.  
(0 is the foot of the sail, 100 is the head).

The x-axis represents the % twist relative to the length of the chord at any given % height up the sail.

*Note the gaff measurement is a negative number!*

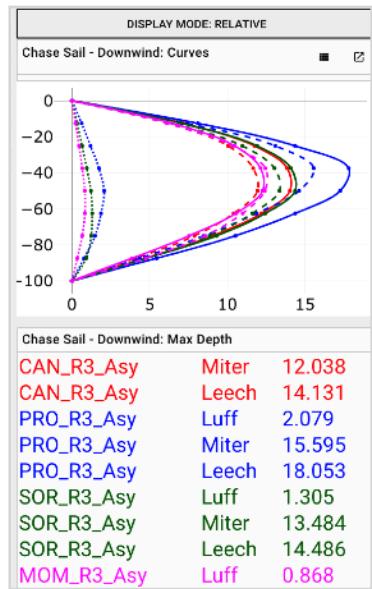
In this example, 6.472% is the max twist of the sail and is found at 65% from the clew along the chord.

The relative distance from the straight line is 6.171% is the max twist @ 63.4% from the clew.

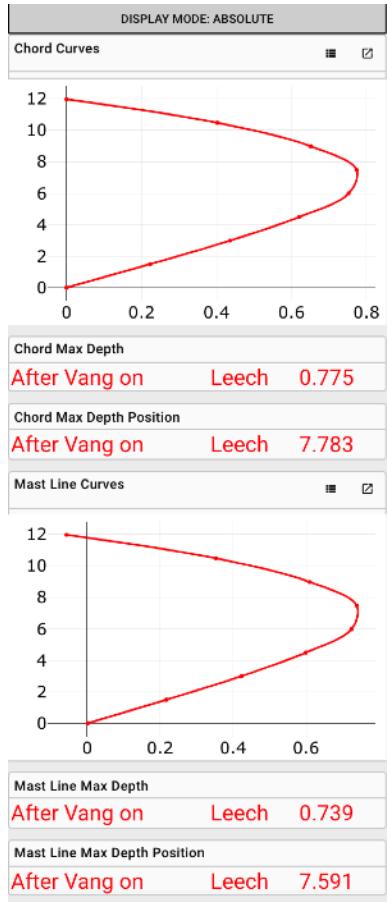
## For downwind results:

The y-axis represents the vertical position up the sail.  
(0 is the head of the sail, 100 is the foot).

The x-axis represents the % twist relative to the length of the chord at any given % height up the sail.



## Chase Sail Upwind/Downwind - Absolute Results



**Absolute** results are shown in meters to the left.

In this example, 0.775mm is the max twist (**Chord Max Depth**) and is found at 7.783 meters (**Chord Max Depth Position**) from the clew along the chord.

The absolute distance from the straight line is 0.739mm (**Mast Line Max Depth**) is found at 7.591 meters (**Mast Line Max Depth Position**) from the clew.

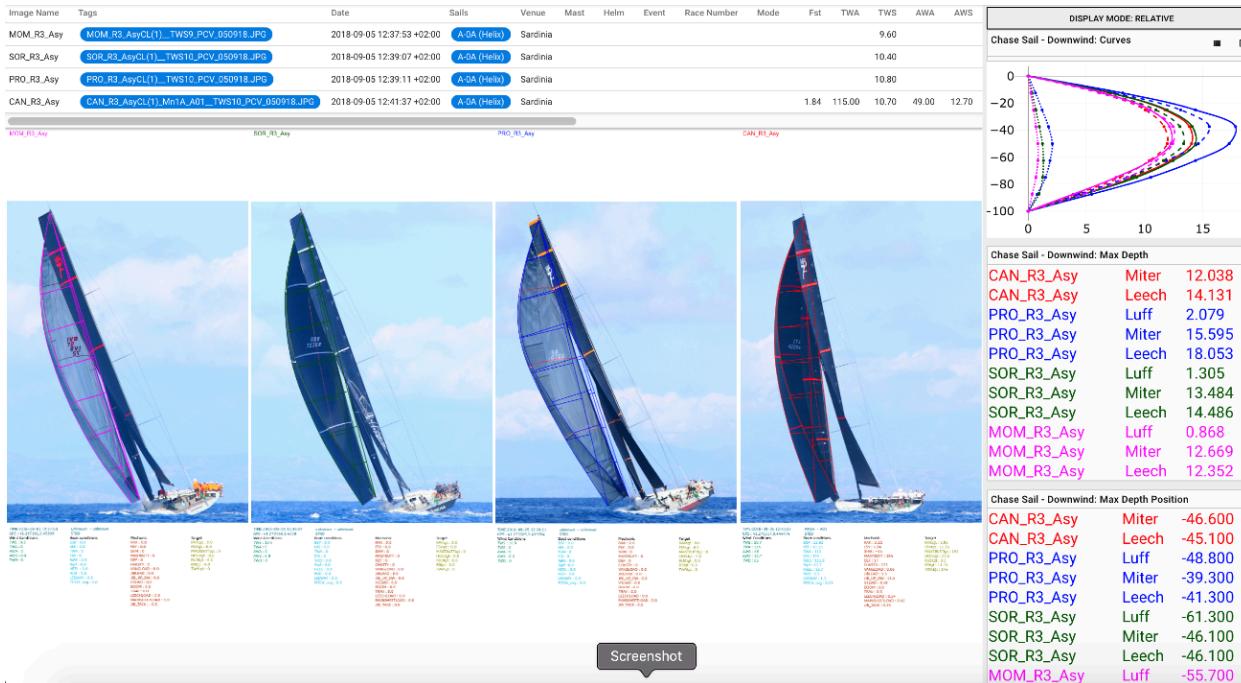
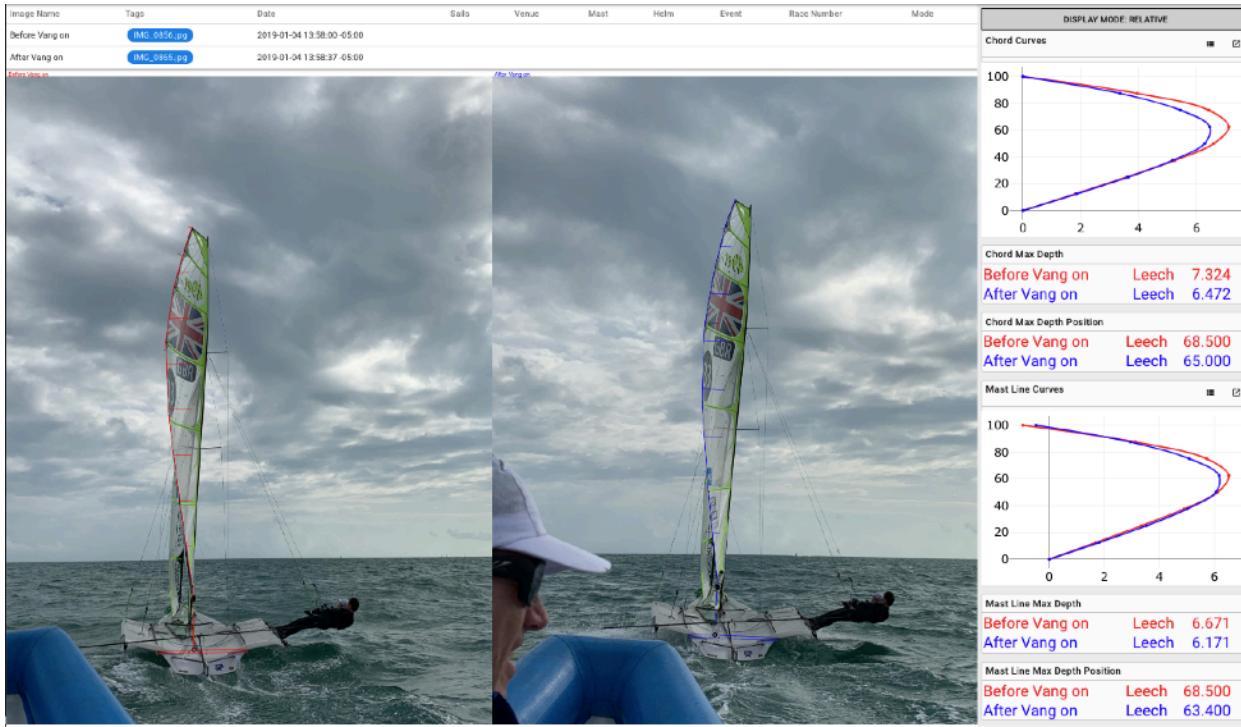
Mast Line Curves	
Position	Leech
11.97	-0.06
10.48	0.35
8.98	0.61
7.48	0.74
5.99	0.72
4.49	0.60
2.99	0.42
1.50	0.22
0.00	0.00

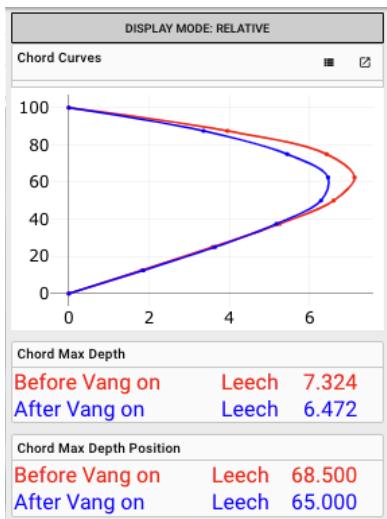
Mast Line Max Depth
After Vang on Leech 0.739
Mast Line Max Depth Position
After Vang on Leech 7.591

Here are the results in table format.

# Chase Sail Upwind/Downwind - Compare Images



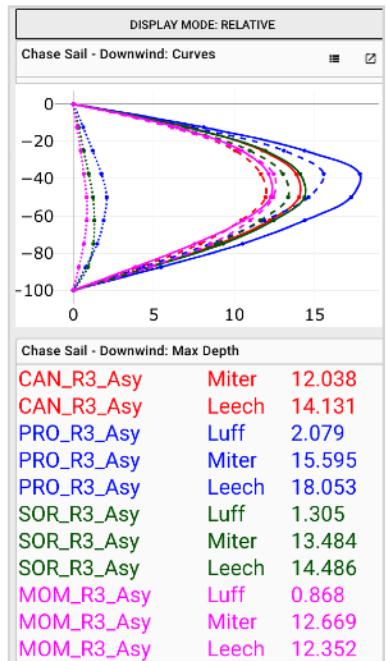
<input type="checkbox"/>	Image Name	Scene
<input type="checkbox"/>	DSC_6251.jpg	Chase Sail - Upwind
<input type="checkbox"/>	DSC_6254.jpg	Chase Sail: Upwind
<input type="checkbox"/>	DSC_6237.jpg	Generic



To compare sail setups, select two or more images from the images page. Be sure that all selected images have "chase sail upwind" or "chase sail downwind" listed as scene type.

Curves will be color coded by image.

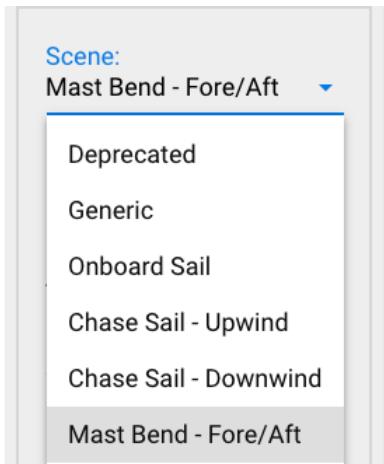
For **Upwind results**, 0 on the y-axis represents the foot.



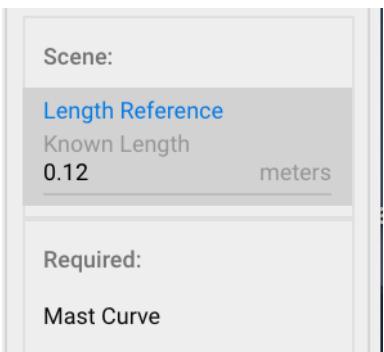
Don't forget that for **Downwind Results**, 0 on the y-axis represents the head.

# Mast Bend - Fore/Aft

## Video Tutorial



On the “**Edit**” tab, select “**Mast Bend - Fore/Aft**” from the scene dropdown menu.

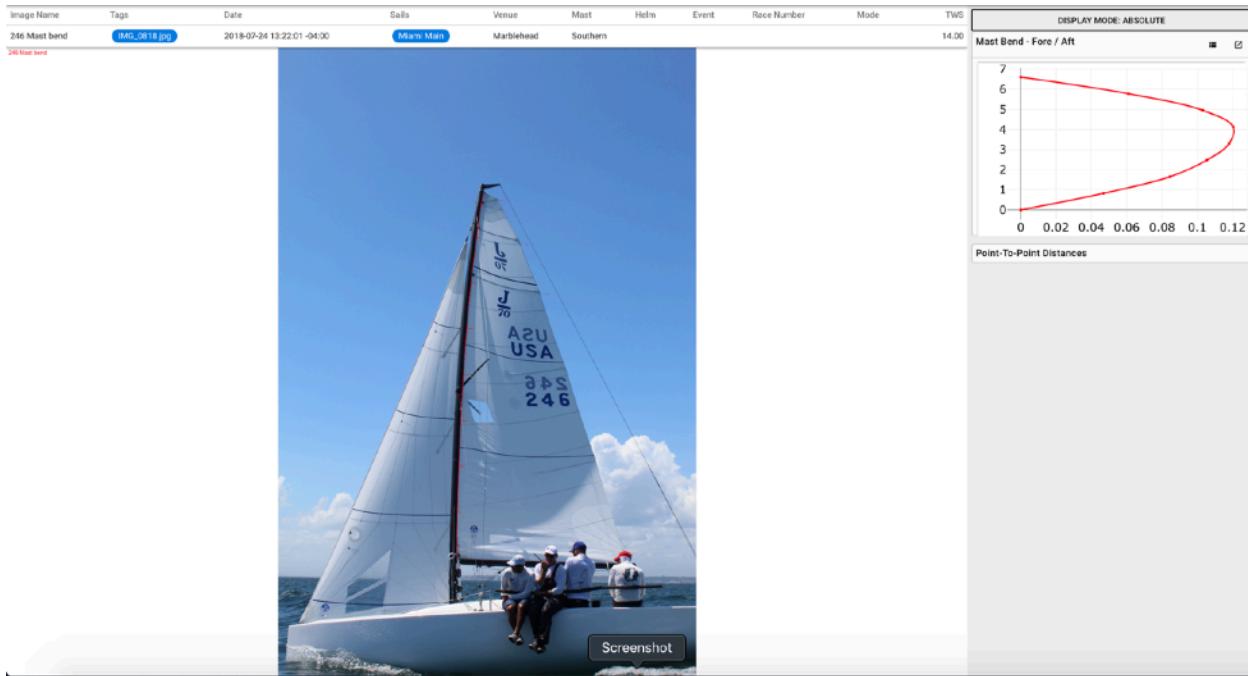


On the “**Measure**” tab, you will see a list of items to draw on the image:

- 1) **Length reference:** An absolute length reference in meters. Enter a known length and drop two points on the image at either end of the known measurement.
- 2) **Mast Curve:** Curve that traces the leading or trailing edge of the mast (we recommend the trailing edge, see example). Select “Mast Curve” and the “+” button and place points at the base, spreaders, and tip of the mast. Adjust bezier (blue curves) as necessary to fit curve.



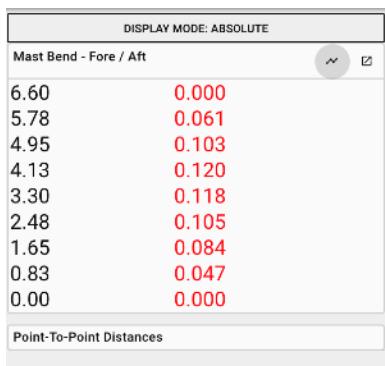
## Mast Bend - Fore/Aft Results



Results for **Mast Bend - Fore/Aft** are always displayed in Absolute terms.

The **y-axis** represents the vertical position up the rig, in meters, with 0 representing the base.

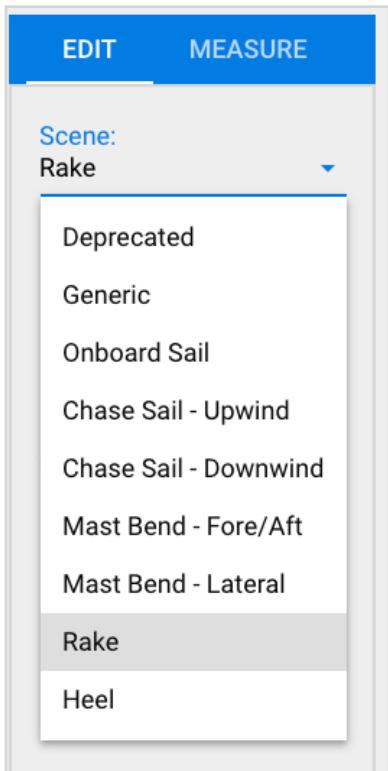
The **x-axis** represents the distance, in meters, from the imaginary straight line between the bottom and top of the rig.



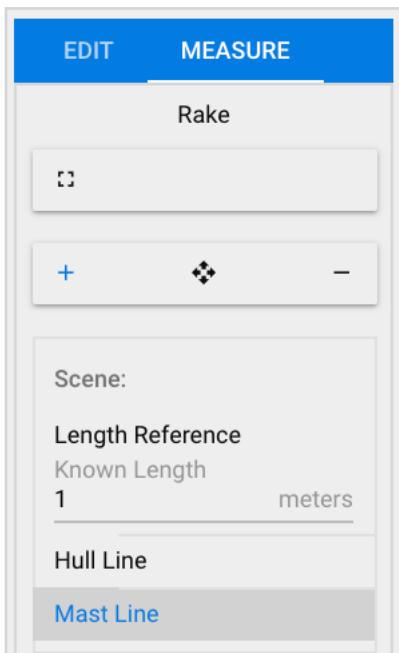
Results can be displayed in table view.

# Mast Rake

## [Video Tutorial](#)



Select **Rake** from the scene dropdown menu.



On the “**Measure**” tab, you will see several items to be drawn on the image.

- 1) **Length reference:** An absolute length reference in meters. Enter a known length and drop two points on the image at either end of the known measurement.
- 2) **Mast Curve:** Curve that traces the leading or trailing edge of the mast (we recommend the trailing edge).
- 3) **Hull Line:** The shear/deck line. Select “Hull Line” and the “+” and place the first point at deck level at the bow and the second point at deck level at the stern.
- 4) **Mast Line:** Straight line from the base of the mast to the top. Select “Mast Line” and drop two points, one on the bottom of the rig at the trailing edge and a second one at the trailing edge of the bows (see example).

To the right is an example of the **Mast Line**. One point is placed at the base of the rig. A second point is placed at the trailing edge of the hounds.



An example of the **Hull Line** to the right. One point is placed near the bow at deck level. A second point is placed at deck level at the stern.



## Mast Rake Results

The screenshot shows a mast raking analysis for two sailboats. On the left, the sailboat 'Alegre' is shown with its mast tilted forward. On the right, the sailboat 'Quantum' is shown with its mast tilted further forward. Both images include green lines indicating the mast's angle relative to the deck. A central box displays the results:

DISPLAY MODE: ABSOLUTE	
Rake Angles	
Quantum Rake	Rake 5.810
Alegre Rake	Rake 5.596

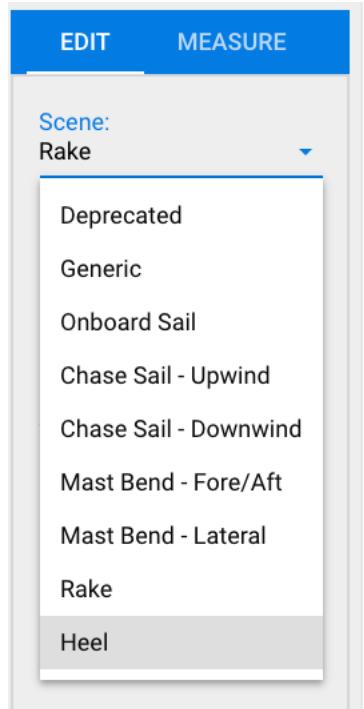
Below the results is a 'Screenshot' button.

Rake Angles	
Quantum Rake	Rake 5.810
Alegre Rake	Rake 5.596

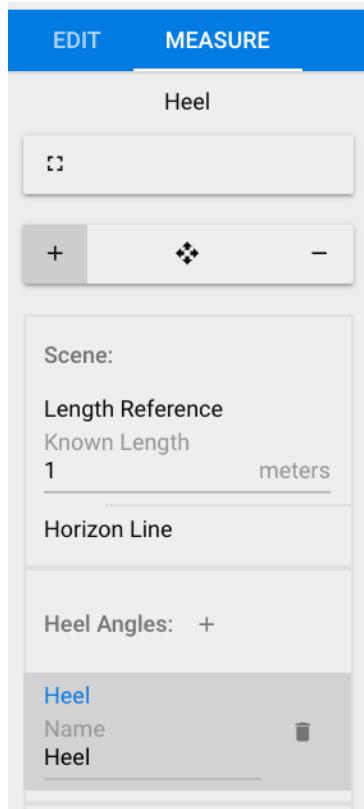
The results page will display the image(s) and the **mast rake** in degrees. In this case, mast rake was measured to be 5.596 degrees.

# Heel

## [Video Tutorial](#)



Select **Heel** from the scene dropdown menu.



In the “**Measure**” tab, you will see several items to draw on the image:

- 1) **Length reference:** NOT REQUIRED for this scene. An absolute length reference in meters. Enter a known length and drop two points on the image at either end of the known measurement.
- 2) **Horizon Line:** Required for this scene. Straight line along the horizon of the image that is used as a reference for calculating heel angle. Select “Horizon Line” and the “+” button to place two points on the image along the horizon.
- 3) **Heel:** Required for this scene. Line representing angle of heel relative to horizon. Select “Heel” and the “+” button to place one point at the base of the mast and a second one further up the mast.

To the right is an example of a **Horizon Line**.



To the right is an example of a **Heel** angle, with two points placed along the mast. Only use the lower section of the mast to avoid the inclusion of lateral mast bend in the heel angle.



## Heel Results

Image Name	Tags	Date	Sails	Venue	Mast	Helm	Event	Race Number	Mode
DSC_0150.jpg		2018-11-24 21:18:44-05:00							
DSC_0151.jpg		2018-11-24 21:18:45-05:00							
DSC_0152.jpg		2018-11-24 21:18:49-05:00							
DSC_0153.jpg		2018-11-24 21:18:50-05:00							
DSC_0154.jpg		2018-11-24 21:18:51-05:00							
IMG_0200.jpg		2018-11-25 11:35:45-05:00							
IMG_0212.jpg		2018-11-25 11:36:14-05:00							
IMG_0249.jpg		2018-11-25 13:32:43-05:00							

DISPLAY MODE: ABSOLUTE			
Heel Angles			
DSC_0150.jpg	Heel	11.788	
DSC_0151.jpg	Heel	11.635	
DSC_0152.jpg	Heel	26.569	
DSC_0153.jpg	Heel	30.851	
DSC_0154.jpg	Heel	26.268	
IMG_0200.jpg	Heel	1.311	
IMG_0213.jpg	Heel	0.369	
IMG_0249.jpg	Heel	-1.361	

Point-To-Point Distances			

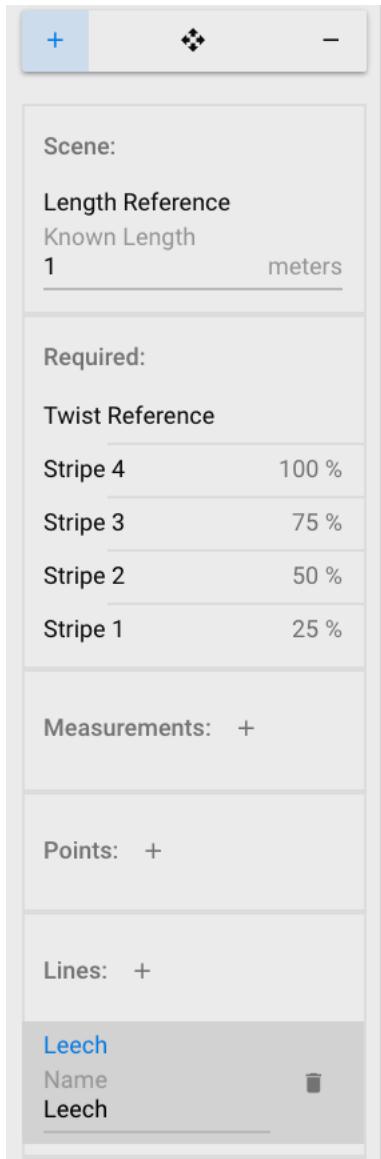
DISPLAY MODE: ABSOLUTE		
Heel Angles		
DSC_0150.jpg	Heel	11.788
DSC_0151.jpg	Heel	11.635
DSC_0152.jpg	Heel	26.569
DSC_0153.jpg	Heel	30.851
DSC_0154.jpg	Heel	26.268
IMG_0200.jpg	Heel	1.311
IMG_0213.jpg	Heel	0.369
IMG_0249.jpg	Heel	-1.361

Heel results will display the image(s) and their corresponding heel angles (color coded).

Positive heel angles represent heel too starboard.

Negative heel angles represent heel to port.

## Generic Measurements: Lines

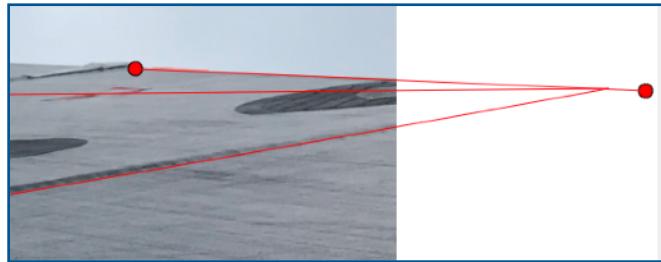


All measurement scenes have **Generic** measurement options available at the bottom of the "**Measure**" tab.

Lines provide the ability to extend draft stripes or forestays that have been cropped out of the image frame.

By using the lines feature to extend a draft stripe for instance, you can still accurately measure an onboard sail image.

To draw a straight line, select the "+" next to "**Lines**" to create a new line. Add a name to the line. Select the "+" at the top of the "**Measure**" tab and drop two points on the image.

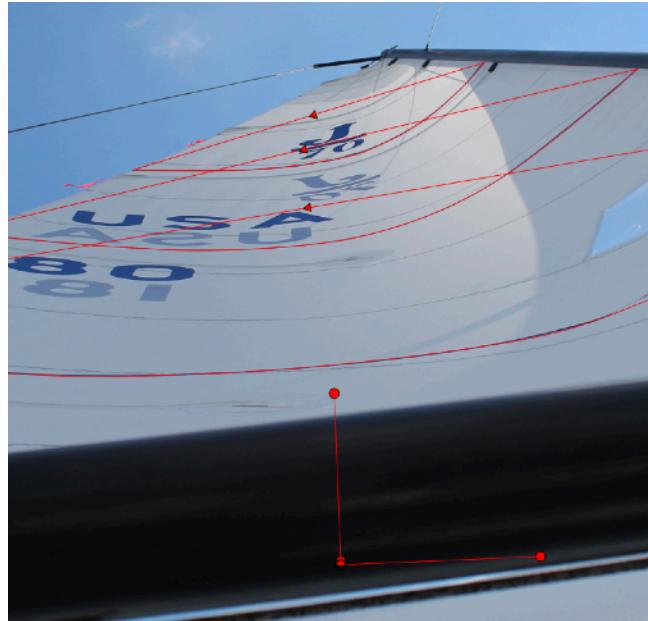


Now there is an edge to finish your speed stripe.

## Generic Measurements - Squares

		+	❖	-
<b>Scene:</b>				
Length Reference				
Known Length				
1	meters			
<b>Required:</b>				
Twist Reference				
Stripe 3	75 %			
Stripe 2	50 %			
Stripe 1	25 %			
<b>Measurements:</b> +				
<b>Points:</b> +				
<b>Lines:</b> +				
<b>Squares:</b> +				
<b>Square</b> <input type="text" value="Name"/>				

The “**Squares**” allows you to note the perspective from which the photo was taken. For instance, for an onboard shot, draw a square reference to note the location/angle at which a photo was taken looking up at a sail.



To draw a square, select the “+” next to “**Square**” to create a new square. Then select the “+” at the top of the “**Measure**” tab to drop two points on the horizontal frame of reference (the boom) and one point to create a line perpendicular.

## Curves

Scene:

Length Reference  
Known Length  
1 meters

Required:

Twist Reference  
Stripe 3 75 %  
Stripe 2 50 %  
Stripe 1 25 %

Measurements: +

Points: +

Lines: +

Squares: +

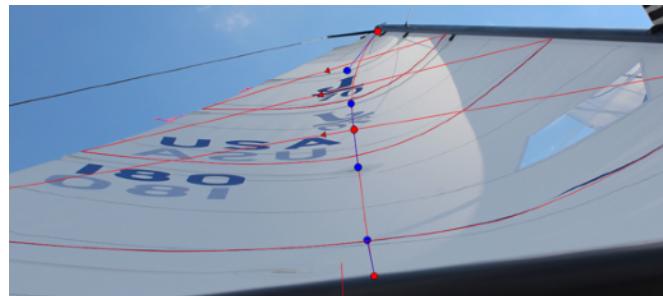
Camera position

Curves: +

Draft Line  
Name Draft Line

This shows the placement of the draft position or any other item!

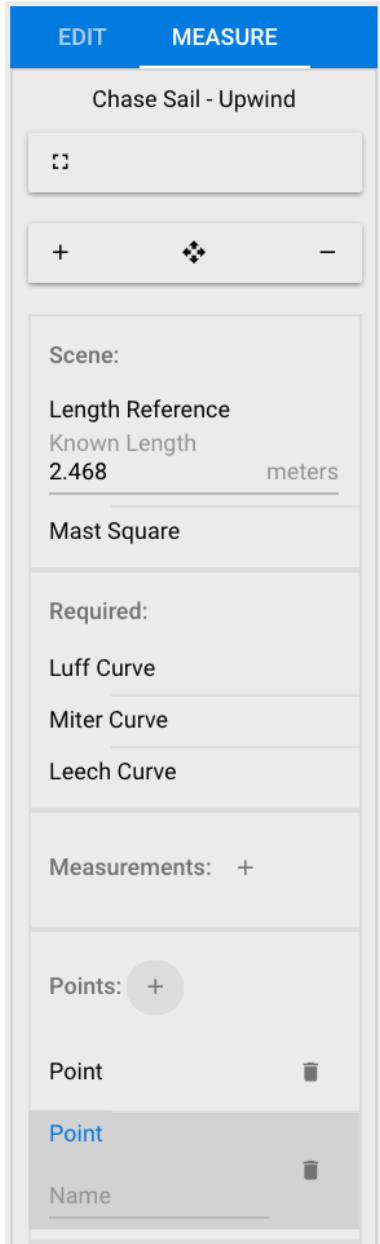
Curves can be used to visualize the position of max depth looking up a sail.



To draw a curve, select the "+" next to "**Curves**". Rename the curve. Select the "+" at the top of the "**Measure**" tab and draw points on the image.

# Point to Point Measurement

## Video Tutorial



The **Points** and **Measurements** tools make it simple to measure any length in the image, given an accurate length reference.

Use this feature if you want to measure mainsheet length or runner cable length.

Make sure that you have a length reference selected and completed.

The screenshot shows a sidebar with the title "Points: +". Below it are two entries: "Start" and "Stop", each with a small trash can icon to its right.

First, create two new **Points** by selecting the "+" next to **Points**.

Label the points. Select the point name and the "+" at the top of the "**Measure**" tab to place each point at the start and end points of the desired length to measure.

The screenshot shows a sidebar with the title "Measurements: +". Below it is a single entry: "Runner". Under "Runner", there is a "Name" field containing "Runner" with a blue underline, followed by a dropdown menu with "Runner" selected. Below this are two dropdown menus: "Start" and "Stop", each with a small trash can icon to its right.

After placing the start and end points on the image, create a new measurement by selecting the "+" next to **Measurements**.

Label this measurement (i.e. Runner or Mainsheet). Select the two points from the dropdown menus.

Point-To-Point Distances		
M2-A-Leech	Runner	1.559

Your point-to-point measurement will be available, in meters, on the Results page.

## Results

Make sure that absolute is selected.

Point-To-Point Distances		
M2-A-Leech	Runner	1.559

At the bottom of the graphs and tables you will find the results of "Point to Point" measurement.

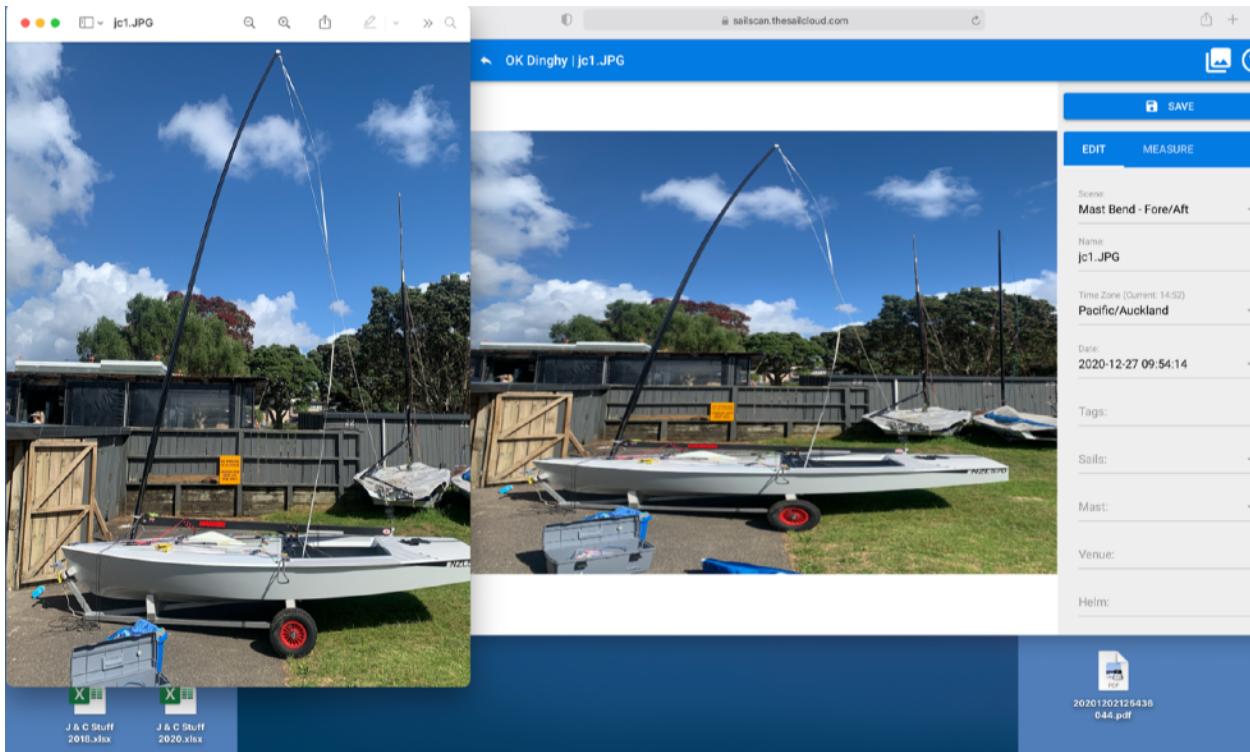
# Tips and tricks

This is a collection of tips & tricks that should help you if you see these issues

## 1: Image aspect ratio has changed?

On some rare occasions the original photo on the left was uploaded and the program changed the aspect ratio. This happens when downloading an image from a cloud based storage system.

**1a: Fix:** Delete the image in sail cloud. Outside the program rotate the image 360 degrees and resave. Reimport the image and the aspect ration of the photo will be correct.



## 2: Mast bend does not show up?

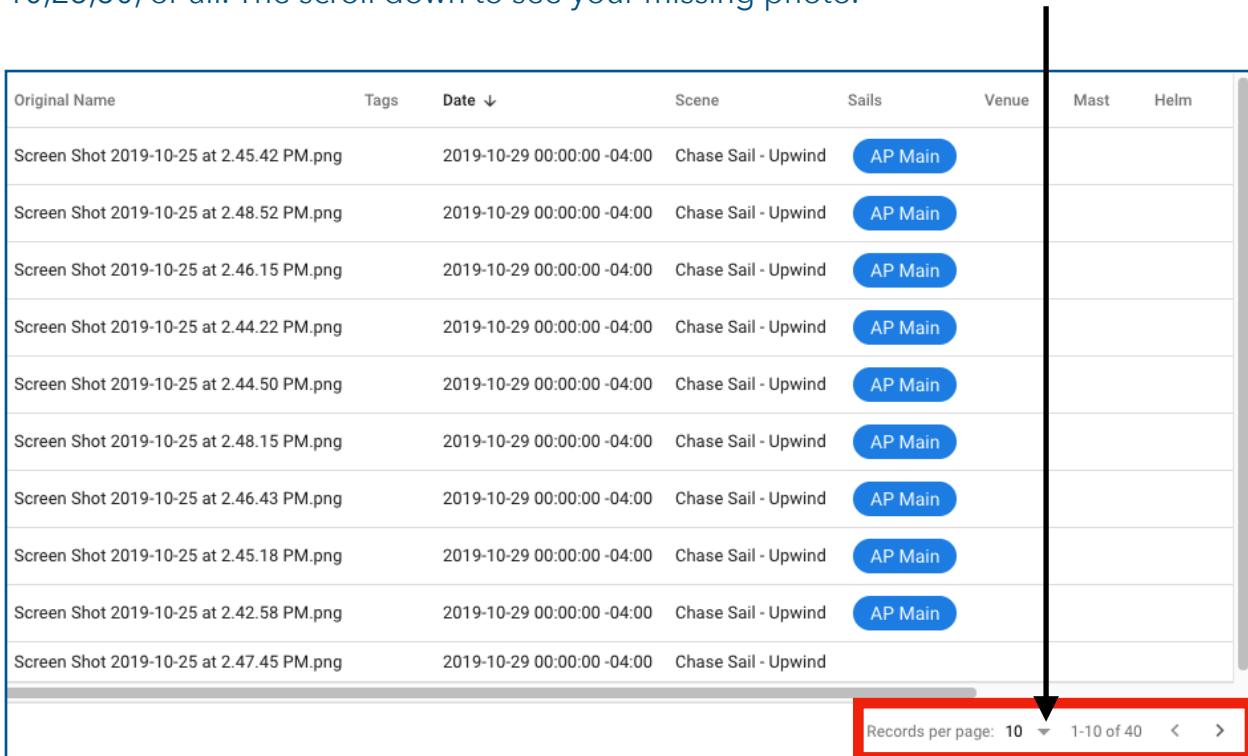
**2a: Fix:** This is because you didn't select and enter the mast square. Select mast square, place points on photo, save.

Mast bend numbers and curves will show up

## 3: I uploaded my photo but I don't see it?

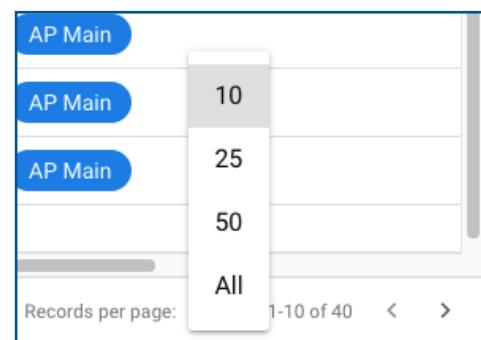
**3a: Fix:** By default the image records per page is set to 10.

Change the Records per page number by clicking the arrow and select 10,25,50, or all. The scroll down to see your missing photo.



Original Name	Tags	Date ↓	Scene	Sails	Venue	Mast	Helm
Screen Shot 2019-10-25 at 2.45.42 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.48.52 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.46.15 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.44.22 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.44.50 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.48.15 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.46.43 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.45.18 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.42.58 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			
Screen Shot 2019-10-25 at 2.47.45 PM.png		2019-10-29 00:00:00 -04:00	Chase Sail - Upwind	AP Main			

Records per page: 10 < > 1-10 of 40



## 4: How to take off the boat sail photos?

**4a: Fix:** To increase the accuracy of mast bend measuring, you need to reduce the amount of variables. You can get this down to a 4mm error. I suggest that you follow the following steps.

- Open up the aperture and leave it for both photos if you are comparing rig tune. Do not zoom.
  - Use the chase boat to move closer or further away to keep the same distance away from the subject. Do not adjust your zoom.
  - Make sure the top of the mast is the same distance below the top of the view finder.
  - On an android or iPhone, use the square mode for photos.
  - Make sure you can clearly see what you are using for the mast square. Not covered by boat wake etc!
  - Line up the mast & forestay for centerline shots. Good for lateral mast bend measurements.
  - Line up the clew and mast for leech & miter curve measurements.
  - Line up the clew of the jib and forestay for headsail leech & miter curve measurements.
  - For fore & aft mast bend measurements, line up the two cap shrouds. You will be surprised on how far forward you will need to be!
  - Be careful on measuring fore & aft mast bend with a lot of heel. The results may be inaccurate.
  - Line up the clew and the luff of an asymmetrical spinnaker to measure the leech, miter, & luff curves.
  - Line up the tack & mast if measuring the luff sag of a forestay or asymmetrical spinnaker
    - To measure the miter of a spinnaker, line up the 1/2 leech point with the luff.
    - The more off-square you are with the photo, the more error there is.
- Remember in most cases we are measuring relatives not absolutes. So keep the same error for both photos. If taking a photo on the quarter keep the same angle for both photos.
- The pixels may be not square, so if you want to measure something horizontal, use a horizontal known measurement. If you want to measure something vertical, use a known vertical measurement