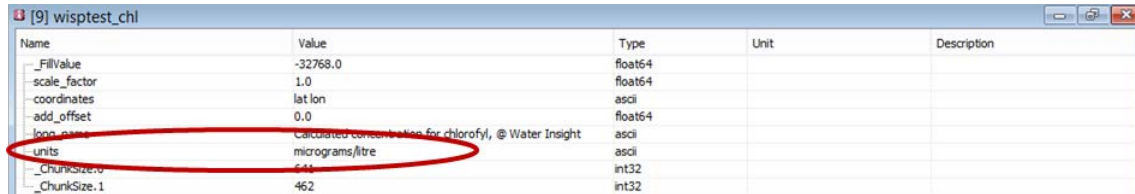


Answers - GLaSS Training material, Lesson #4

Part 1

What are the variable units?

As shown in wisptest_chl metadata table, units are [$\mu\text{g/l}$].



Name	Value	Type	Unit	Description
_FillValue	-32768.0	float64		
_scale_factor	1.0	float64		
coordinates	lat lon	ascii		
_add_offset	0.0	float64		
long_name	Calculated concentrations for chlorofyl, @ Water Insight	ascii		
units	micrograms/litre	ascii		
_ChunkSize0	640	int32		
_ChunkSize1	462	int32		

Figure 1. Metadata of Chl WISP-3 product.

Where Chl concentration is higher?

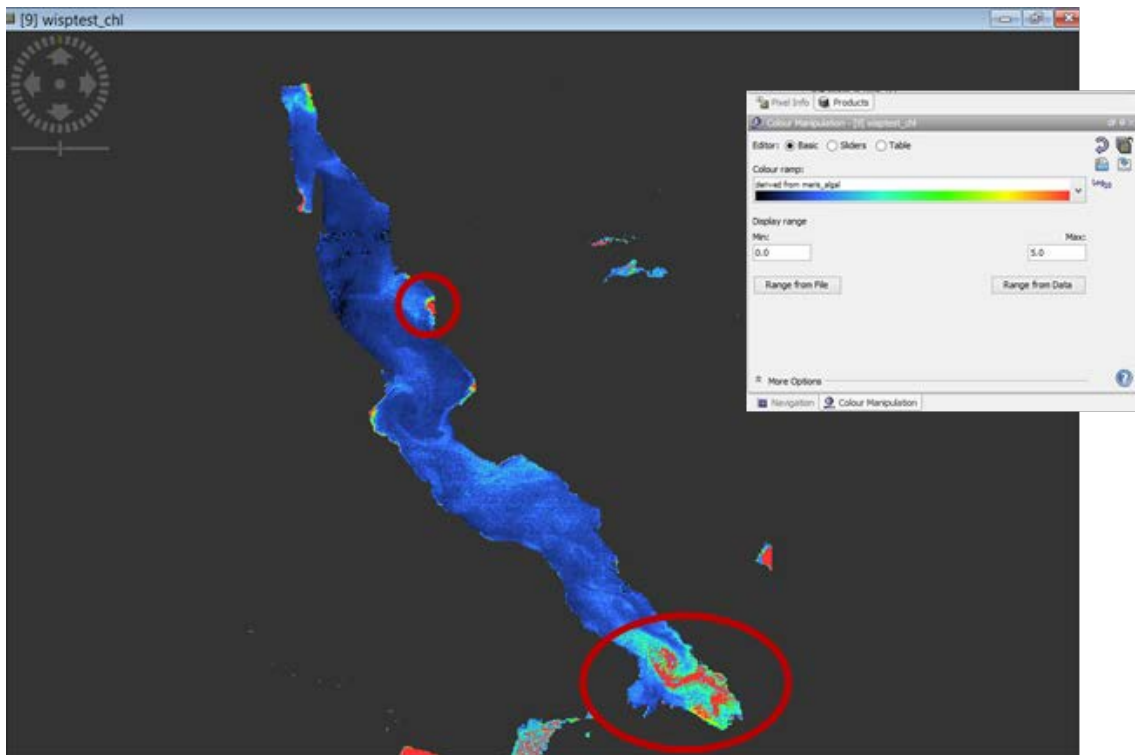


Figure 2. Tanganyika Chl map on May 23rd 2009 and Colour Manipulation tab.

As shown in Figure 2, Chl concentration is highest mainly in the South regions, where an algal bloom is clearly visible (in the biggest red circle). Adjusting Min and Max data range in *Colour Manipulation* tab is possible to highlight this feature or to better distinguish the spatial distribution of concentration in that area, for ex. increasing Min and Max values.

Part 2

What's Chl mean and median concentration? What's the maximum value in the lake? What's Chl mean value in 'Centre' region? And in 'South' region?

Figure 3 shows all statistics calculated for the whole lake and for the 'Centre' and 'South' regions.

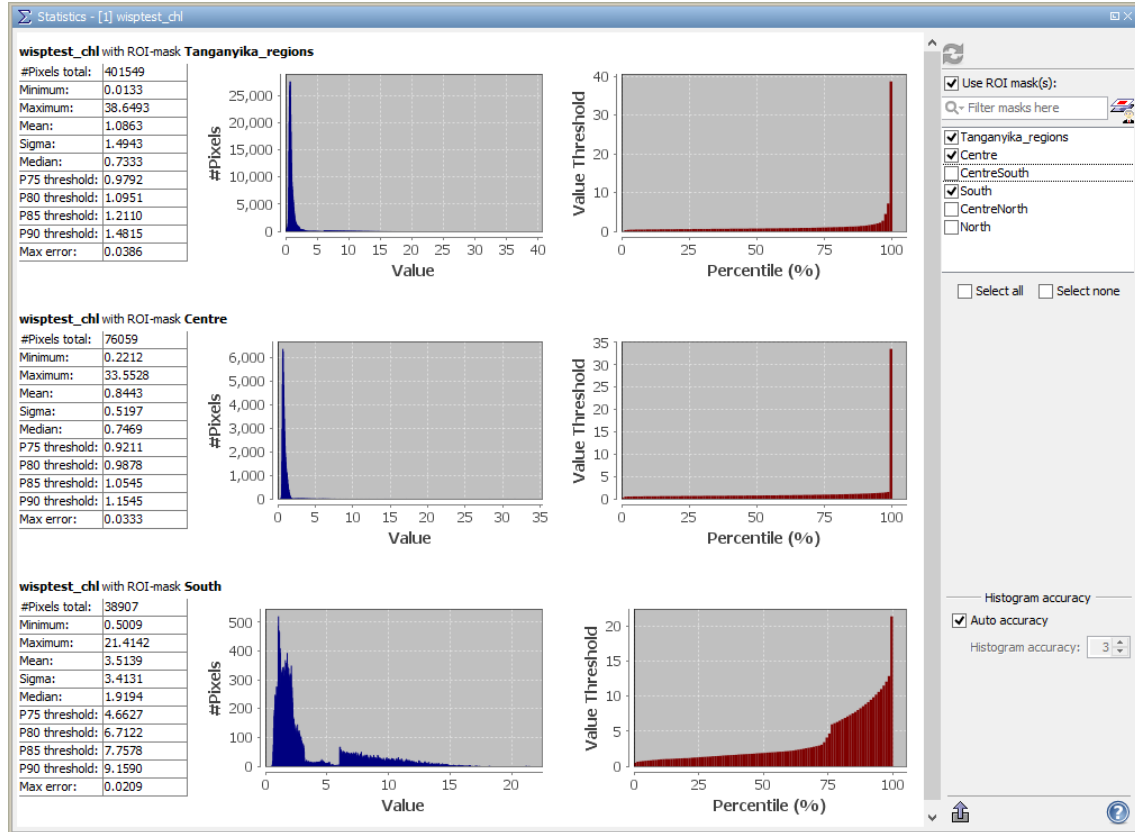


Figure 3. Tanganyika Chl statistics on May 23rd 2009 in the whole lake and in 'Centre' and 'South' regions.

In how many pixels Chl exceeds the threshold defined above?

Use Σ to calculate statistics selecting the mask including only Lake Tanganyika pixels where Chl exceeds the sum of mean and standard deviation: the number of pixels is shown in *Statistics window*: 17,834. Consider the whole lake using 'Tanganyika_regions' mask (Figure 3): the number of pixels used is 401,549. Thus in more than 4% of pixels Chl exceeds the threshold.

Part 3

Where and when the highest Chl concentration was recorded?

Among provided products, the highest mean value (4.89 µg/l) was recorded on 15/5/2005 in 'Centre' region.

On the basis of the images provided, what's the overall mean value for Lake Tanganyika regions?

Use *StatisticsOp* setting in 'Stats_extraction_StatisticsOp.xml' a time interval which includes all available products and then

The operator provides these results for Tanagnyika regions:

Region	Mean Chl (µg/l)
North	0.93
Centre	1.23
South	2.18
CentreSouth	1.48
CentreNorth	1.11

Part 4

*What's Chl long-time trend from 2003 to 2011 for regions 'Centre' and 'North'?
Is it meaningful?*

Seasonal Kendall Test results do not show any meaningful monotonic trend, being p-value higher than the confidence limit of 0.05 in both regions.