

Knowledge on eddies in coastal waters ... still a lot of open questions

How are eddies generated ?

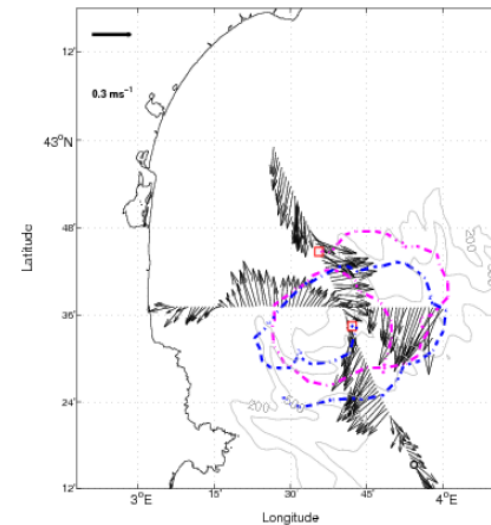
How do they influence coastal-offshore transports of matter and heat ?

How do they influence biogeochemistry ?



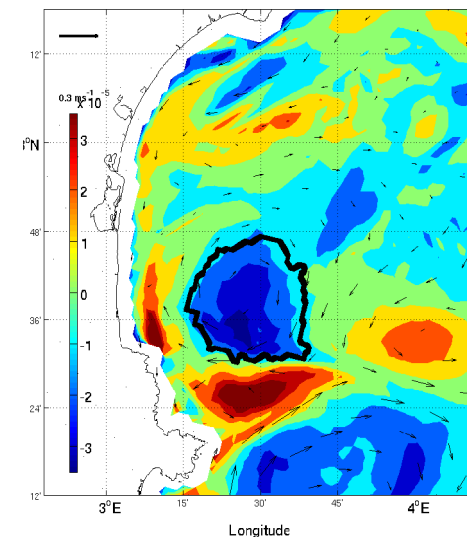
LATEX project in the Gulf of Lion

northwestern
Mediterranean Sea



In situ data

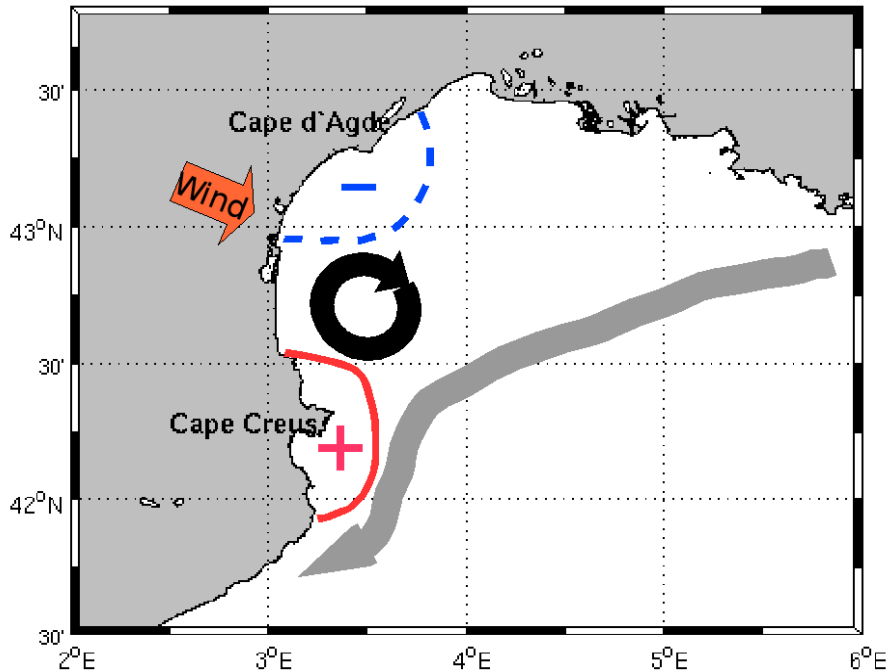
September 2008



Modelling

[Hu et al, 2010] and [Hu et al, 2011]

Mechanism of generation



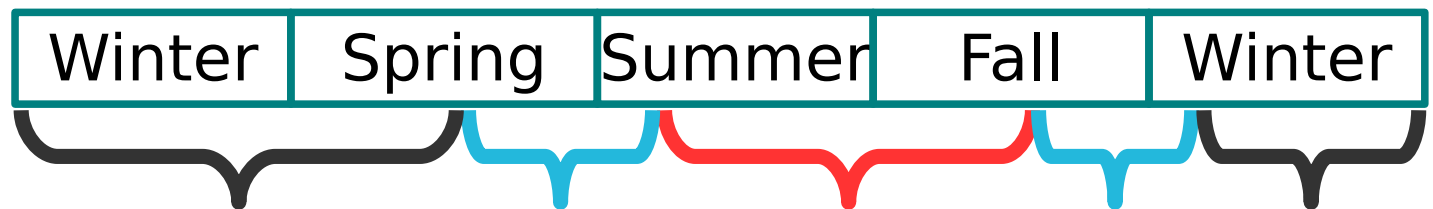
Two quantitative criteria on wind forcing & stratification

$$\phi = \frac{1}{D} \int_{-H}^{\eta} gz(\bar{\rho} - \rho) dz$$

Potential energy anomaly

explain the presence or absence of coastal mesoscale anticyclonic eddies from 2001 to 2008

Numerical results confirmed by *in situ* data during specific years



[Hu et al, 2011]

Absence

Transient

Long-life

Transient

Absence