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► To cite this version:

Frédéric Gazeau, Cécile Guieu. Present and future impact of atmospheric deposition on the structure and functioning of plankton communities in the Mediterranean Sea (Peacetime project). Future Oceans2 IMBeR Open Science Conference, Jun 2019, Brest, France. hal-03957216

HAL Id: hal-03957216

<https://hal.science/hal-03957216v1>

Submitted on 26 Jan 2023

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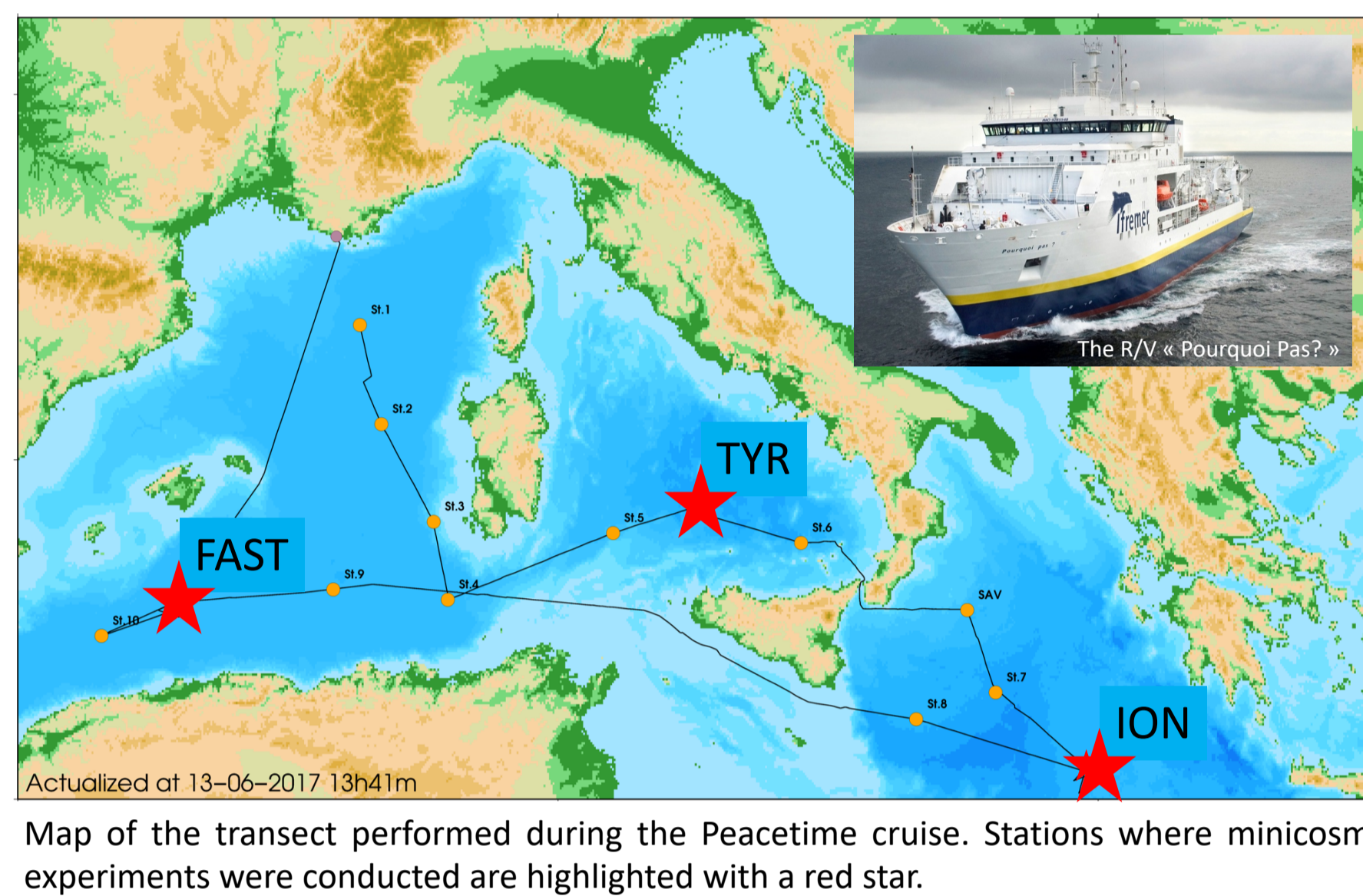
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Present and future impact of atmospheric deposition on the structure and functioning of plankton communities in the Mediterranean Sea (Peacetime project)

Overall objective

The PEACETIME project aimed at extensively studying and parameterizing the chain of processes occurring in the Mediterranean Sea after dust deposition and to put them in perspective of on-going environmental changes.

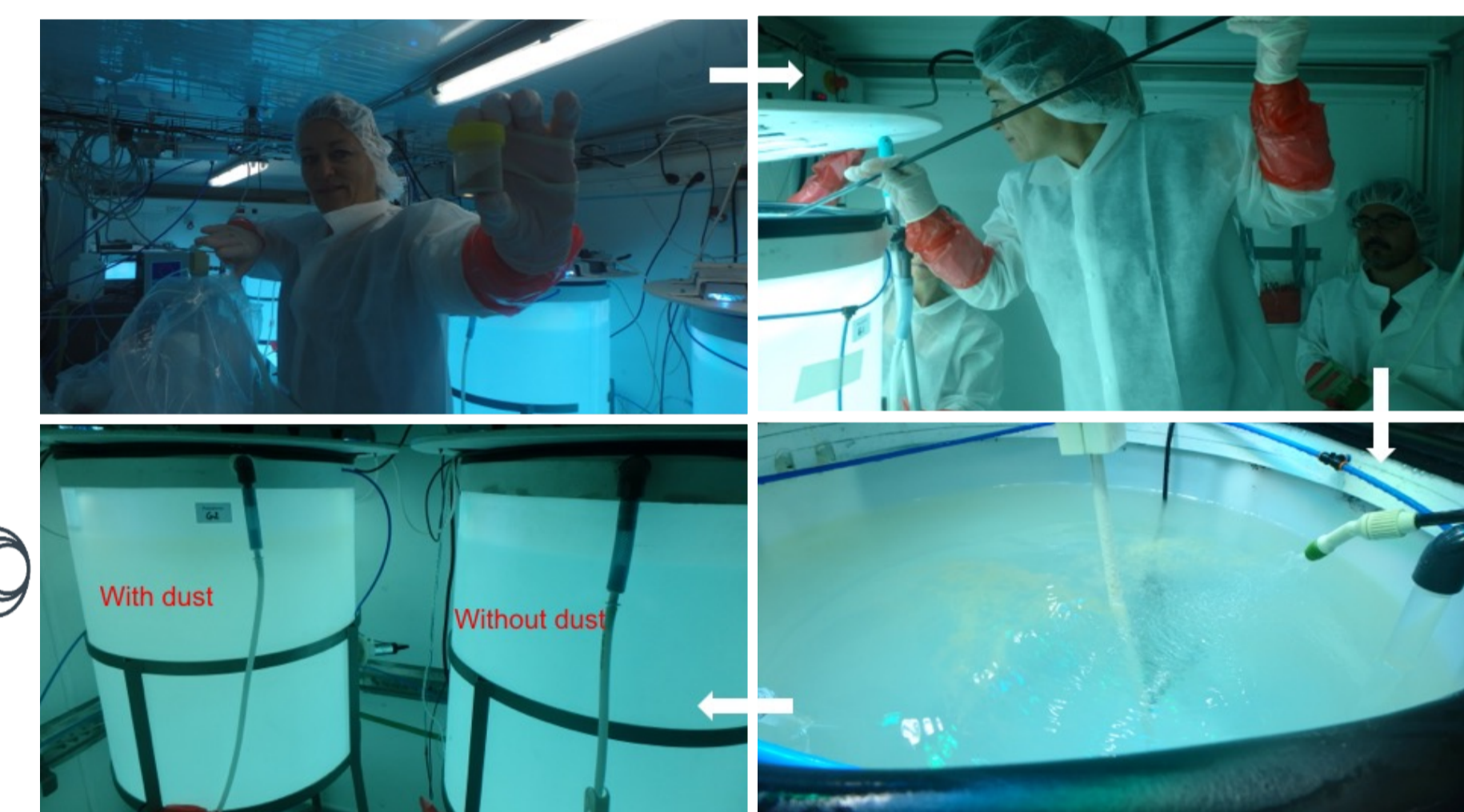
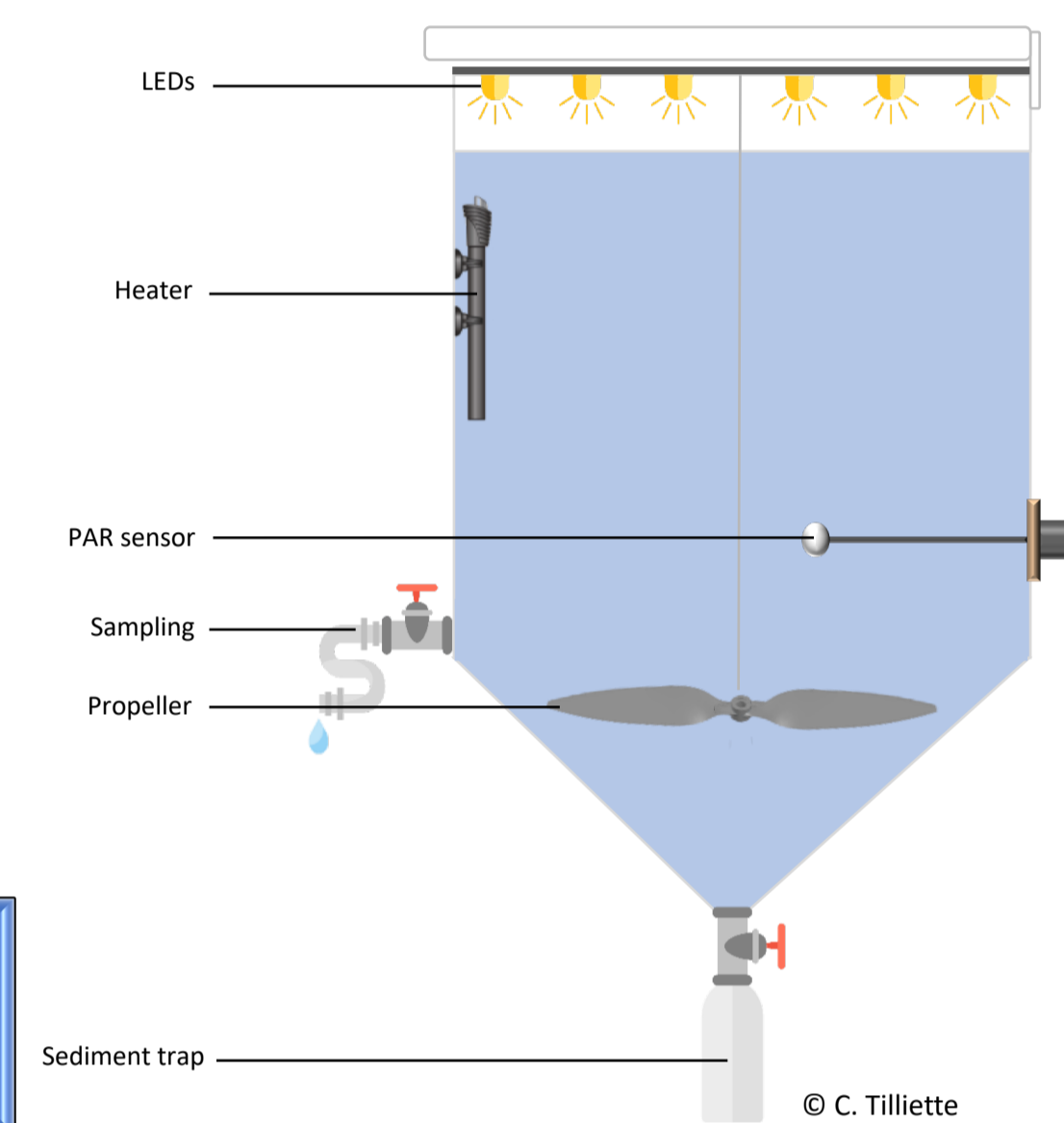
Material and methods



During a cruise on board of the R/V "Pourquoi Pas ?" in May/June 2017 (oligotrophic season), 3 experiments in minicosms were conducted with surface water collected in the Tyrrhenian Sea, Ionian Sea and close to the Balearic islands. The evolution of chemical and biological stocks as well as processes were followed during 3-4 days.

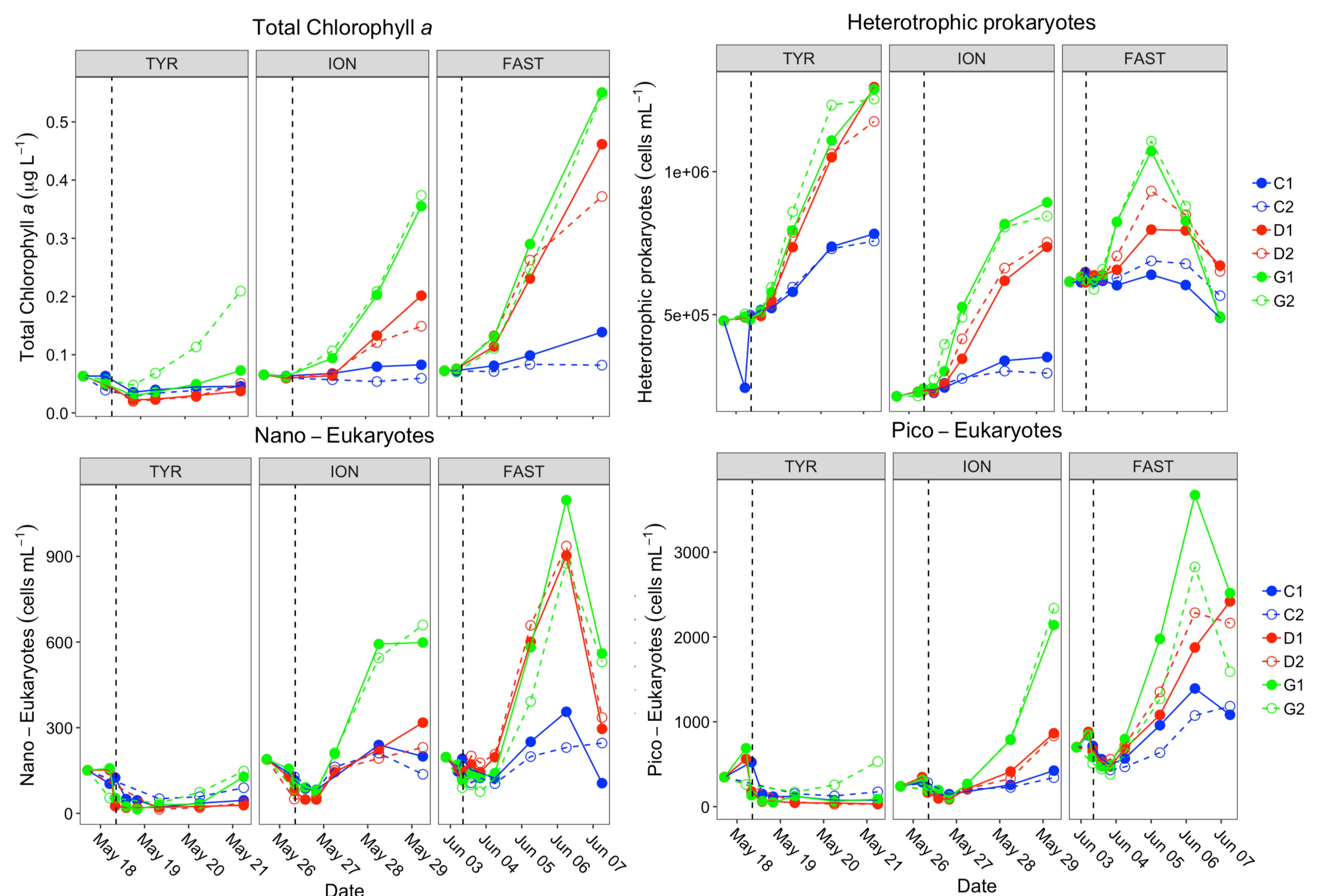
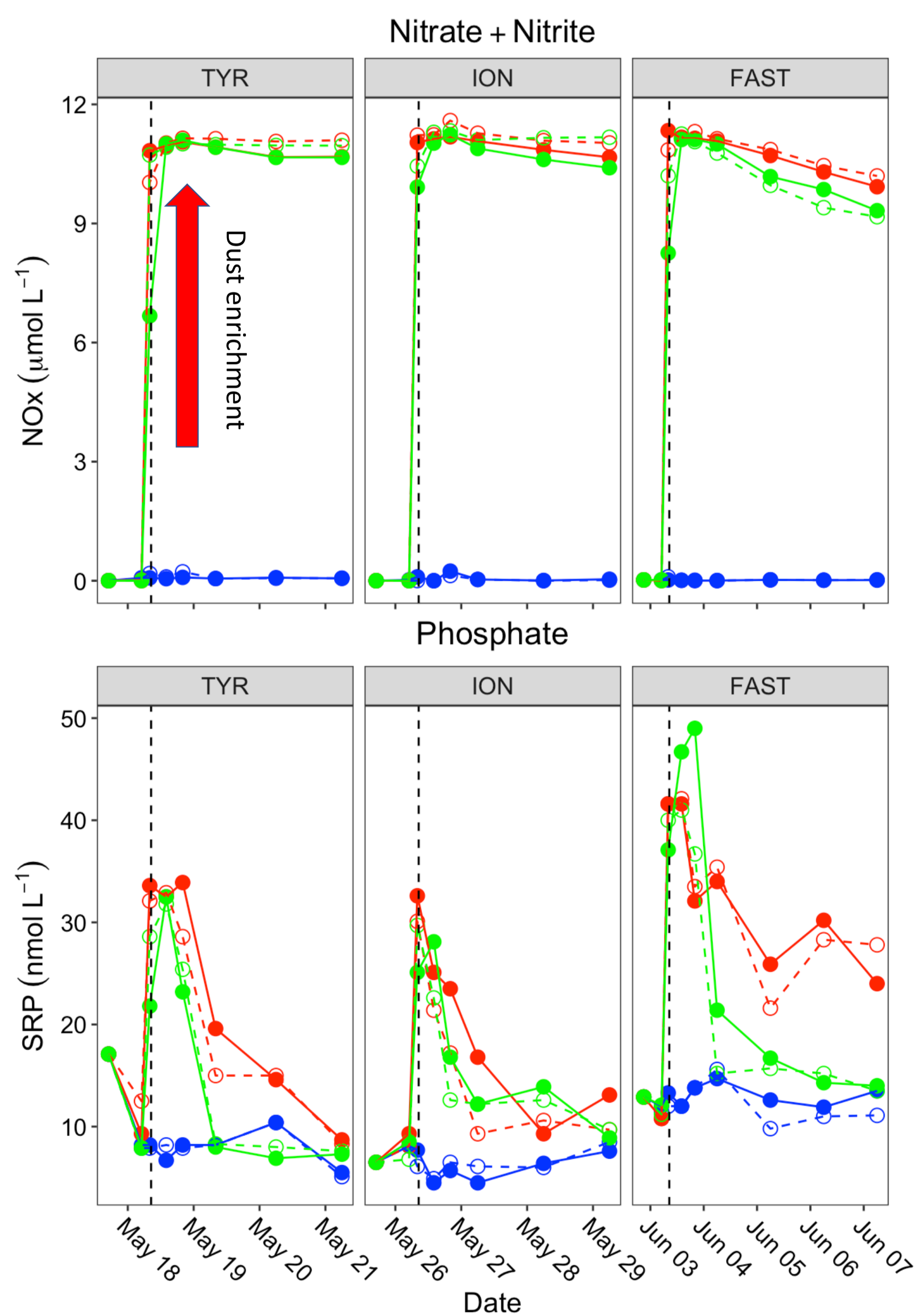
6 minicosms

- C1, C2: Control
- D1, D2: Dust enrichment
- G1, G2: Dust enrichment under future conditions
pH - 0.3, temperature + 3 °C



Six experimental tanks (300 L, see scheme on the left) in which the irradiance spectrum and intensity can be finely controlled were installed in a temperature-controlled container. Dust enrichment (10 g m⁻²) was performed in four tanks. The experimental protocol included the analysis of an extensive number of biogeochemical parameters and processes. Three experiments of 72 h were conducted at stations TYR, ION and FAST (see map). The last experiment at station FAST was extended to 4 days.

Few selected results



Conclusions

- Overall, clear impacts of dust enrichment and warming/acidification on the plankton community
- However, important differences among stations were highlighted and were related to the initial composition and physiological/functional state of the investigated community

Watch out for the joint Special Issue in Biogeosciences/Atmospheric Chemistry and Physics

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<http://peacetime-project.org>

Acknowledgements

We would like to thank the crew of the R/V « Pourquoi pas? », J.M. Grisoni, G. De Liège, F. Louis, D. Delhommeau and E. Tanguy for the development of the minicosms and D. Lefèvre for the seawater pumping system.

*The team was composed of S. Alliouane, C. Stolpe and J. Uitz (LOV, France), K. Djaoudi, J. Guittoneau, S. Guasco, S. Helias Nunige, E. Pulido-Villena and F. Van Wambeke (MIO, France), A.-C. Baudoux and E. Bigeard (AD2M, France), I. Obernosterer (LOMIC, France), C. Ridame (LOCEAN, France), M. Bloss, A. Nicosia and K. Sellegri (LaMP, France), E. Marañón and M. Pérez Lorenzo (Univ. Vigo, Spain), A. Engeland B. Zaencker (GEOMAR, Germany), J. Dinasquet (Scripps, USA), N. Haëntjens (Univ. Maine, USA)