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# Negative wind anomalies generated a diminution of productivity in the North Atlantic in 2010

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Analysis of in situ and remove-sensed data over the North Atlantic revealed that 2010 was an atypical year:

- the surface temperatures were the highest during the last 30 years,
- the wind intensity has strongly decreased in the subtropical and tropical North Atlantic Ocean,
- the North Atlantic Oscillation (NAO) index reached a strongly negative value.

In this work we describe the observed temperature anomalies by examining their horizontal, vertical and temporal extensions. Then we focus on the repercussions on the biological cycles and on the ocean productivity.

In particular, we evidence a weakening of the upwelling activity off northwest Africa, associated to with a decrease of the surface chlorophyll concentration and of productivity.

Various hypothesis are examined to explain the origin of these anomalies. The most plausible is the decrease of wind intensity, responsible for a decrease of the upwelling in the coastal area and a decrease of mixing in the open ocean.