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Why do we focus on coccolithophores ?

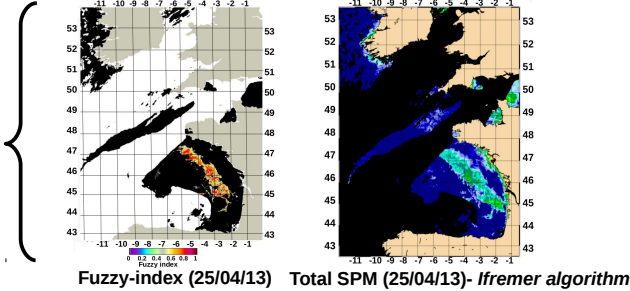
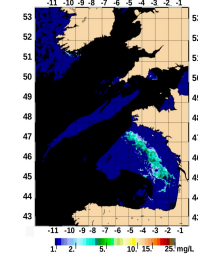
- Produce CaCO₃ and CO₂ with calcification process
 - Produce DMS (dimethyl sulfide)
 - A sink of CO₂ with photosynthesis process
- Feedbacks on climate

Problematic :

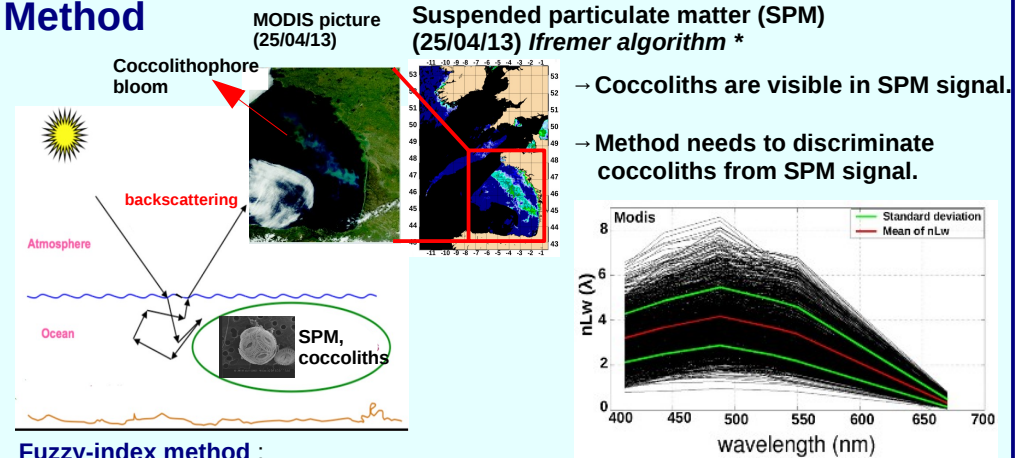
What is the evolution of the budget of calcite produced by coccolithophores ?
How the environmental factors impact coccolithophore blooms ?

Results for bloom on 25th April 2013

Quantitative estimation of coccolith bloom (25/04/13)



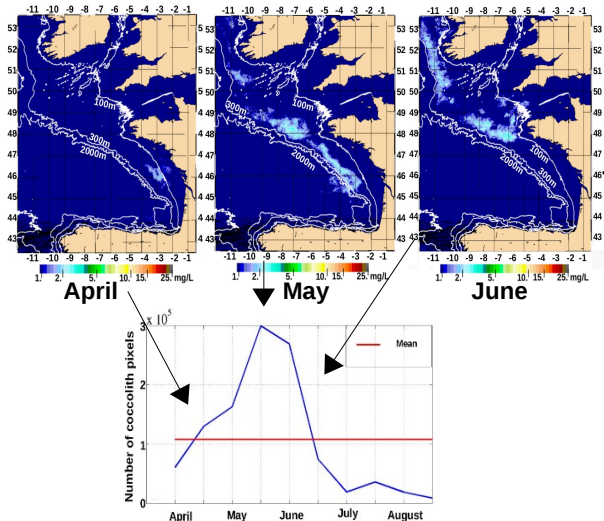
Method



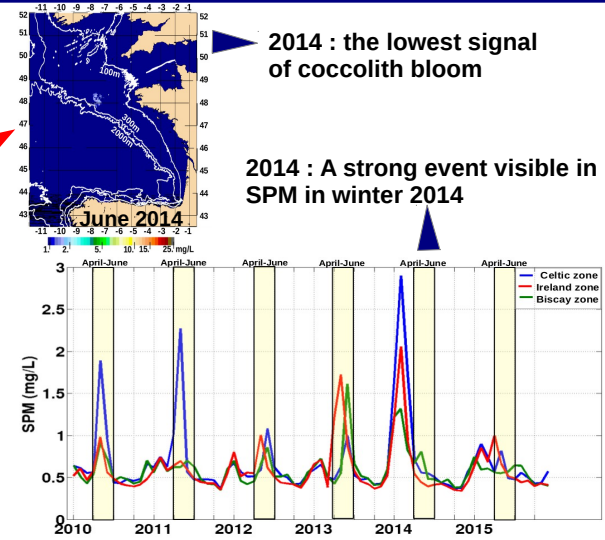
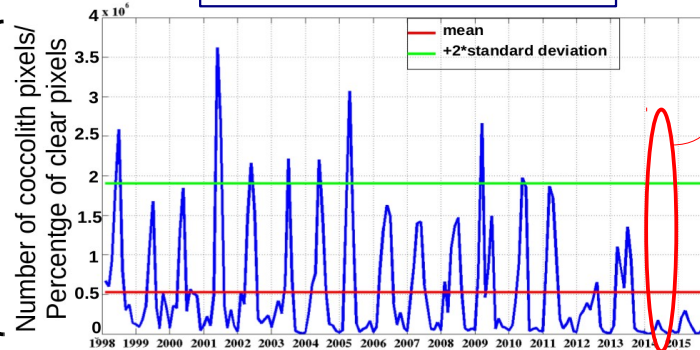
Fuzzy-index method :

A statistical approach based on comparison between the radiance spectra at each pixel and a characteristic coccolith radiance spectrum.

Seasonal variability (climatologies)



Interannual variability



Conclusion

- 1 The method allows to discriminate coccolith blooms in North-East Atlantic
- 2 Blooms extend along the shelf-break northward from Bay of Biscay to Ireland, with anomalies in the time-series of 18 years, as in 2014.

References :

* Gohin, F., 2011. Annual cycles of chlorophyll-a, non-algal suspended particulate matter, and turbidity observed from space and in-situ in coastal waters, *Ocean Sci.*, 7, 705-732.
Moore, Timothy S., Janet W. Campbell, et Mark D. Dowell, 2009. « A class-based approach to characterizing and mapping the uncertainty of the MODIS ocean chlorophyll product ». *Remote Sensing of Environment* 113: 2424-30. doi:10.1016/j.rse.2009.07.016.
Perrot, L., Gohin, F., Ruiz-Pino, D., Lampert, L. Seasonal and interannual variability of coccolithophore blooms in the North East-Atlantic Ocean from a 18-year time-series of satellite water-leaving radiance, *Ocean Sci.* (submitted)