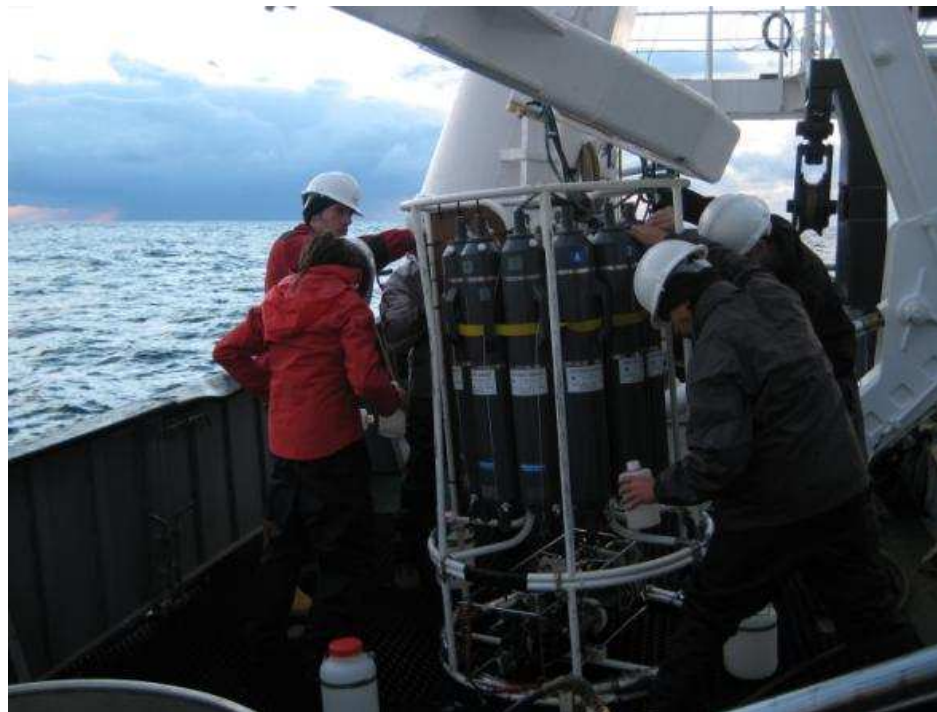


From master...s to post-doc...s









The bay of Calvi

STARESO 

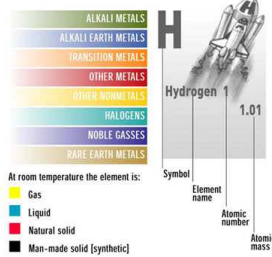
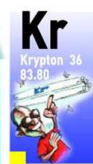
PERIODIC TABLE of the ELEMENTS



DEPARTMENT OF
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VIII A 18

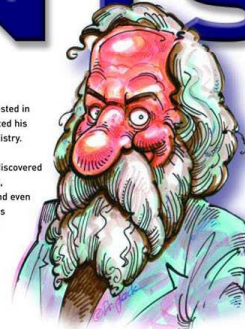


DMITRI MENDELEYEV [1834 - 1907]

The Russian chemist, Dmitri Mendeleev, was the first to observe that if elements were listed in order of atomic mass, they showed regular (periodical) repeating properties. He formulated his discovery in a periodic table of elements, now regarded as the backbone of modern chemistry.

The crowning achievement of Mendeleev's periodic table lay in his prophecy of then, undiscovered elements. In 1869, the year he published his periodic classification, the elements gallium, germanium and scandium were unknown. Mendeleev left spaces for them in his table and even predicted their atomic masses and other chemical properties. Six years later, gallium was discovered and his predictions were found to be accurate. Other discoveries followed and their chemical behaviour matched that predicted by Mendeleev.

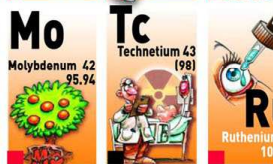
This remarkable man, the youngest in a family of 17 children, has left the scientific community with a classification system so powerful that it became the cornerstone in chemistry teaching and the prediction of new elements ever since. In 1955, element 101 was named after him: Md, Mendeleevium.



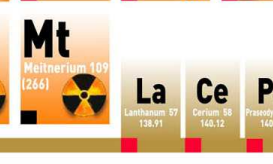
III B 3



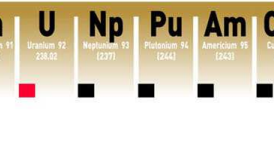
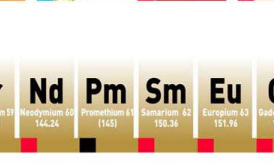
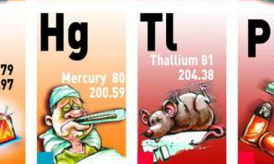
IV B 4



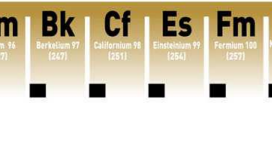
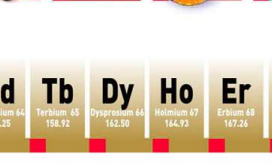
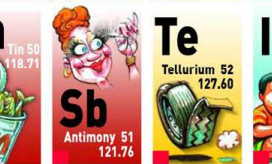
V B 5



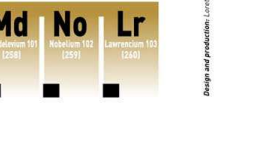
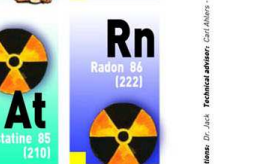
VI B 6



VII B 7



VIII 8



VIII 9



VIII 10

IB 11

II B 12

III A 13

IV A 14

V A 15

VI A 16

VII A 17

VIII A 18

IX A 19

X A 20

XI A 21

XII A 22

XIII A 23

XIV A 24

XV A 25

XVI A 26

XVII A 27

XVIII A 28

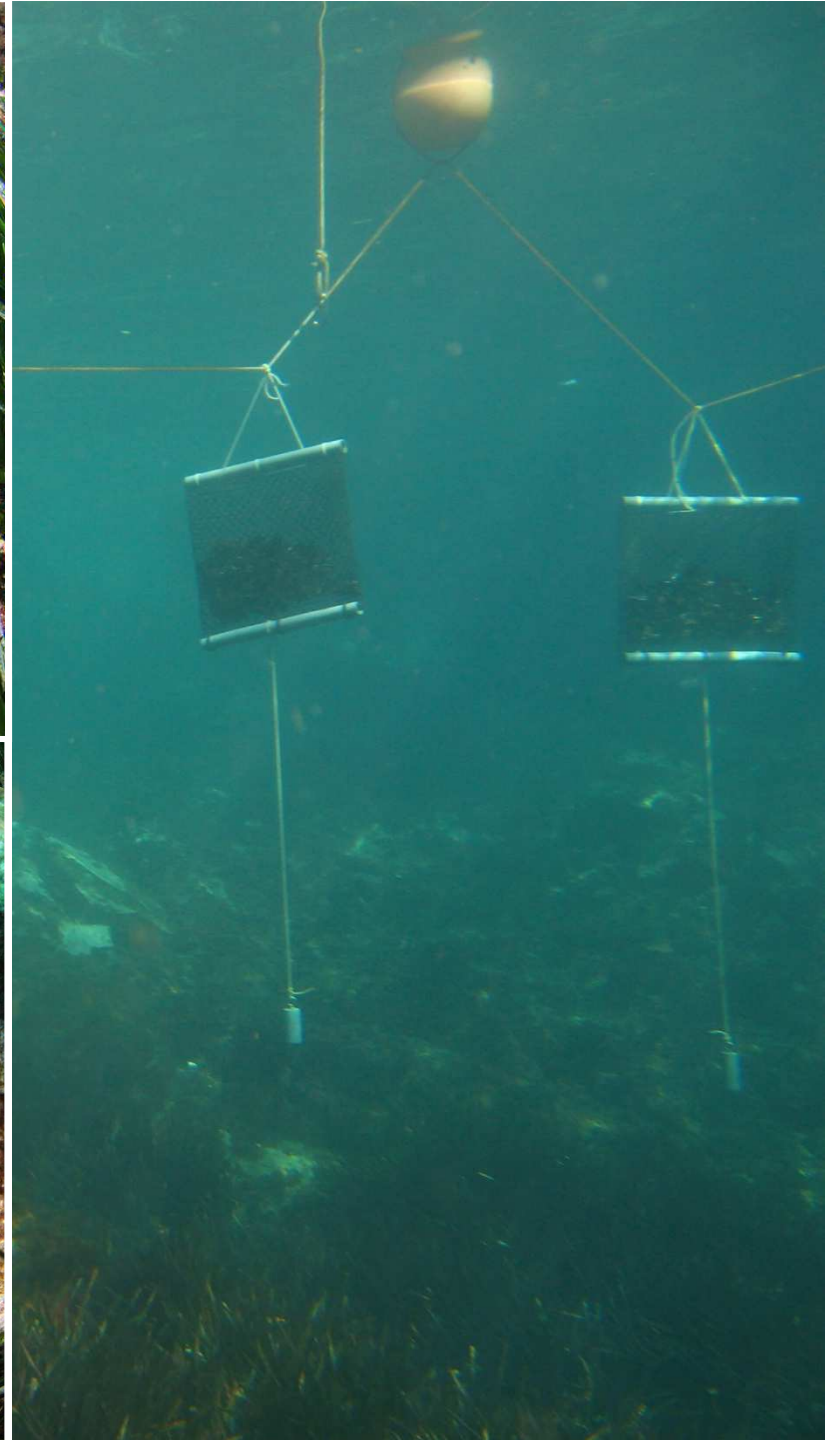
XIX A 29

XX A 30

XXI A 31

XXII A 32

XXIII A 33

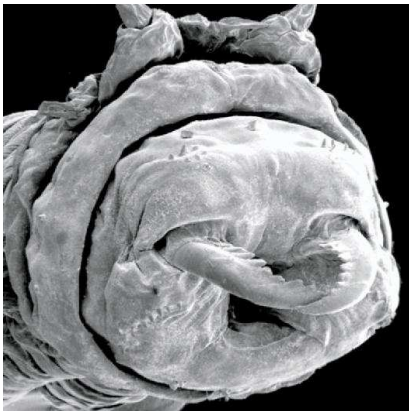


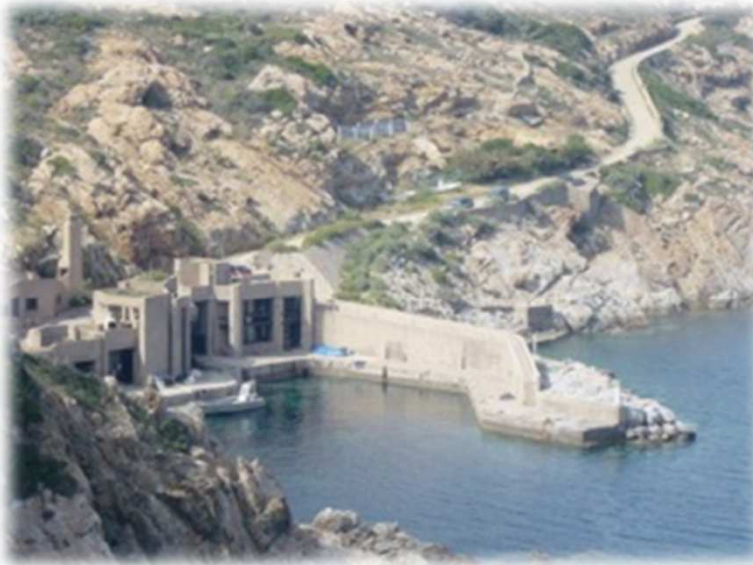


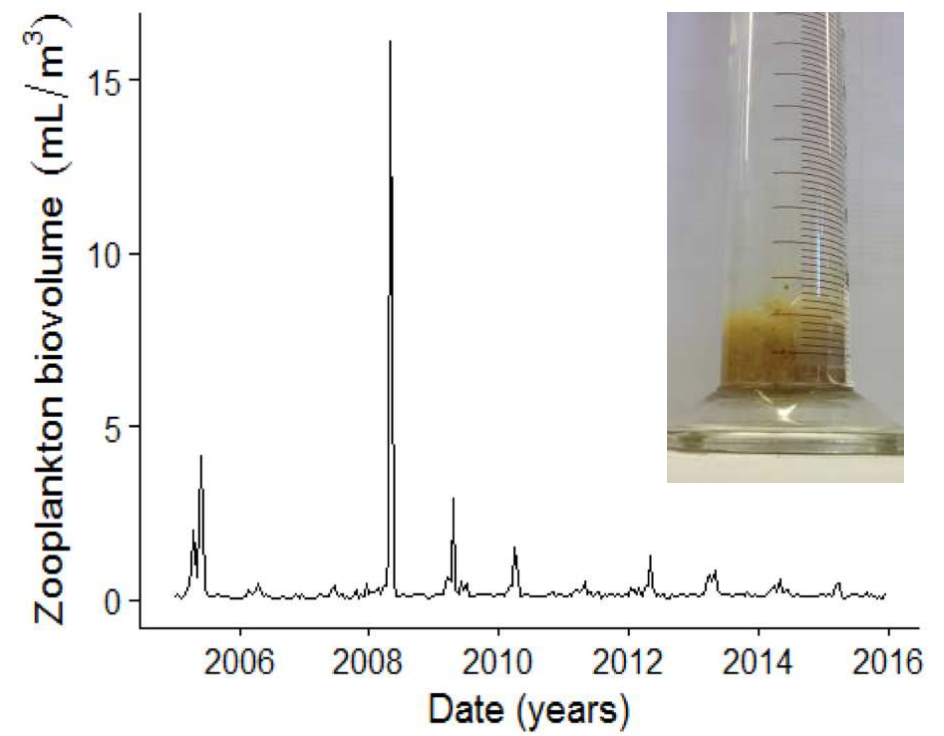
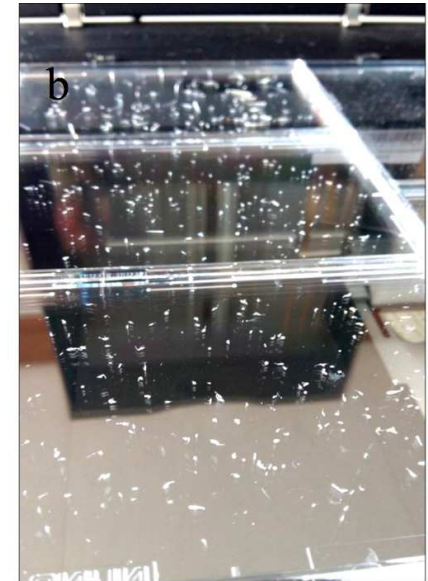
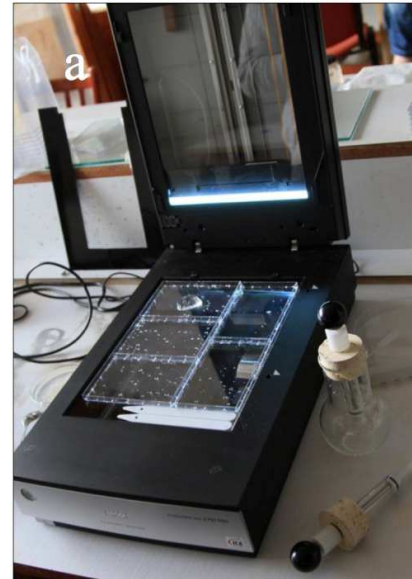
UN BATEAU DE 80 MÈTRES
= 60 CAMIONS SUR 3.500 MÈTRES



VOS BESOINS SONT NOS OBJECTIFS







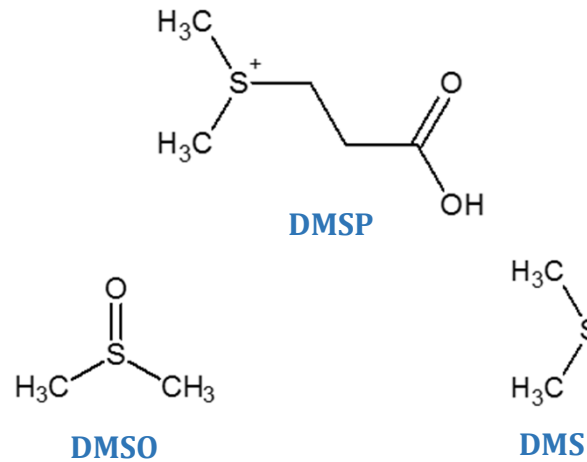
Producers of DMSP and its derivatives



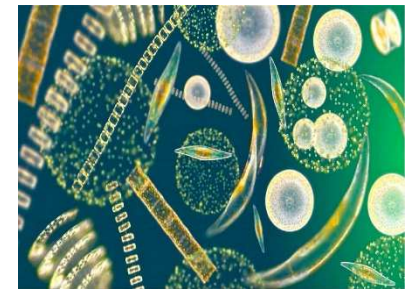
Benthic macroalgae



Coastal plants



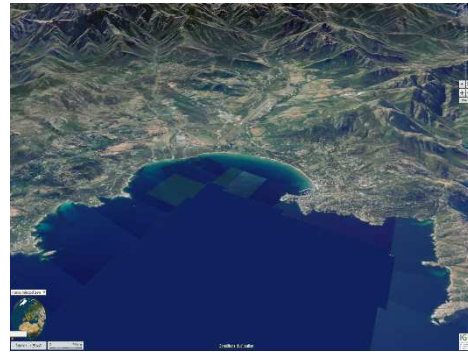
Seagrasses



Phytoplankton



Corals (via
zooxanthellae)



Licence
FUNDP

Master ULg

SPW

Post-doc
Stareso

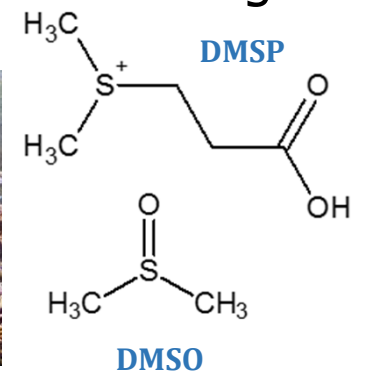
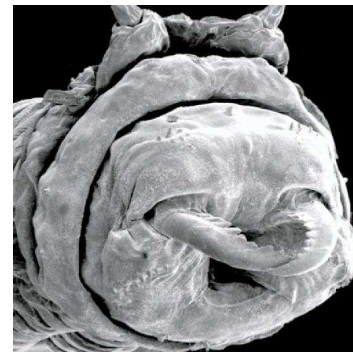
DES FUSAGx

PhD ULg

Post-doc IMS

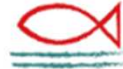
Post-doc
UMONS

Post-doc
ULiège





Océanologie
biologique



PAM fluorometry research in *Posidonia oceanica*

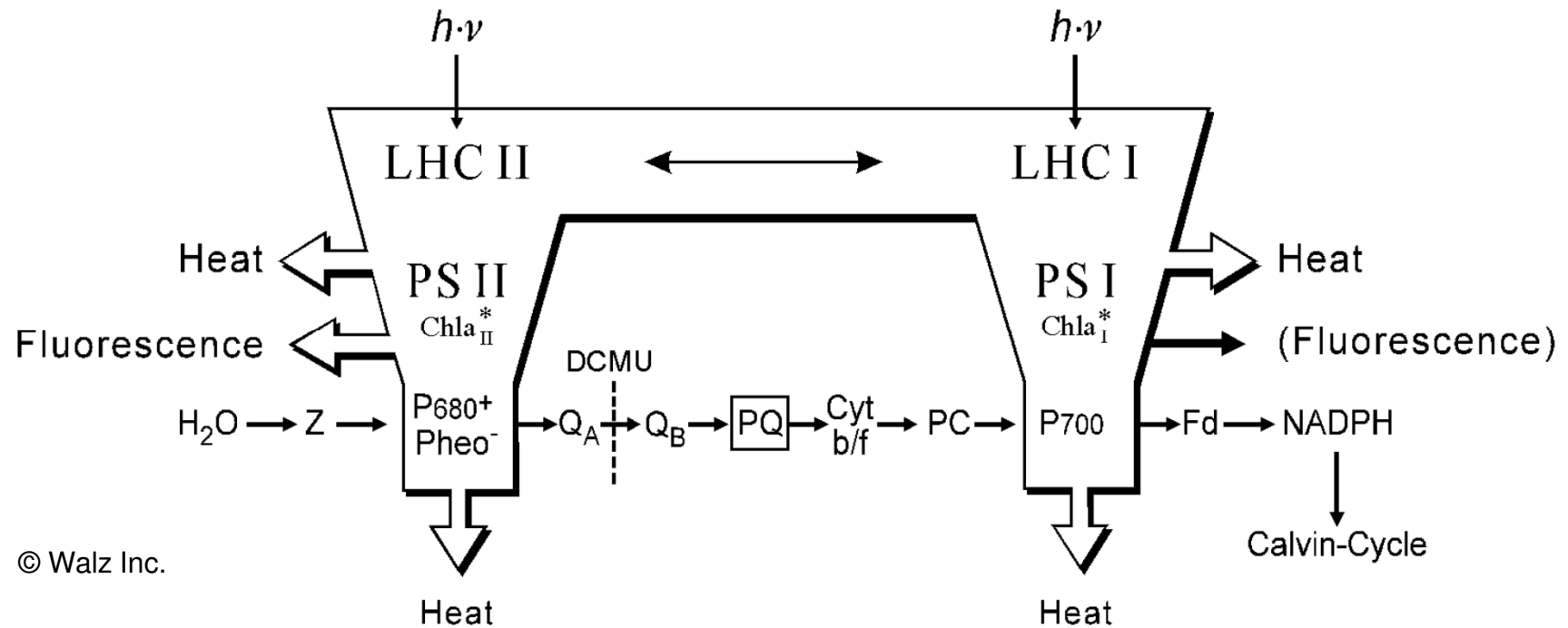
Richir J., Abadie A., Borges A.,
Champenois W., Lepoint G.,
Santos R., Silva J.,
Lejeune P. & Gobert S.

26-04-2018,
ULiège





Fluorescence emission

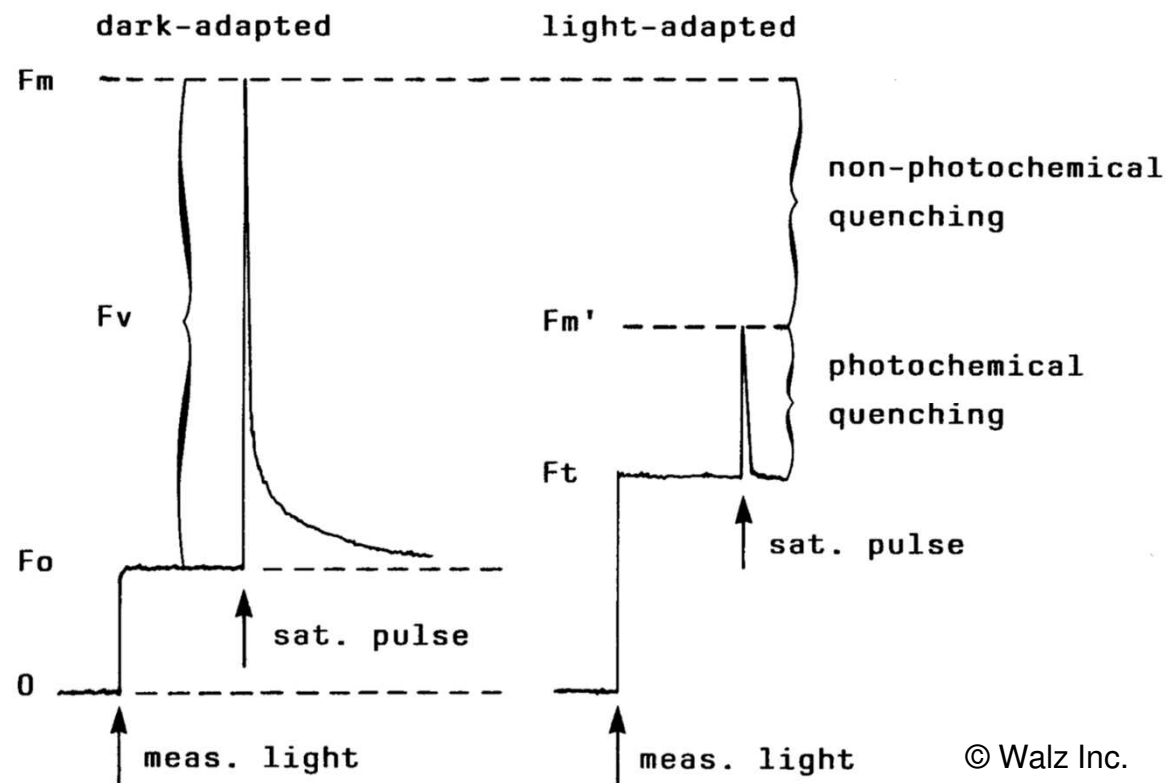


Fluorescence emission is complementary to the alternative pathways of de-excitation, which are photochemistry and heat dissipation.



Fluorescence measurement

- ❖ Dark adapted YIELD = $(F_m - F_0)/F_m = F_v/F_m$
 - ➡ maximum photochemical efficiency
- ❖ Light adapted YIELD = $(F_m' - F_m)/F_m' = \Delta F/F_m'$
 - ➡ effective photochemical efficiency

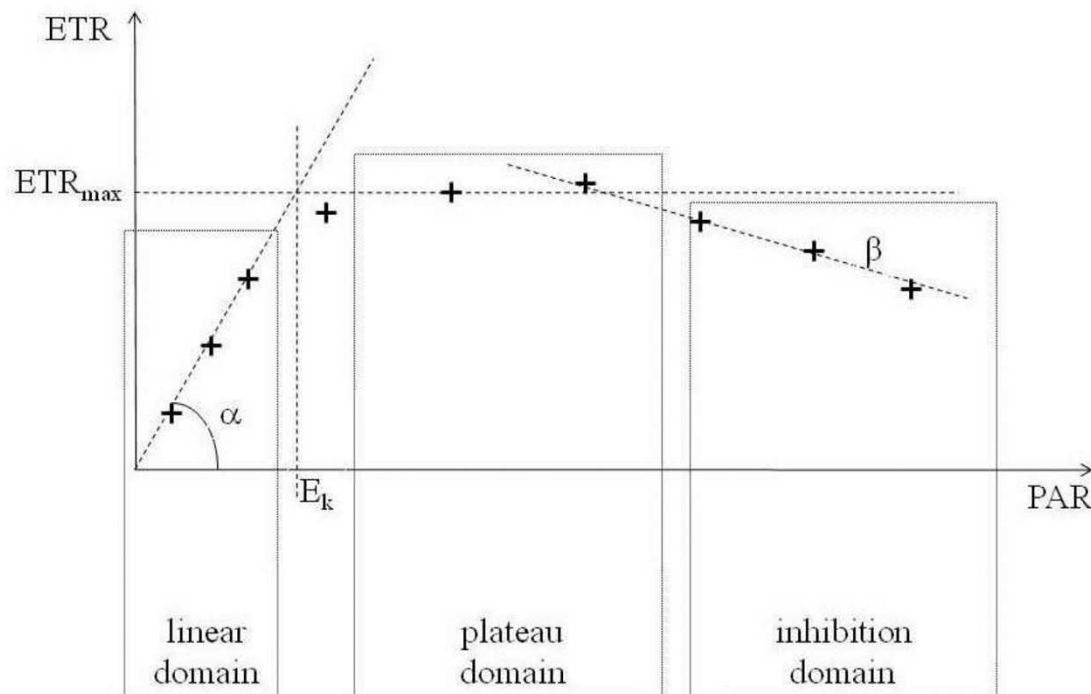


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ETR - RLC

- ❖ Electron Transfert Rate : $ETR = YIELD \times PAR \times 0.5 \times ETR\text{-factor}$
- ❖ Rapid Light Curve : photosynthetic flexibility with which a sample can adapt its photosynthetic apparatus to rapid changes of light intensity



ETR_{max} = maximum electron transport rate

E_k = compensation irradiance

(Lassauque, 2008)

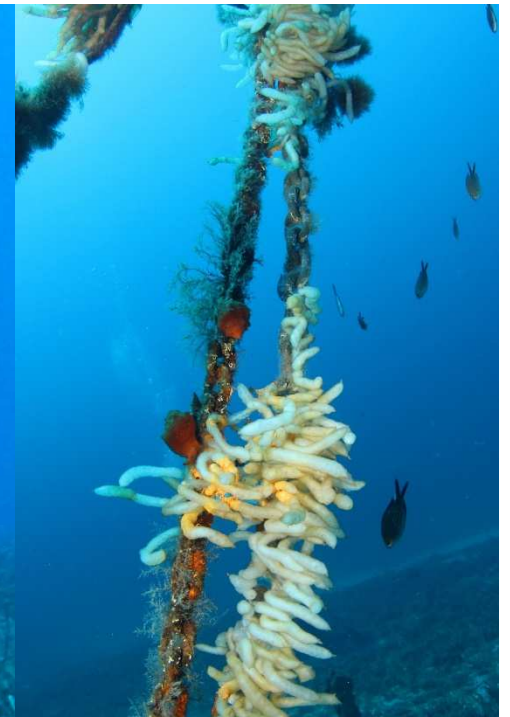
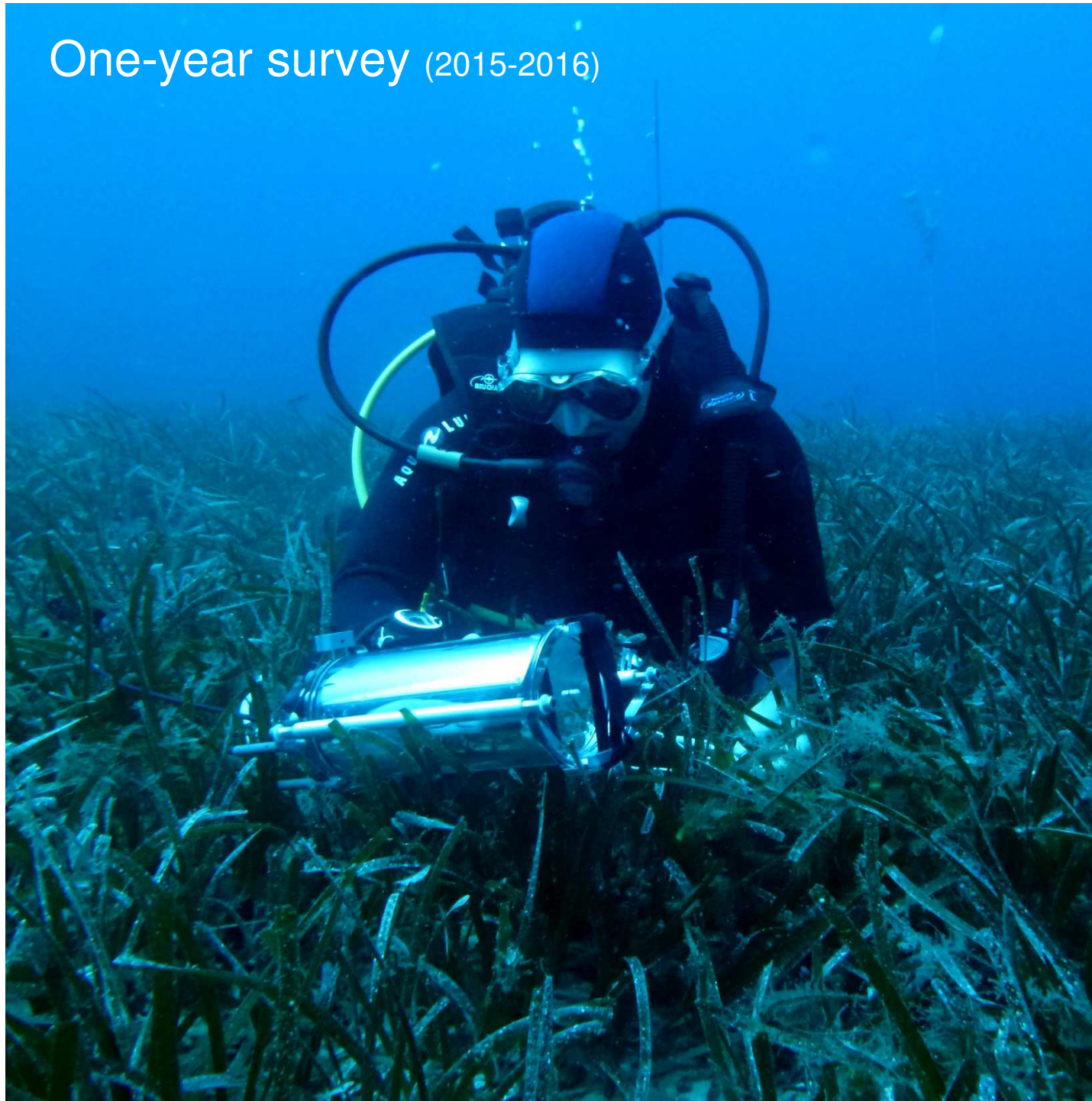
Diving-PAM

- ❖ Underwater study of *in situ* photosynthesis
- ❖ Optimized to determine the effective quantum yield of photosynthetic energy conversion, $\Delta F/F_m'$



Julien Lassauque

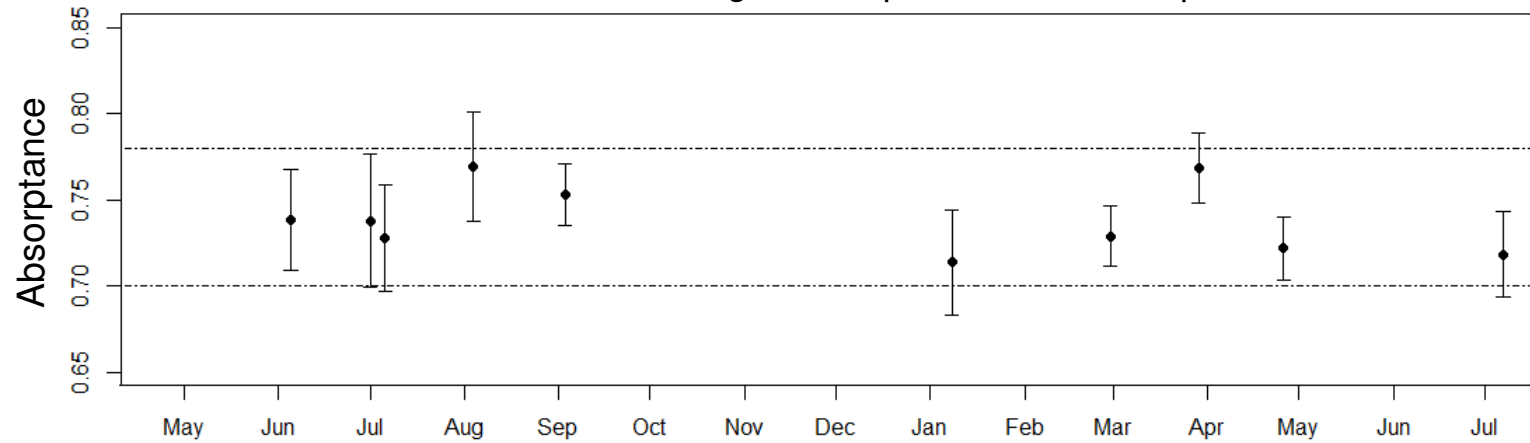
One-year survey (2015-2016)



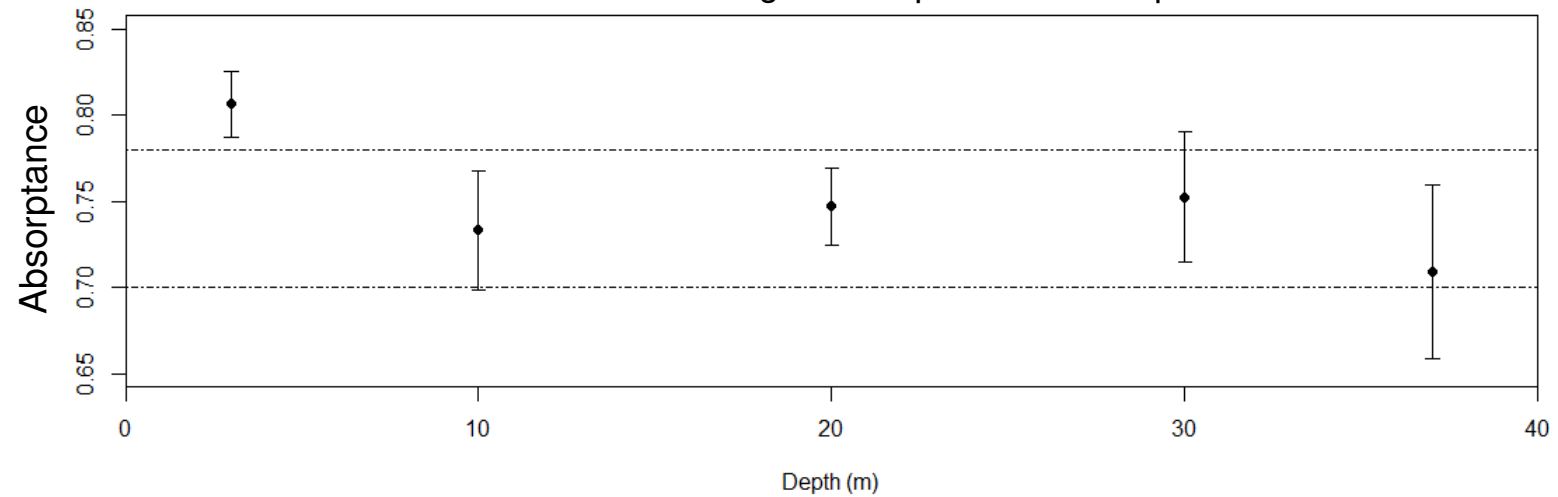


$$\text{ETR} = \text{YIELD} \times \text{PAR} \times 0.5 \times \text{ETR-factor}$$

Evolution of leaf light absorptance at 10 m depth

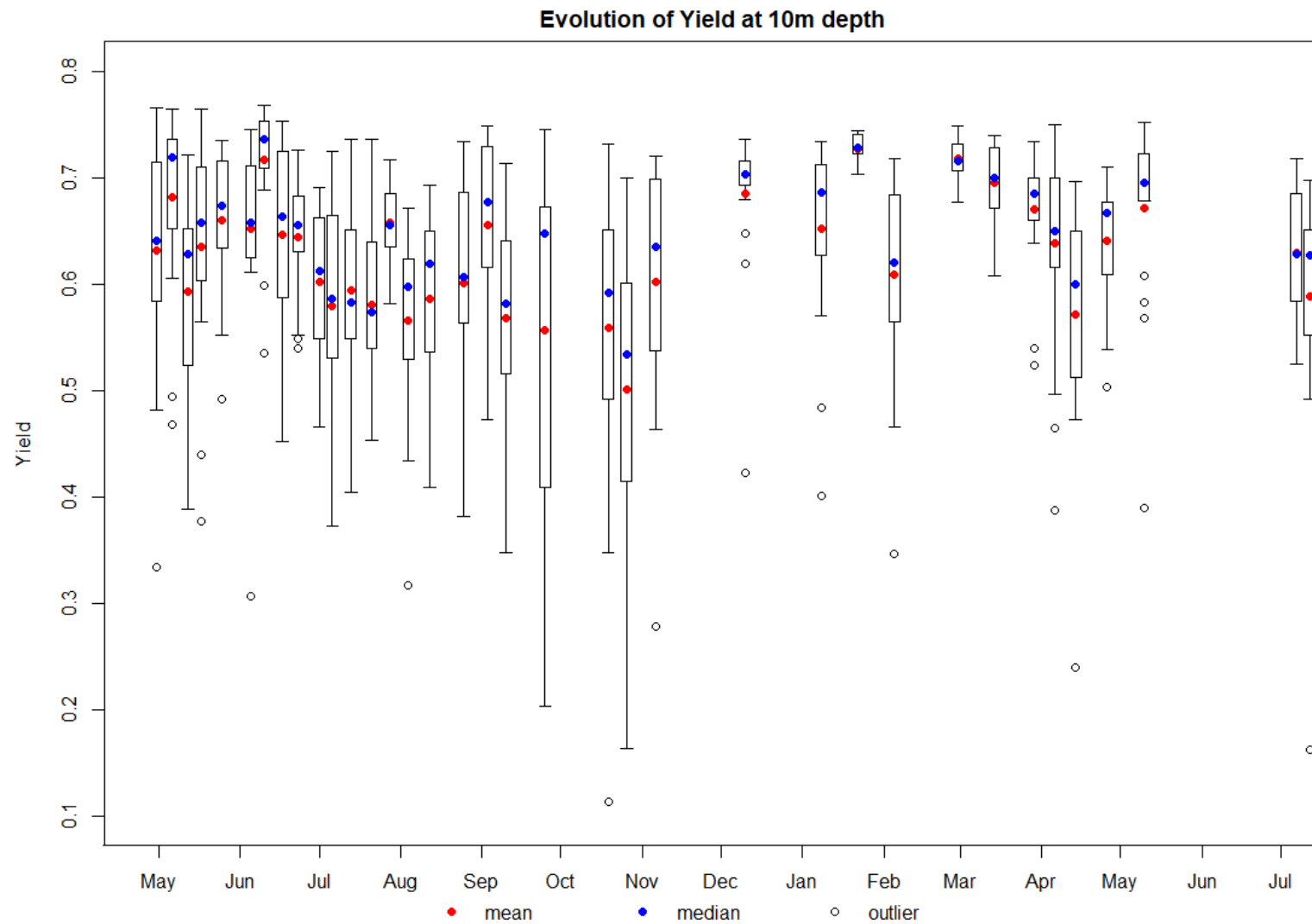


Evolution of leaf light absorptance with depth



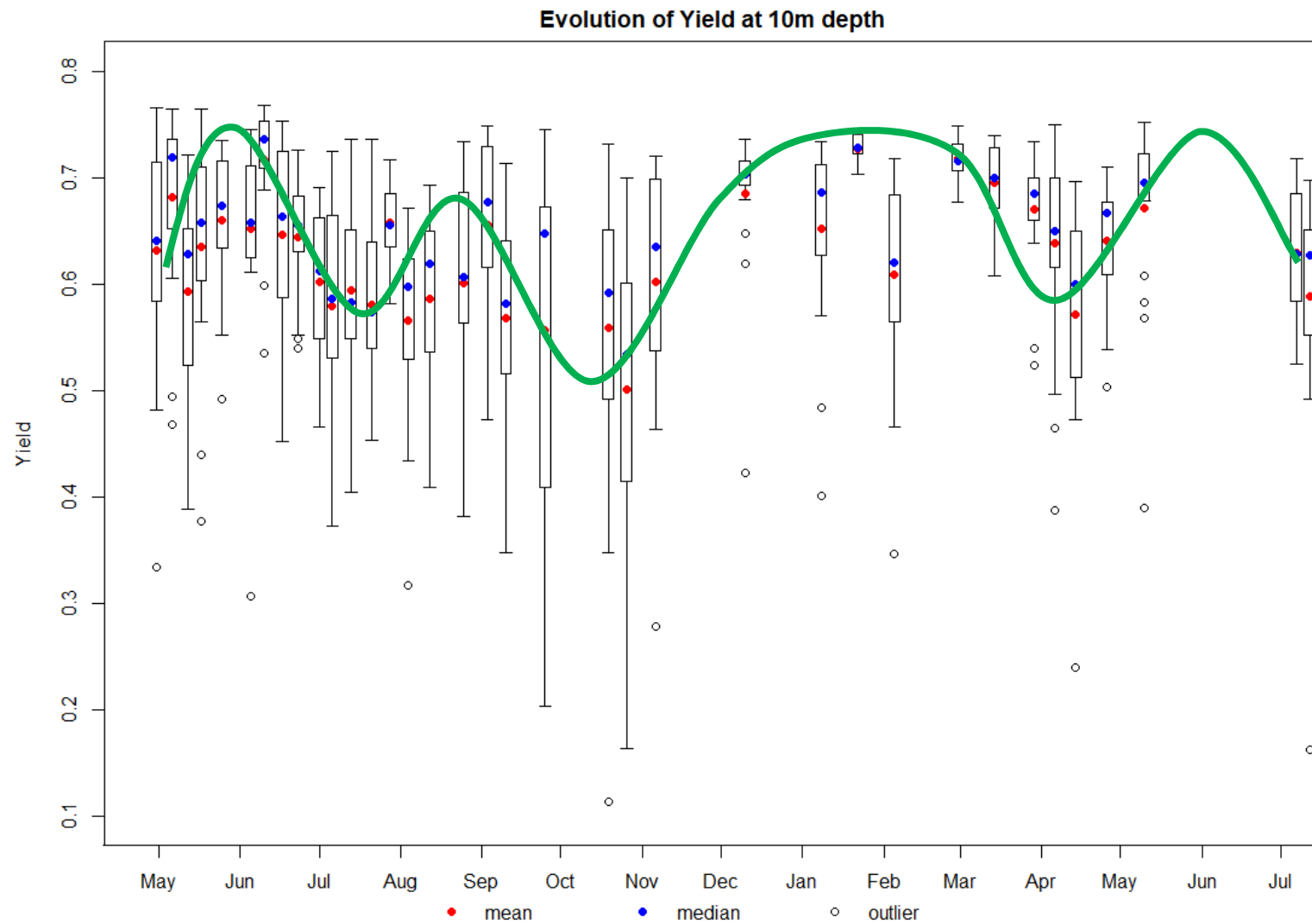


Effective photochemical efficiency



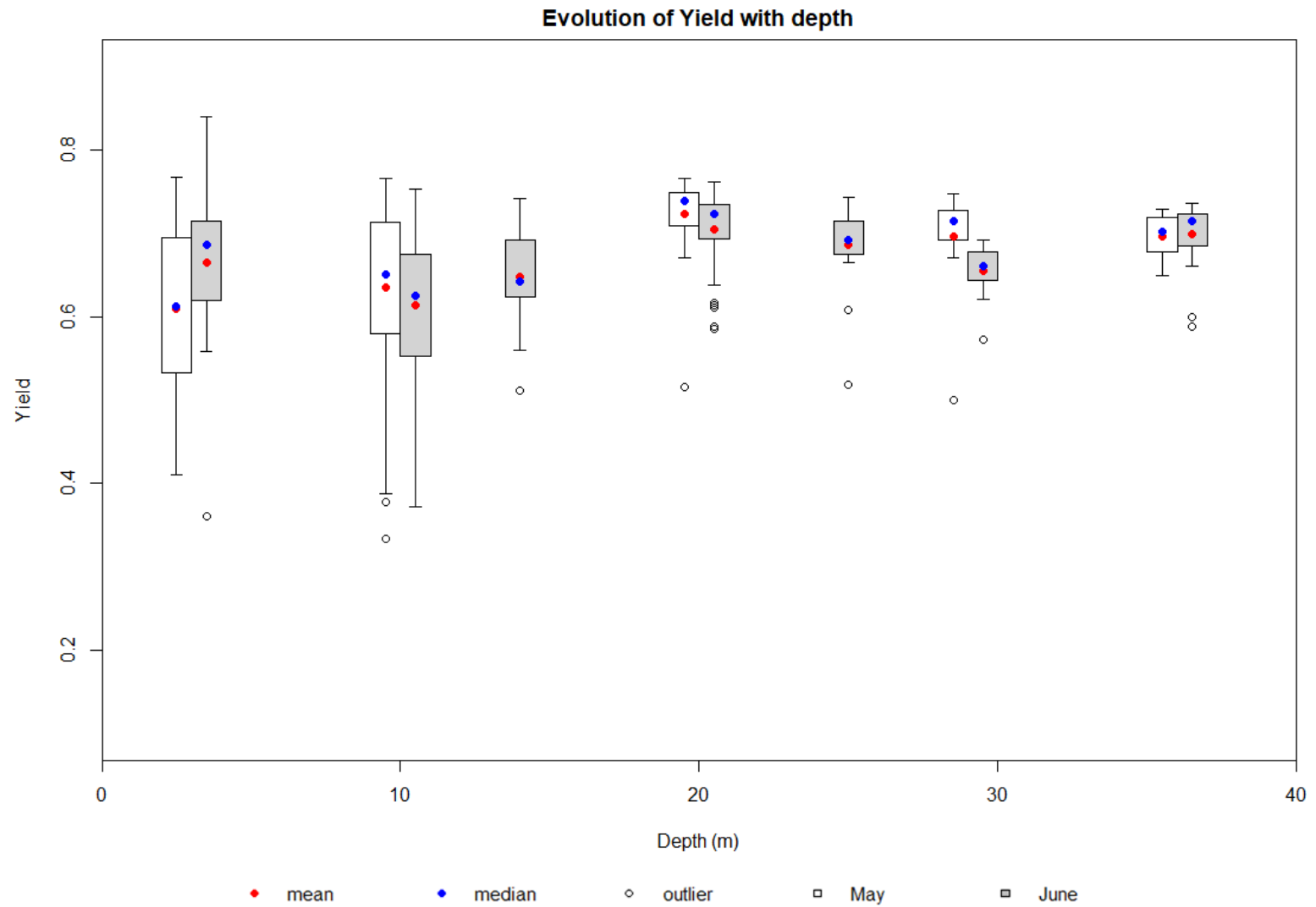


Effective photochemical efficiency



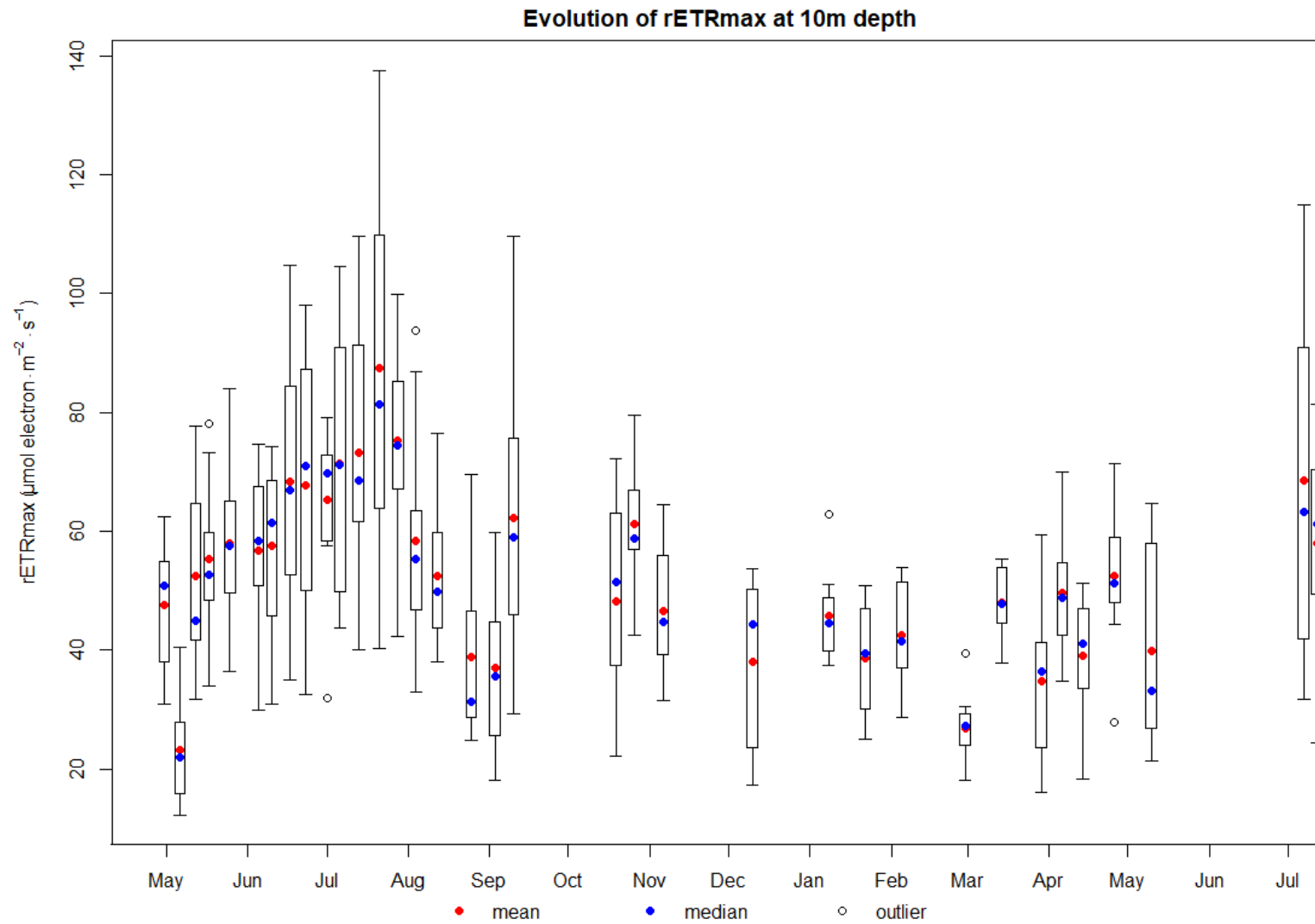


Effective photochemical efficiency



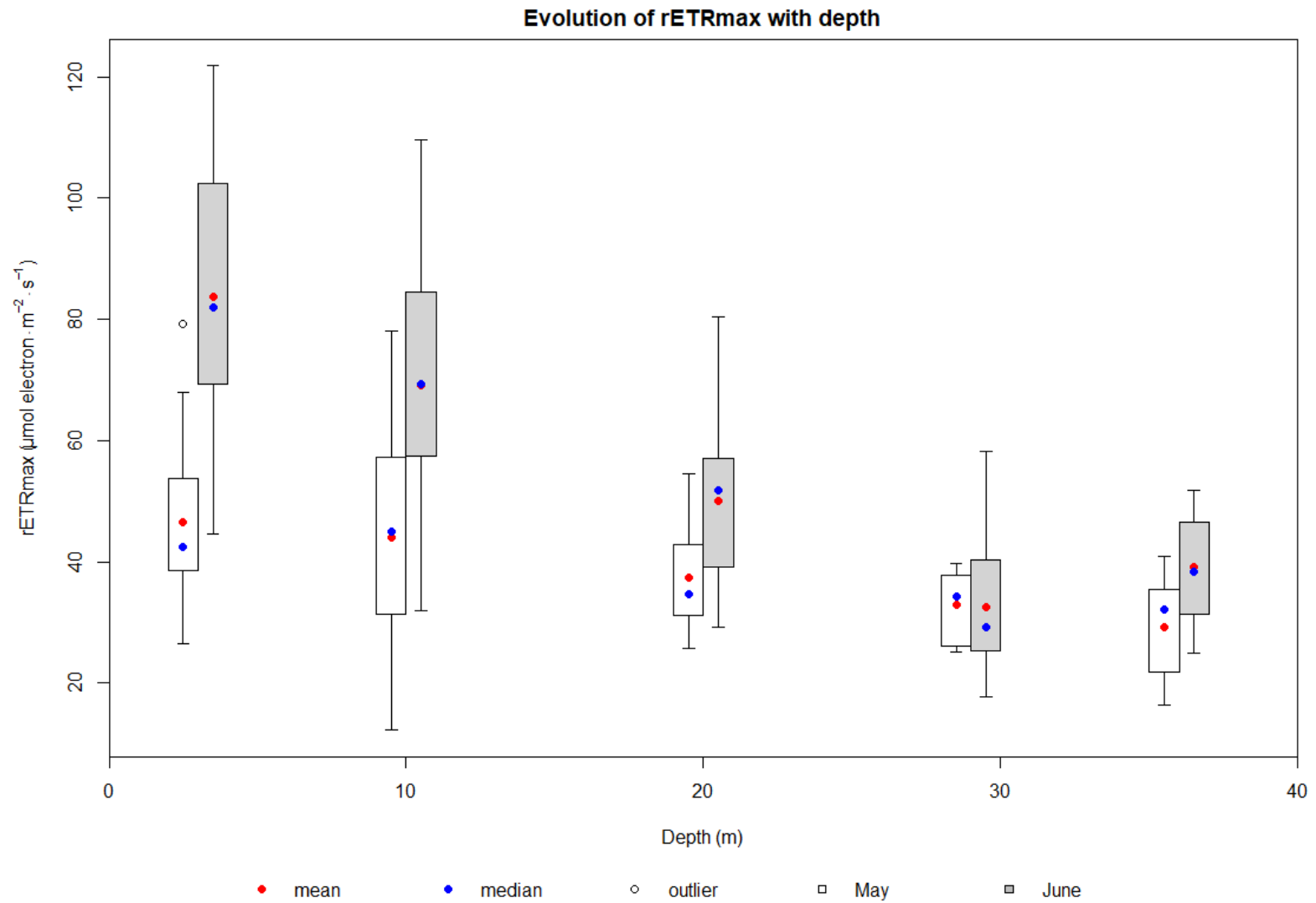


Rapid Light Curve



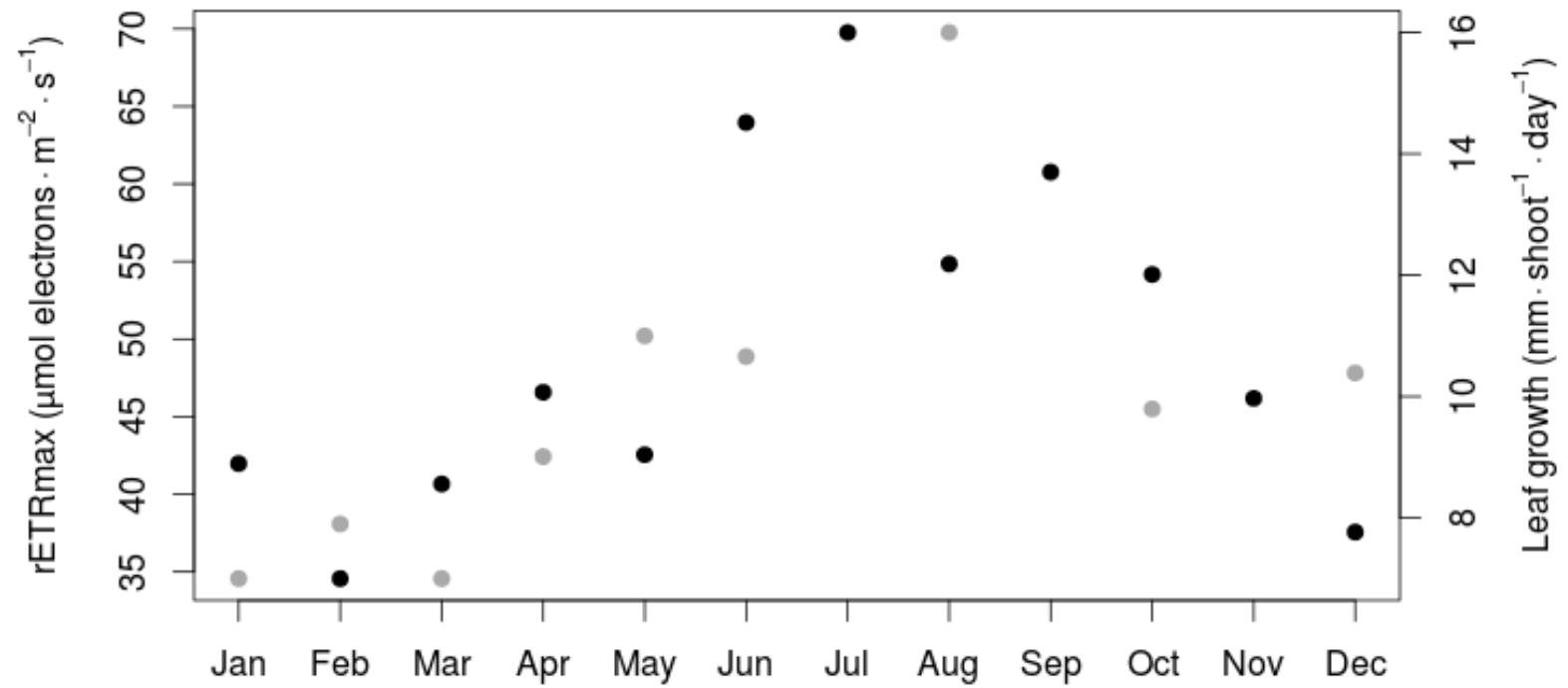


Rapid Light Curve





rETRmax = leaf growth proxy ?





Conclusion et perspectives

Study of *Posidonia oceanica* photosynthesis by pulse amplitude modulated (PAM) fluorometry ...

➡ rapid and cost-effective method for :

- ecophysiological studies,
- ecotoxicological studies.

Next :

- photosynthesis vs foliar growth relationship,
- photosynthesis vs PP (O₂) relationship,
- field biomarker.

