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Assessing the severity of diatom deformities using geometric morphometry

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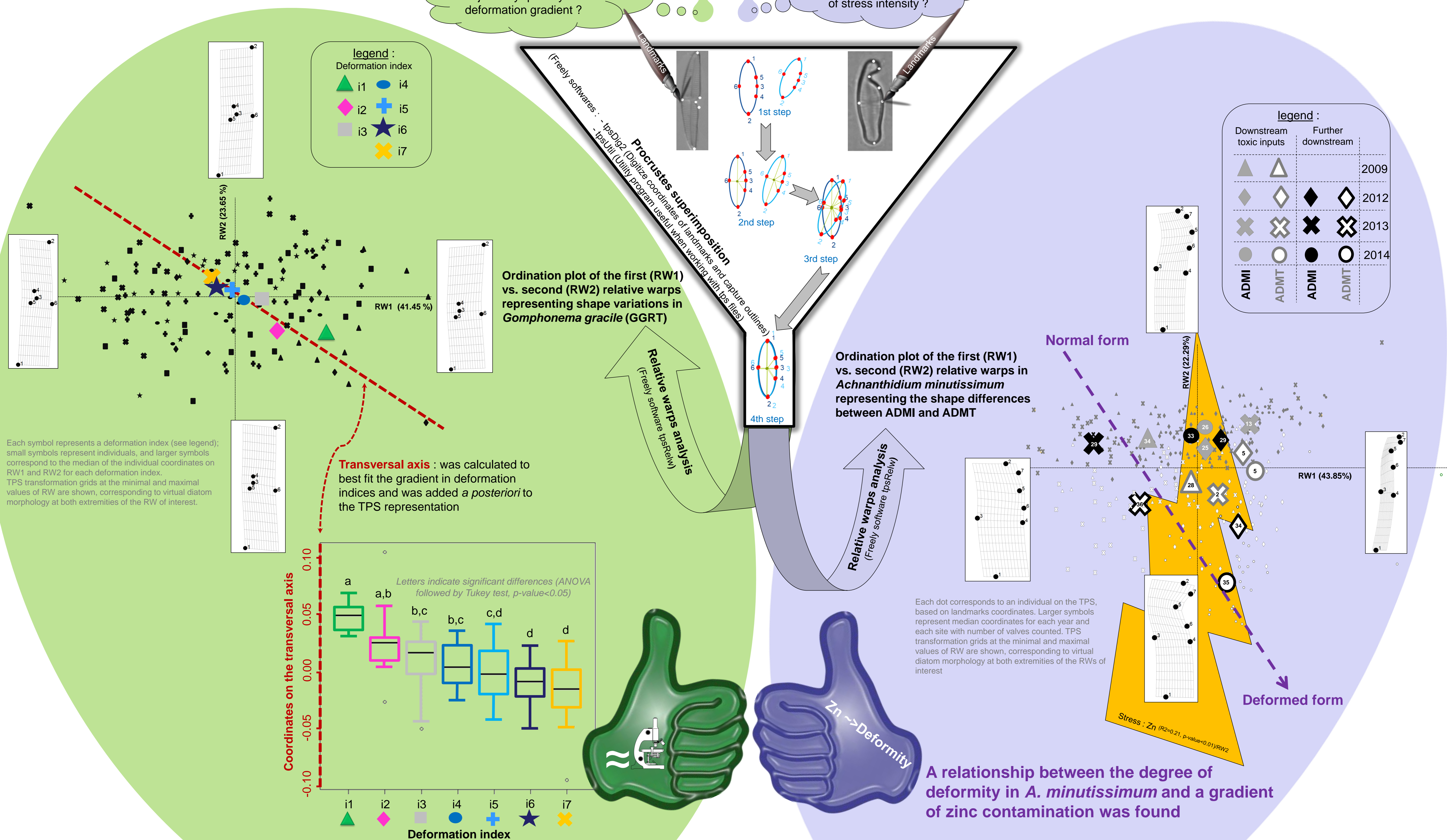
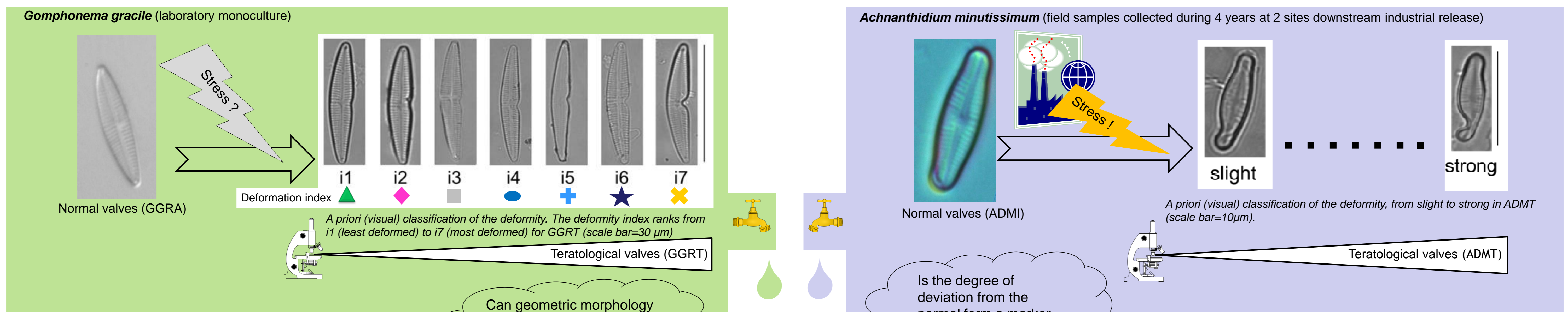
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Introduction

Deformities in diatoms are increasingly used as an indicator of toxic stress in freshwaters. However, the percentage of deformities alone often fails at highlighting the magnitude of toxic exposure. It has been suggested that the severity of the deformation (degree of departure from normal form) could be a valuable aspect to consider in addition to the percentage of deformities in an assemblage. An approach combining the assessment of deformities coupled with information on their severity could improve the sensitivity of this biomarker.



Conclusion

Geometric morphometry provided encouraging results to objectively quantify the intensity of diatom deformities affecting valve outline, and could easily be implemented in further automatic diatom identification developments.

Prospect

Further investigations could assess the possible application of other features in geometric morphometry, such as landmarks located on valve ornamentations (striation patterns, raphe).

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