Indicators list

*\*A lot of this variables are extracted thanks to: https://scikit-image.org/docs/0.24.x/auto\_examples/segmentation/plot\_regionprops.html*

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| --- | --- |
| **Variables** | **Calculation** |
| Number | Index of the school among all the images |
| Label | Index of the school among one image (1 if only 1 school in the image) |
| File\_name | Name of the resize matrix used for the school extraction |
| Size | Number of pixels of the school |
| Bbox | Box around the school\* |
| Center | Centroid\* |
| Depth | Depth of the average coordinate of the school in meter |
| Sea\_depth | Sea floor depth in meter |
| School\_seabed\_distance | Depth- Sea\_Depth in meter\*\*\*\*\*\* |
| Gps\_lon\_lat | Longitude and latitude (WGS84) |
| Time | Time UTC |
| Width\_bbox | Width Bbox\* |
| Length\_box | Length Bbox\* |
| Is\_very\_wide | (bbox[3]-bbox[1])>width\_image/2 |
| Is\_very\_tall | (bbox[2]-bbox[0])>height\_image/2 |
| Dis\_to\_surface | Bbox[0]\* in pixels |
| Dis\_level | 0,1 or 2 0 if Dis\_to\_surface under 10 pixels, 1 if between 10 and 50 and 2 if > 50 |
| Axis\_major\_length | \* AREA |
| Axis\_minor\_length | \*AREA |
| Perimeter\_school | Perimeter\* |
| Intensity\_school | Mean intensity of the school |
| Intensity\_img | Mean intensity of the image |
| Dif\_intensity\_school\_image | Intensity\_school – Intensity\_img |
| Center\_square\_intensity | Center square: A Square of nine pixels with central pixel is the centroid\* of the school  Mean intensity among this square |
| Edges\_school\_intensity | Edges: List of tuples containing coordinates of the four connected neighbours  Mean intensity among these coordinates |
| Dif\_intensity\_center\_edges | Cente\_square\_intensity - Edges\_school\_intensity |
| Std\_intensity\_school | Intensity standard deviation of the school |
| Gradient\_school | gradient\_y, gradient\_x = np.gradient(coords) #coords of the school  gradient\_magnitude = np.sqrt(gradient\_x\*\*2 + gradient\_y\*\*2)  gradient\_school = np.mean(gradient\_magnitude) |
| Gradient\_school\_center | Idem than before but for the coord of the central square |
| Gradient\_school\_edges | Idem than before but for the coord of the edges |
| Dif\_gradient\_center\_edges | Gradient\_school\_center -Gradient\_school\_edges |
| Width\_length\_ratio | region.bbox[3]-region.bbox[1])/(region.bbox[2]-region.bbox[0] |
| Axis\_ellipse\_ratio | region.axis\_minor\_length / region.axis\_major\_length |
| Solidity | Ratio of pixels in the region to pixels of the convex hull image.\* |
| Compactness | 4\*math.pi\*(region.area)/(region.perimeter\*\*2) |
| Inertia\_tensor\_eigvals\_ratio | region.inertia\_tensor\_eigvals[1]/region.inertia\_tensor\_eigvals[0] |
| Perimeter\_area\_ratio | region.perimeter/region.area |
| Thresh\_min | Thresh\_min from double thresholding |
| Thresh\_max | Thresh\_max from double thresholding |
| Dis\_to\_bottom | Same than School\_seabed\_distance (But I just found an error in the calculation you can remove it and only keep School\_seabed\_distance) |