Developing a index of area suitable for recruitment.

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IRD

Reproduction of yft is known to occur in warm (>24°C) and calm surface waters (mostly equatorial areas. Larval survival is indeed known to be influenced by

- Temperature
- Enrichment (larvae need to feed!)
- Wind (larvae need to feed! And strong winds lead to high turbulences and low feeding success for larvae)

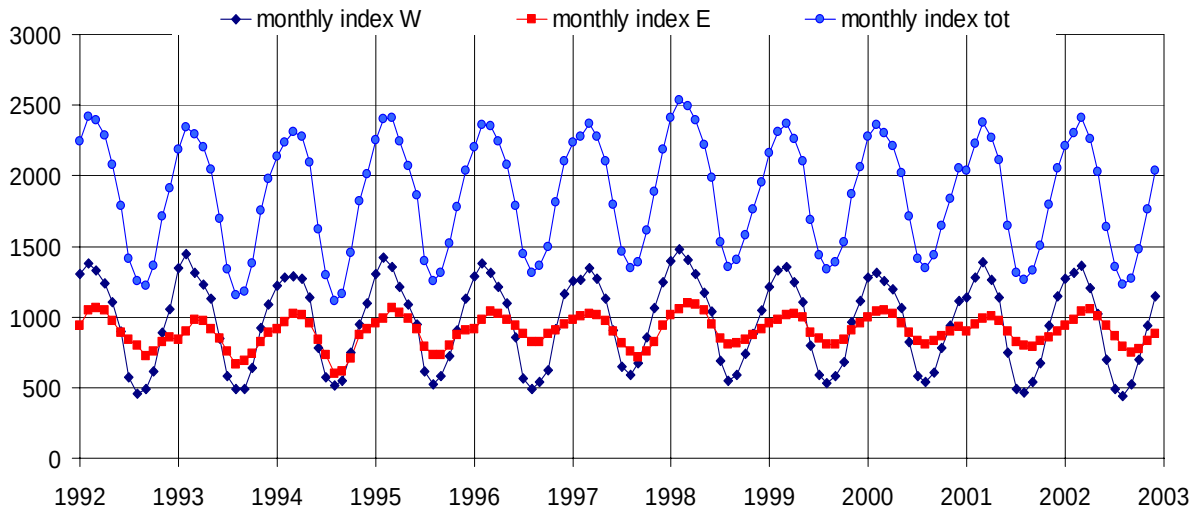
And index based on satellite wind stress (ERS1, $-(x^2+y^2)^{1/2}$), SST and either mixed layer depth –MLD- (OPA 8, OGCM model) or sea height (anomaly compared to a mean depth of the ocean) is derived from 1991 to 2002. Data and calculations are available upon request.
Areas (number of 1°x1° squares per month) where the following criterias are met simultaneously are supposed to be suitable for reproduction. Other areas are supposed to be unsuitable for reproduction.

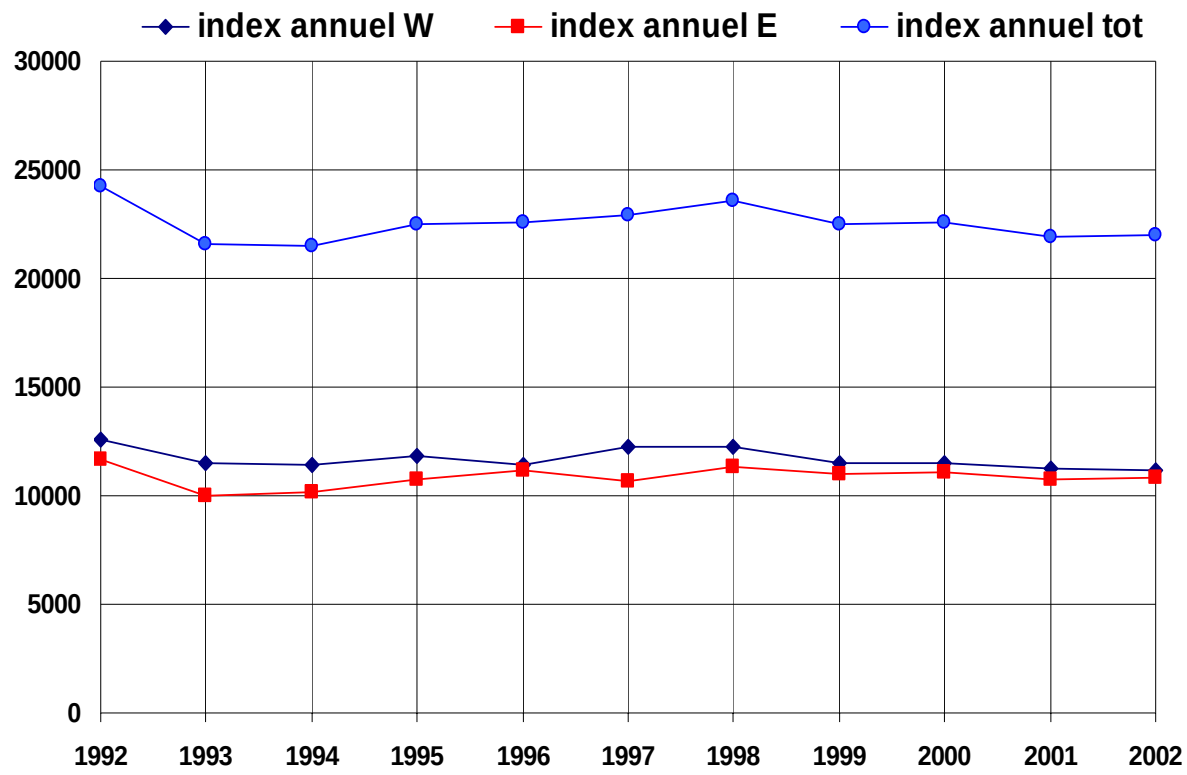
- Wind $stress_t$ <0.15 $N^{1/2}$.m-1
- SST_t>26°C
- $MLD_{t\text{-}2\ months}$ >25m or sea height <0.3m

Two indexes are derived for the Western Indian Ocean (WIO) and for the eastern Indian Ocean (EIO) as well as their sum. Those indices are calculated monthly and annually.
A monthly mean is calculated to remove seasonality and compute monthly anomalies.

Results are presented considering:

- SST only simultaneously;

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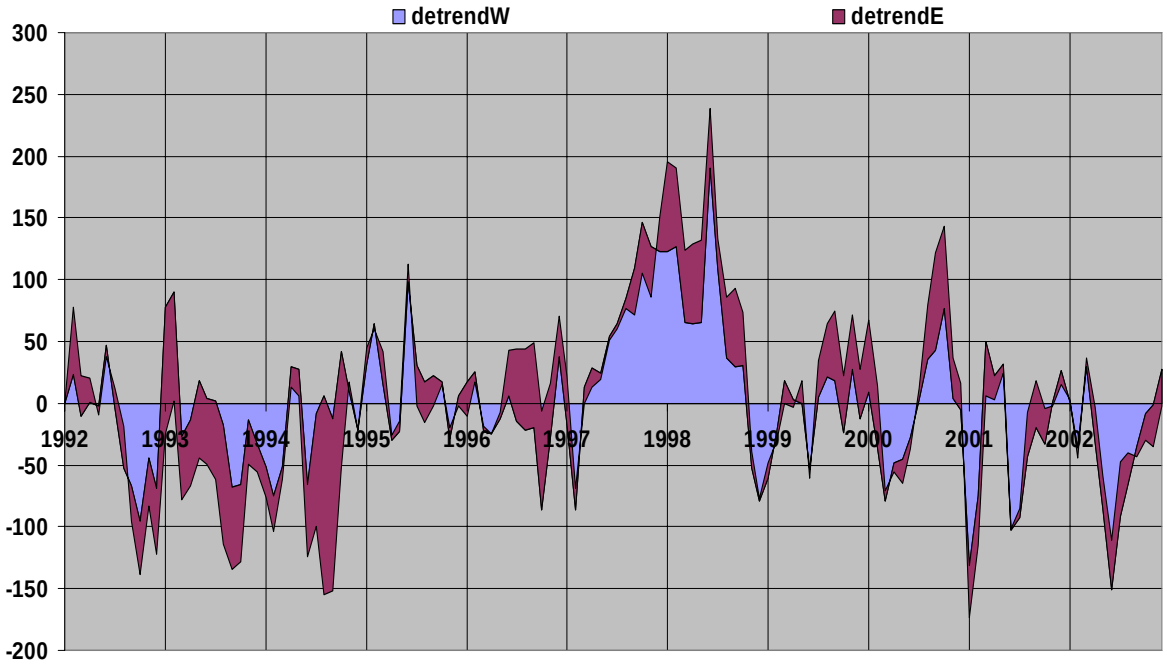
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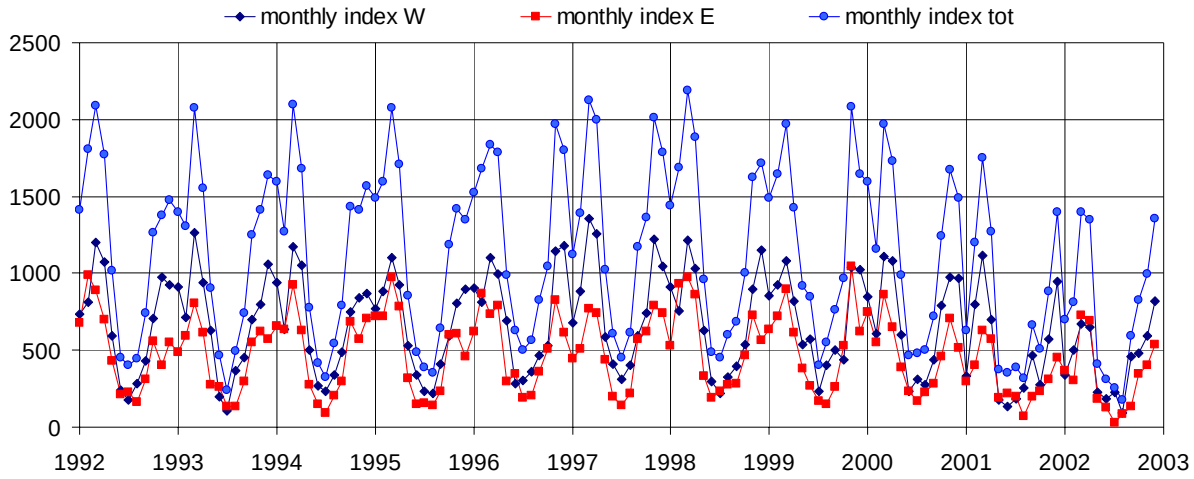
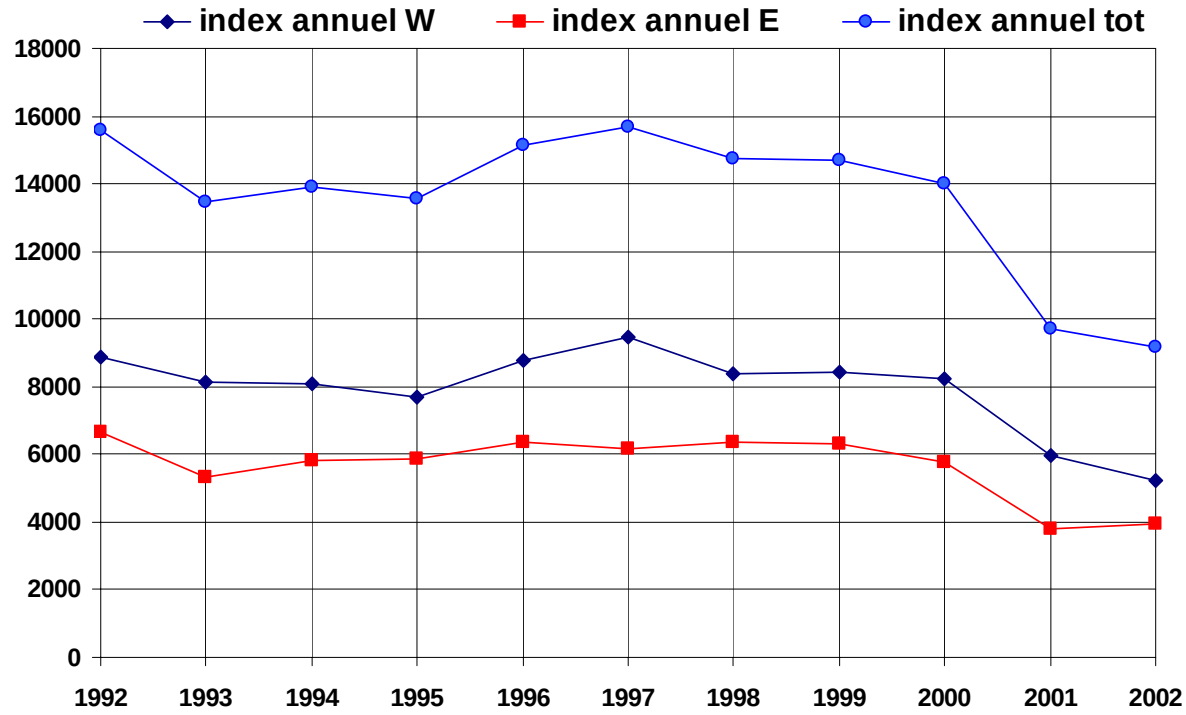
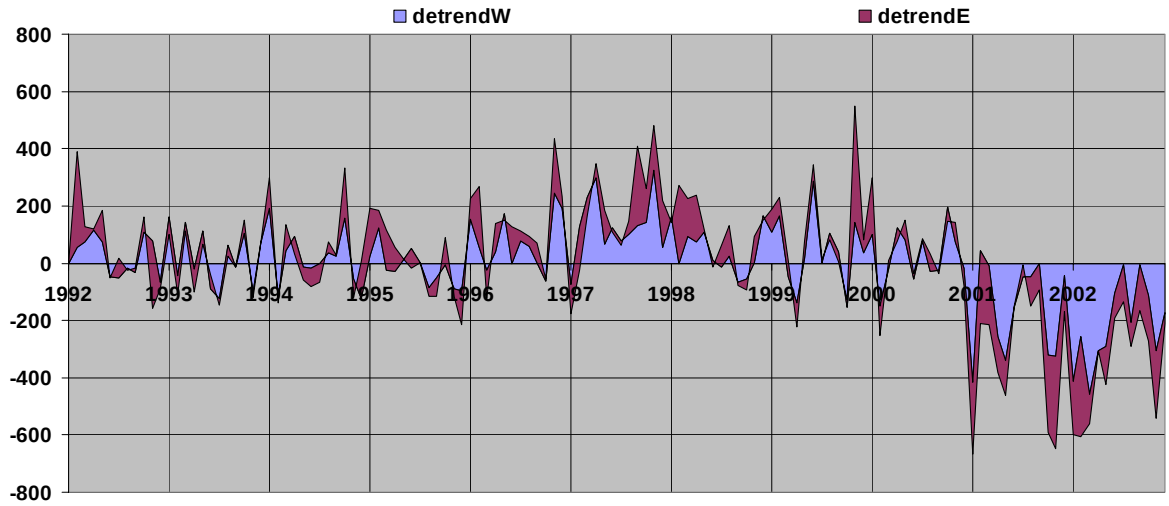
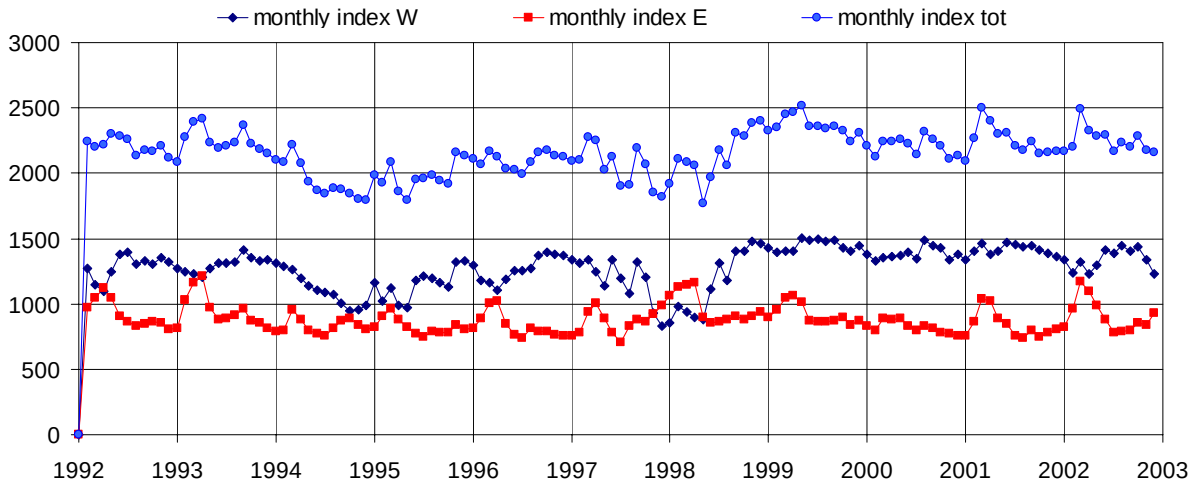
- Wind only simultaneously;

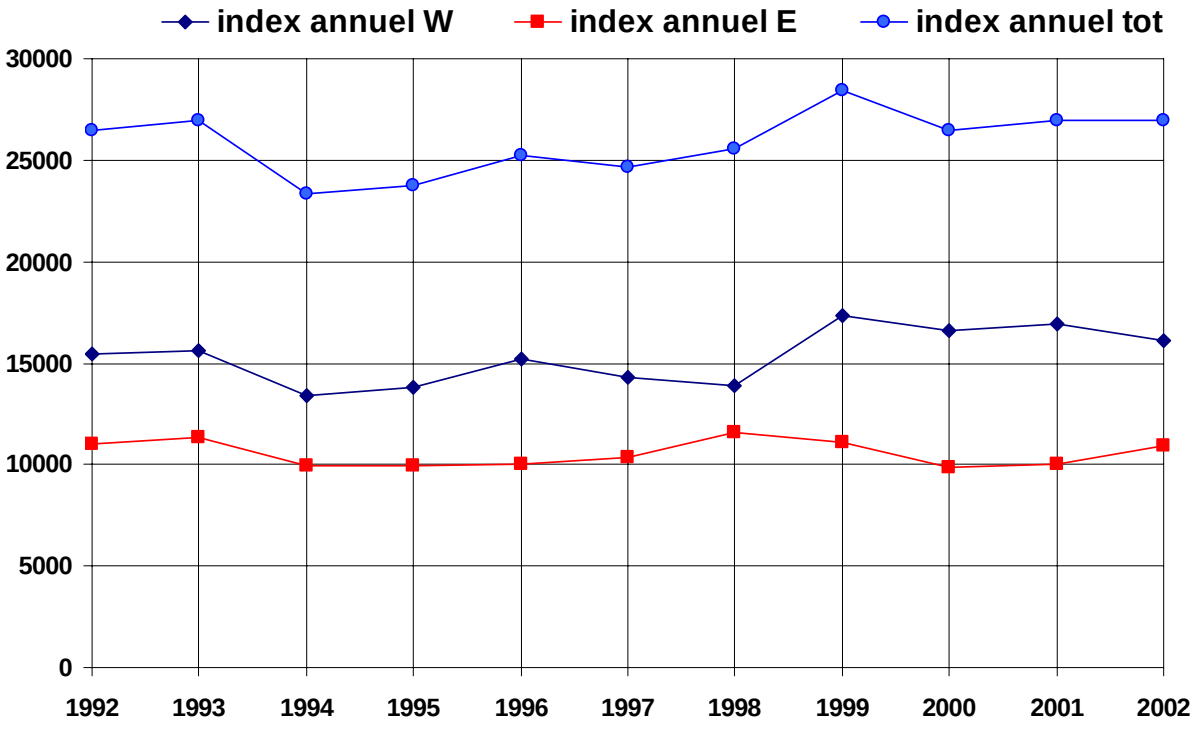


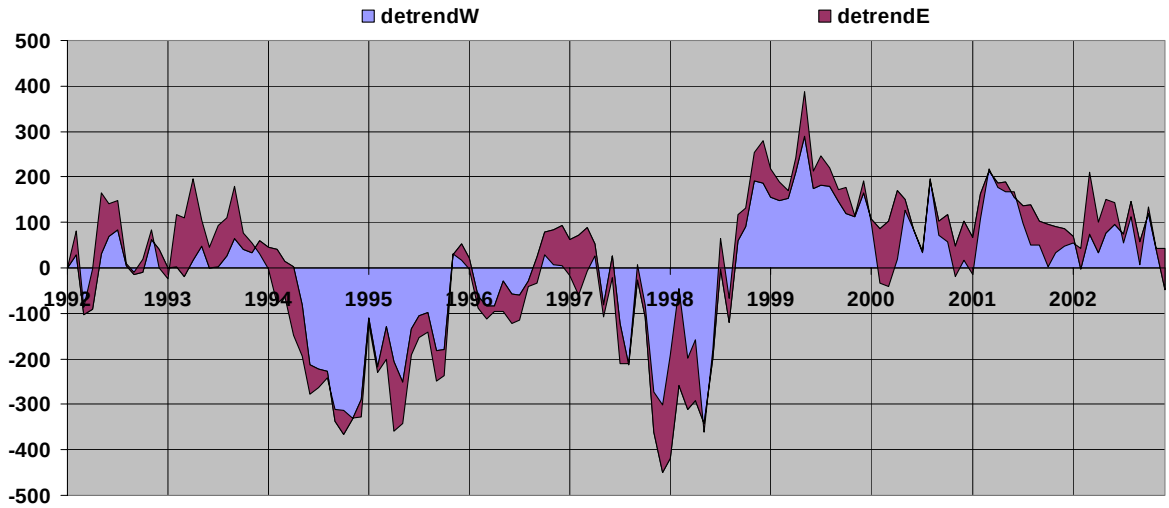




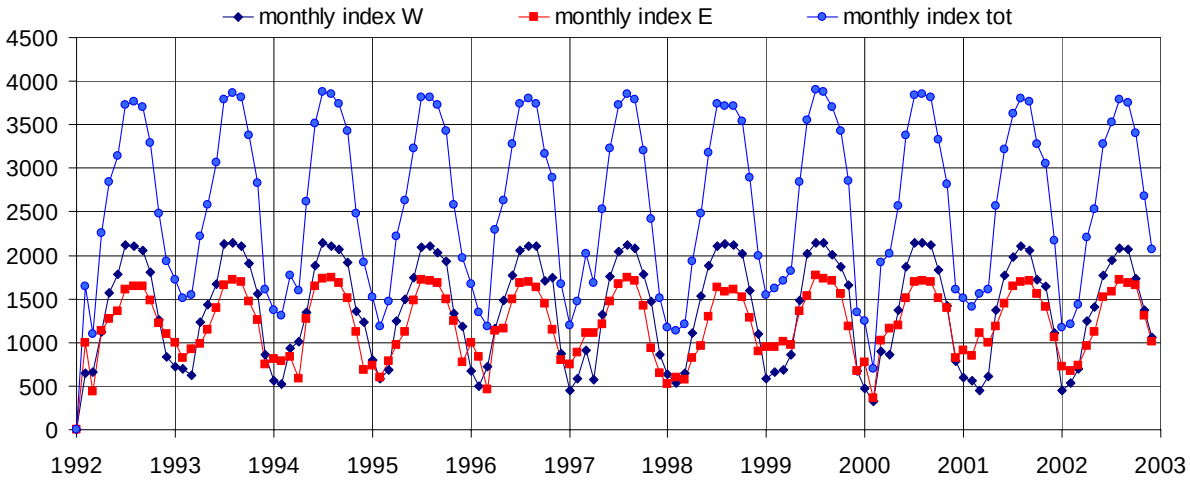
- Height only simultaneously;

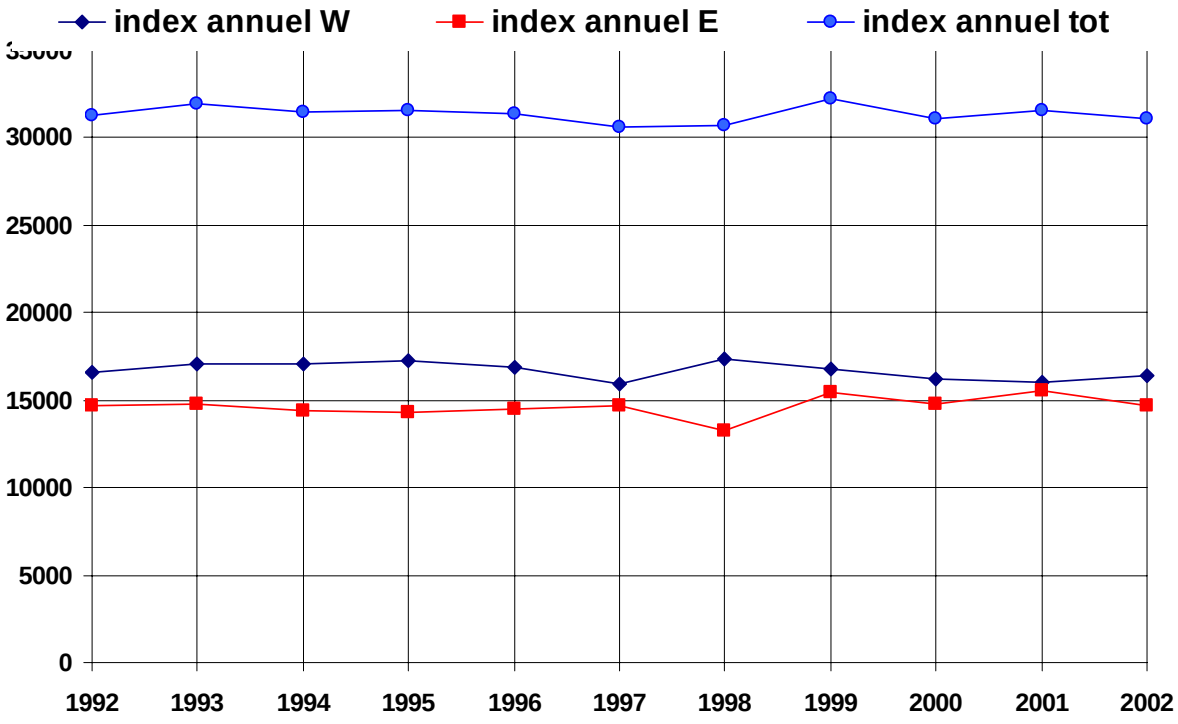


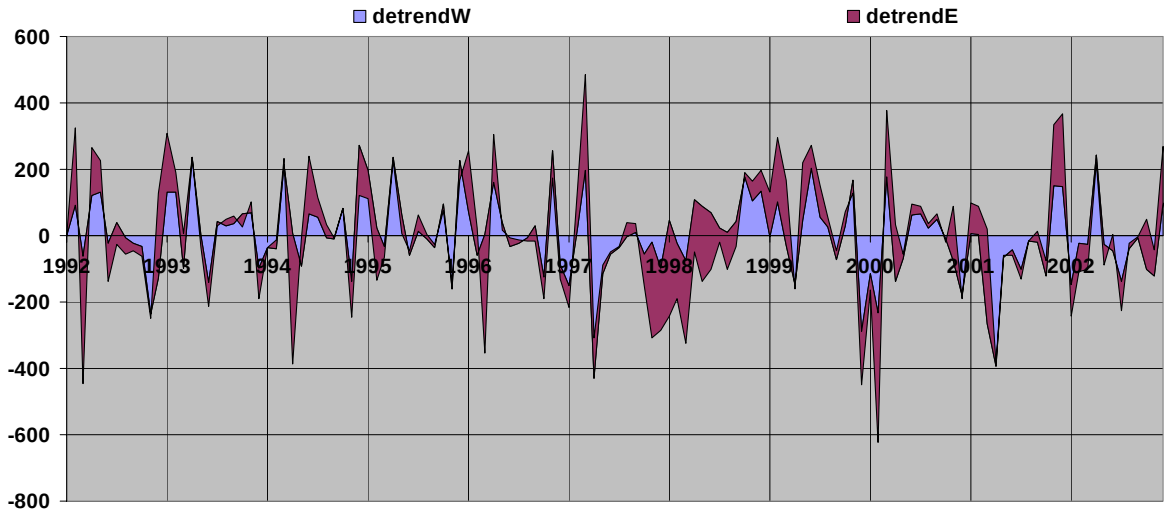




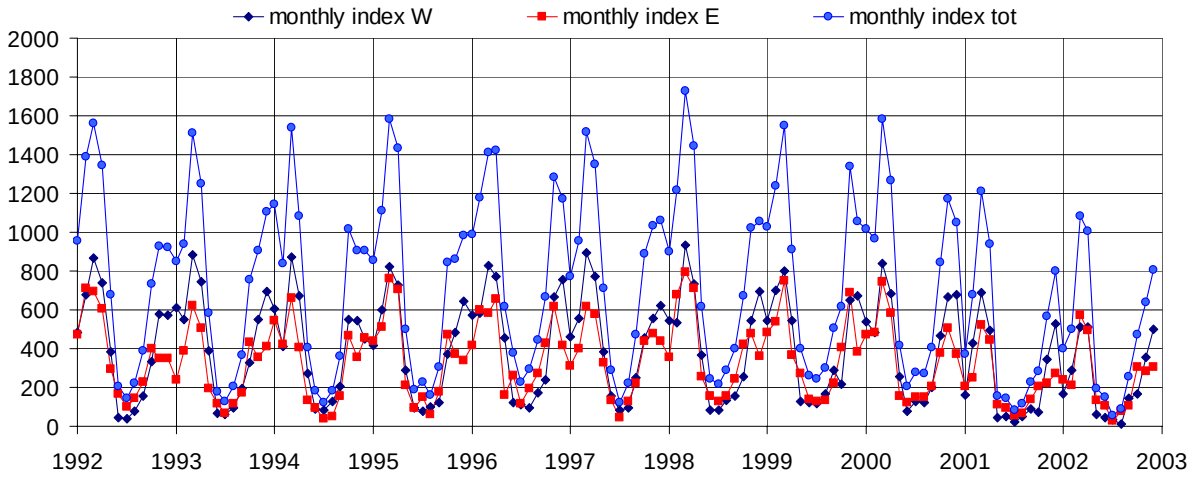
- MLD only simultaneously;

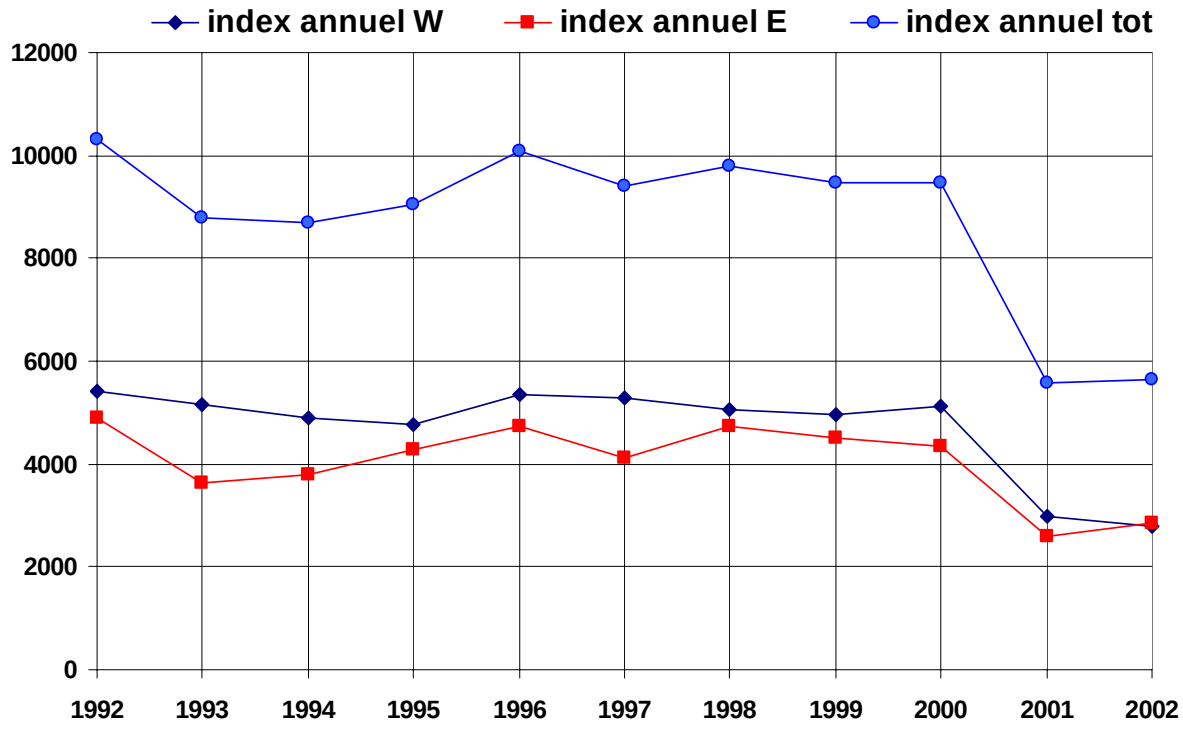


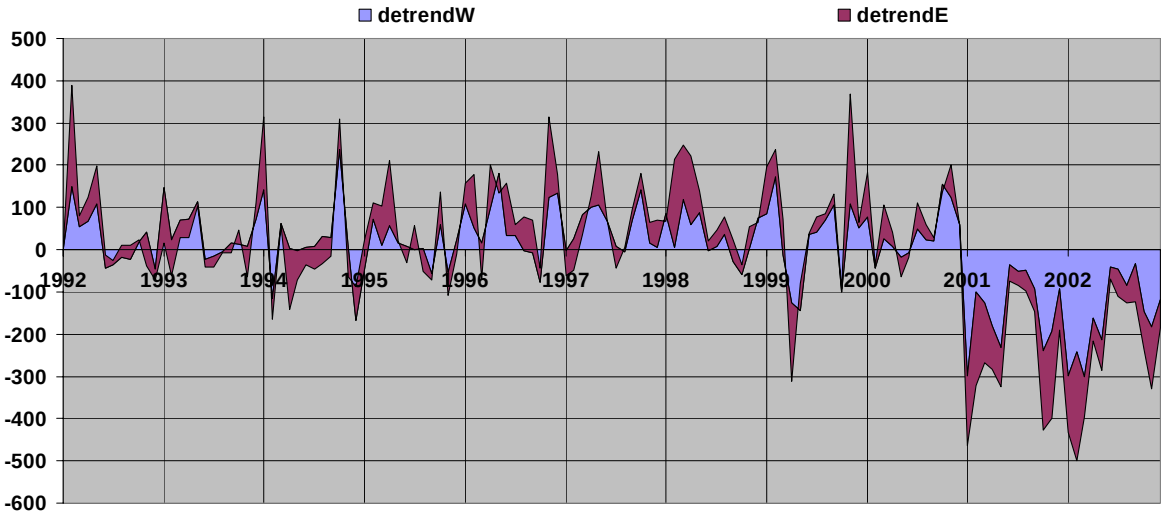




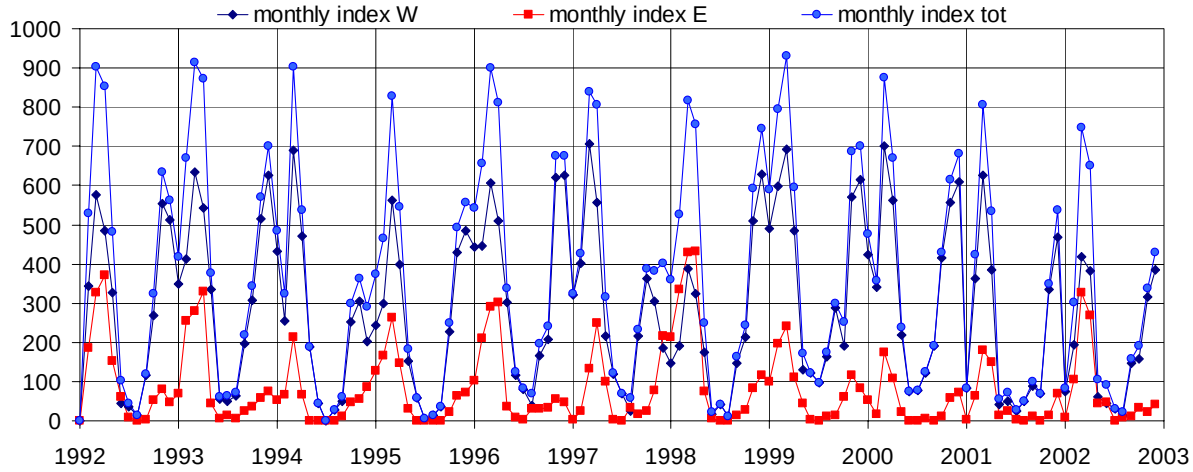
- SST and wind simultaneously;

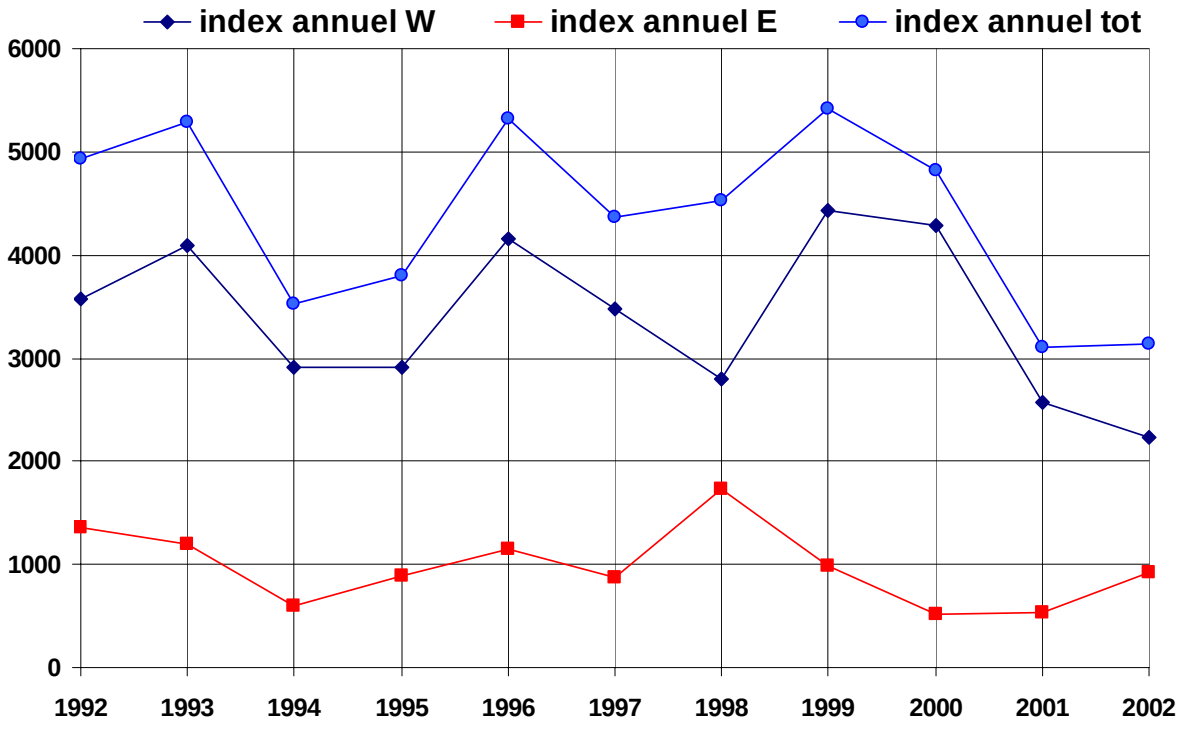


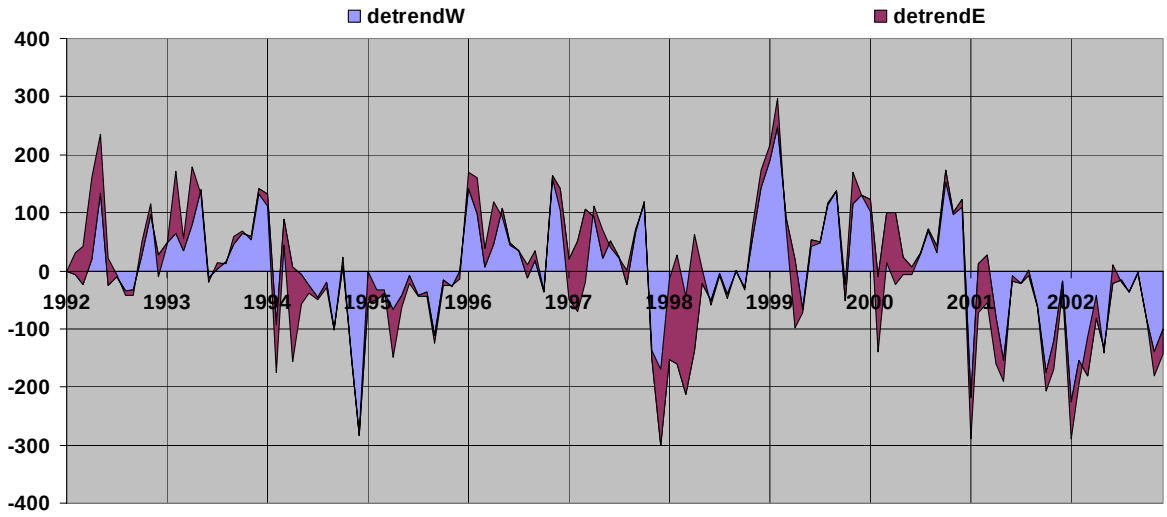




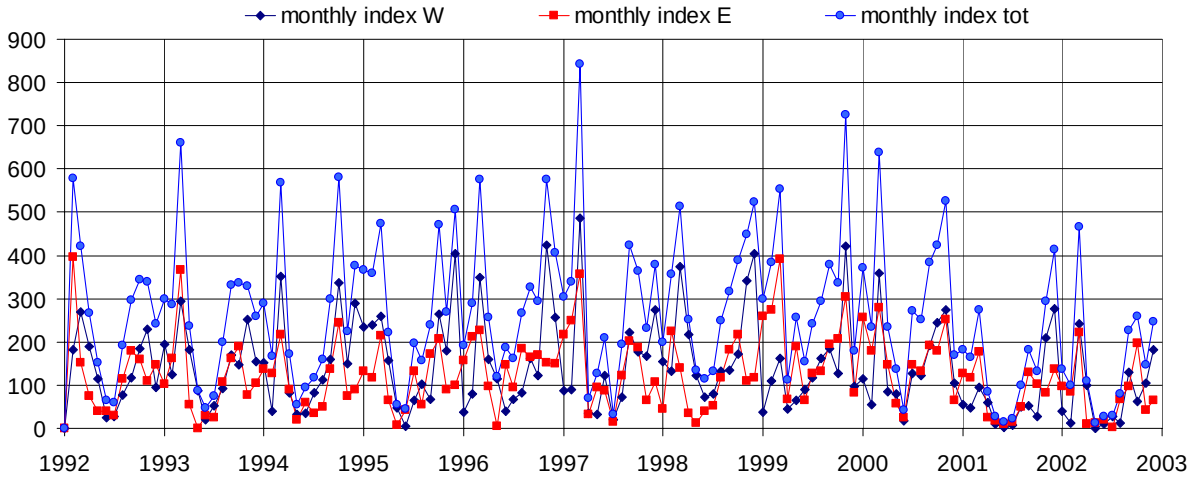
- SST, wind and height simultaneously;

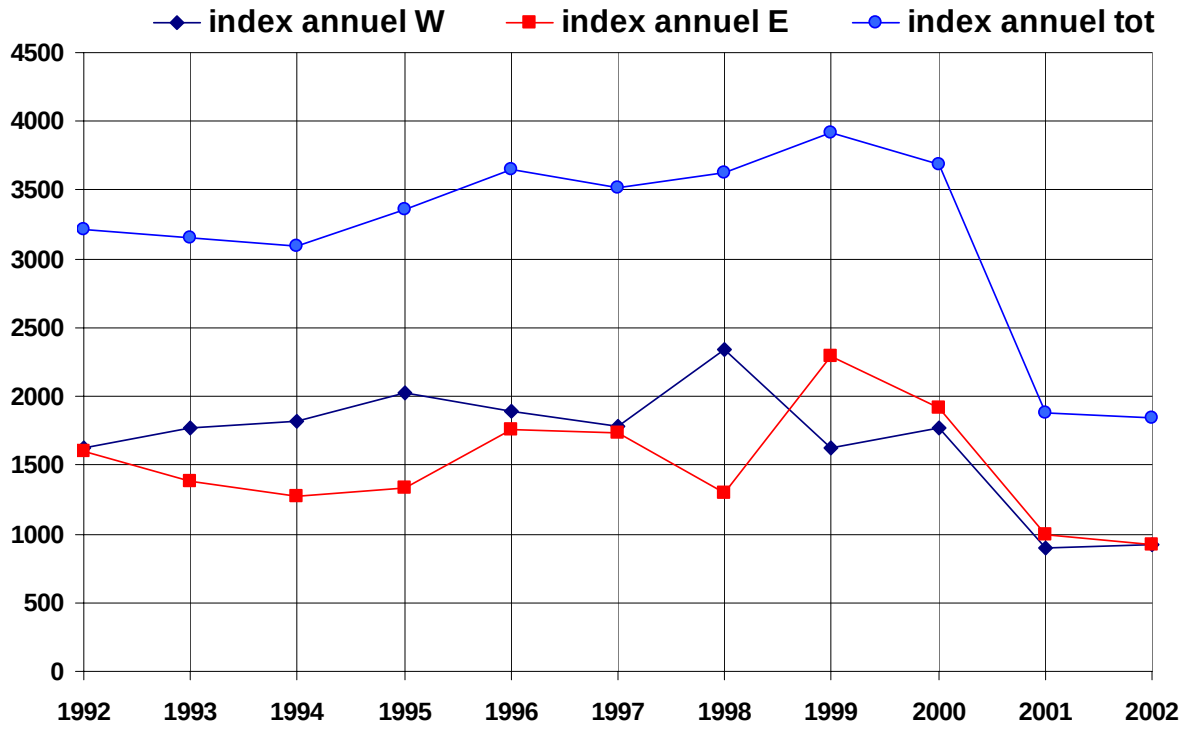


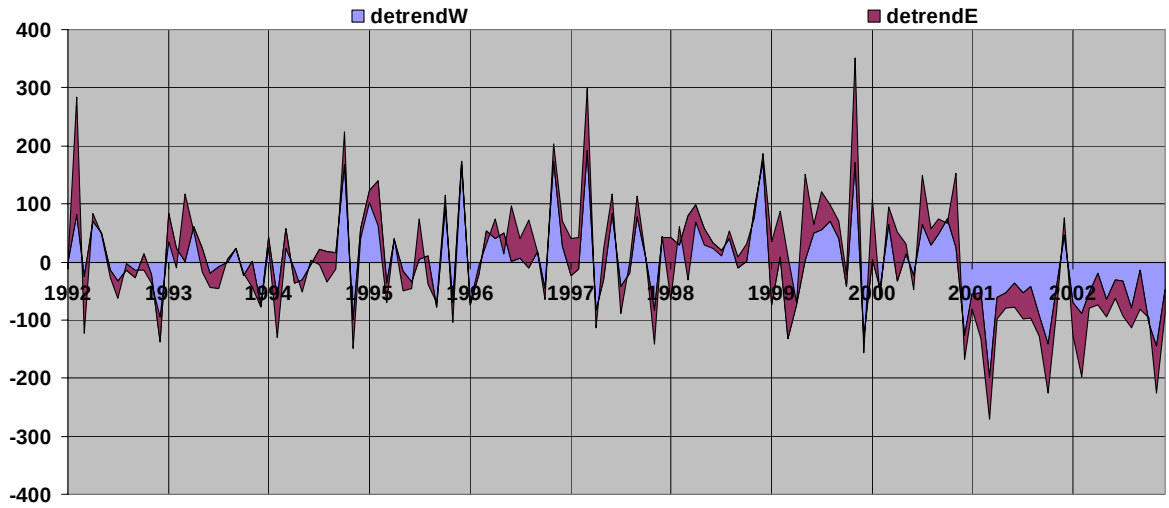




- SST, wind and MLD simultaneously;



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