FOR THE EDITOR:

Dear A. Mazumdar,

We are replying below to our 3rd round of major revisions. The revision arrived to us on Oct 11, and we were waiting for it since July 14, which is far beyond an acceptable time for a revision, especially if it is the third one.

The first comment of the reviewer was finally clear to us and we were able to prepare some new pictures that will hopefully solve the issue, and improve the manuscript. The other comments refer either to information that is already contained in the manuscript and already explained in a previous response to the reviewer, or minor clarifications. Are we going to wait for another semester to see a significant step of our manuscript towards publication? We do not understand the protraction of this review, despite no significant major problem.

Thank you for your collaboration.

Comment: The authors have responded to the previous review. Having read the responses and re-read the paper I believe that we are at an impasse. I believe that the revisions highlighted would substantially improve the paper, the authors (somewhat) disagree or have argued against making a number of the suggested changes. There are a number of points that I believe that need to be addressed: the paper is about growth vs. temperature and therefore quantification of both must be as accurate as possible. Yet some of the points raised in the previous review remain unaddressed, for instance, "Why is only the Morlaix site chosen for plotting the comparisons between different variables and not the others? The authors need to show for all samples the transect of laser ablation values vs. length. I would envision this as a plot with several panels, first panel elemental ratio vs depth." The authors state its not possible to plot the growth rates, but the authors could show a plot of the element ratios along the transect (i.e., identifying also where samples were taken) and the rough position of the growth bands, no?

Response: We have created the new figures requested, in Supplements (Figure S1, S2, S3).

Comment: Or the response to asking why the number of years of growth for calculating mm/yr uses the 'exact' number of years (section 3.4) however when computing temperature a fixed number of 11 years is used. In responses to this question the authors state that "The values of growth rates are approximate due to the limit of the method and the complexity of the algal growth behaviour. For the comparability among sites, we decided for a time interval which almost surely included the whole length of the laser transects". The authors argue (in response to a different question) that "the resolution of the laser ablation does not allow us to attribute a single point of analysis to an absolute temperature in a specific time of the year, but rather refer more generically to the cold and warm seasons."

Response: Please mind that there is no correlation between the time interval of extraction and the number of years counted when measuring the growth rates. Following a well-established procedure for the growth rate measurements, we divided the length of the laser transect by the number of annual growth bands crossed (see Section 2.4). This calculation results in the value of mm of growth per year. The time interval of temperature extraction was set to 11 years before sample collection, in every site, and is unrelated to the previous calculation. We revised the manuscript (line 154) to be more explicit about this point.

Comment: Or why is figure 8 not plotting all sites elemental ratios - I ask because Morlaix has a [weak] correlation between B/Ca and Mg/Ca. It would be interesting to know whether this is found among all sites or just one, especially if you consider that Elba you use Mg/Ca to make an inference of growth to compare against B/Ca.

Response: Figure 8 shows the only significant correlation found (see line 254 and responses to previous reviews). Relationships between B/Ca and temperature proxies were calculated for each sample as wrote in the manuscript since the original version, founding no significant correlations (lines 254-255). Therefore, this information is already present, as we commented also in the previous review. Still, the presence or absence of a correlation between Mg/Ca and B/Ca is unrelated to the use of Mg/Ca variations in supporting the distinction between short and long cells. Mg/Ca is a well-established temperature proxy, as also confirmed by our results.

Comment: As such many of the previous questions stand I would therefore still consider it major revisions.

Response: Although we do not see the need for this revision to be major, we have hopefully clarified the points and further implemented the manuscript. We believe that our work, significantly improved by the revisions, includes all the information we could get from our samples concerning growth rate and temperature, in support to our conclusions.