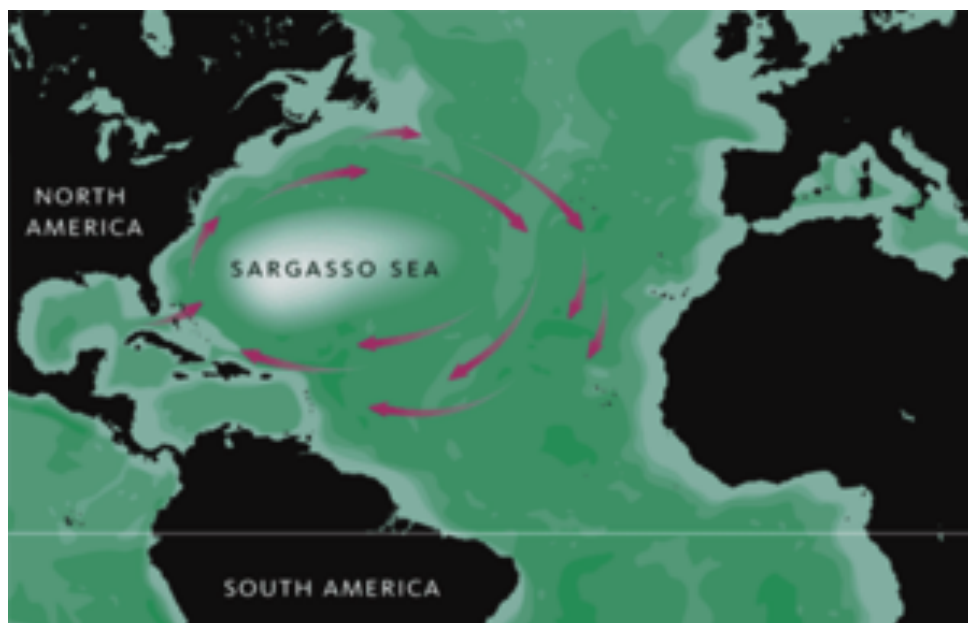


dark red 1600-1990: J.H. Oerlemans (2005). , Science, 308: 675-677.

Simple correlations with instrumental data give some guide to which are the better proxies, indicating that coral- and ice-core-based reconstructions are poorer than tree-ring and historical ones.

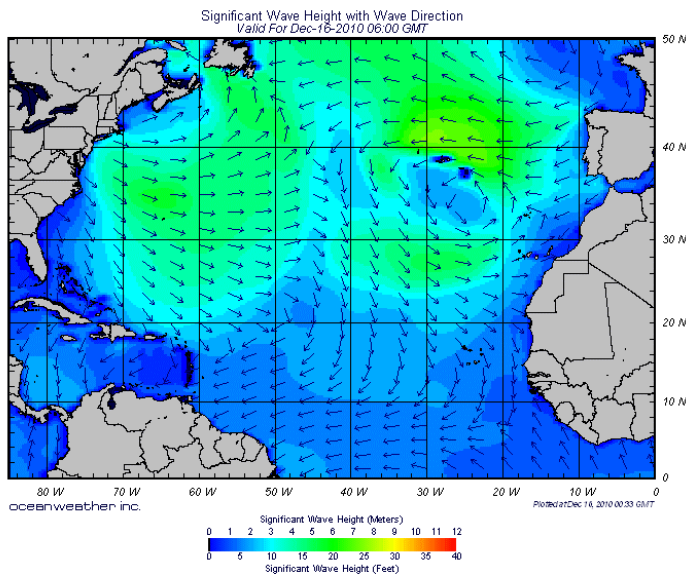


## 馬尾藻海 (Sargasso Sea)

是北大西洋中部的一個海，因海面漂浮大量馬尾藻而得名。

馬尾藻海是世界上唯一一個沒有海岸線的海，嚴格來講，它只是被幾條主要洋流圍出的一個特定的區域。**墨西哥灣暖流**在其西，**北大西洋暖流**在其北，**加那利寒流**在其東，**北赤道暖流**在其南，約長3200公里，寬1100公里。覆蓋了西經約70度到40度和北緯約25度至35度的地區。**百慕達**靠近該海的西部邊緣。在馬尾藻海的海水有著與眾不同的深藍色和極高的清晰度，水下能見度高達70米。

<http://zh.wikipedia.org/zh-tw/%E9%A9%AC%E5%B0%BE%E8%97%BB%E6%B5%B7>

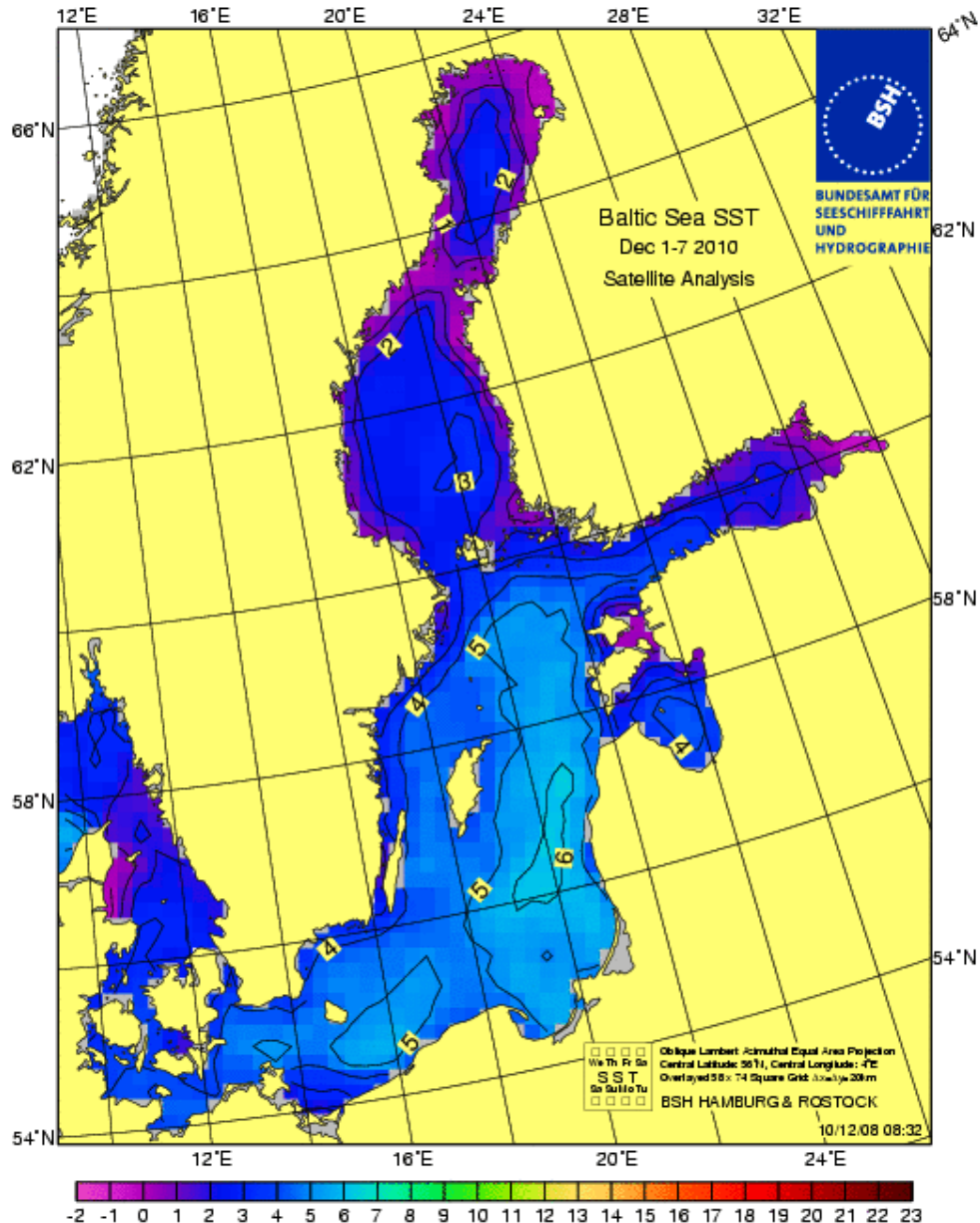


馬尾藻

The Sargasso Sea is unique among the seas of the world in that it has no coastline. It is completely surrounded by water as a free-floating sea. The location of the Sargasso Sea is in the North Atlantic, bounded by the Gulfstream on the West, the Greater Antilles on the South, and Bermuda to the North. It has a large oval shape of thousands of square miles and rotates slowly clockwise.

The most unique feature of the Sargasso Sea is the vast amounts of seaweed floating on it. It was the Portuguese who gave it the name "sargaco" which means "grape" due to the resemblance of the seaweed to grapes. Because the sea is very calm with little wind, sailors since the time of Columbus have mistakenly thought that the seaweed itself is what trapped their ships. The Sargasso Sea is also known as the "Horse Latitudes" because when the Spanish Sailors found themselves trapped in the Sargasso Sea for weeks, they had to toss their horses overboard in order to conserve on water. It should be noted that the famed and feared Bermuda Triangle lies within the Sargasso Sea. In fact, many of the later attributes of the Bermuda Triangle where it was feared that planes and ships were mysteriously lost there, were earlier attributed to the Sargasso Sea because of the many ships lost there. The mystery of the Sargasso Sea was merely transposed later to the Bermuda Triangle.

[http://www.essortment.com/all/sargassoseawid\\_ramo.htm](http://www.essortment.com/all/sargassoseawid_ramo.htm)



Baltic Sea SST(sea surface temperature) 2010/12/1-7

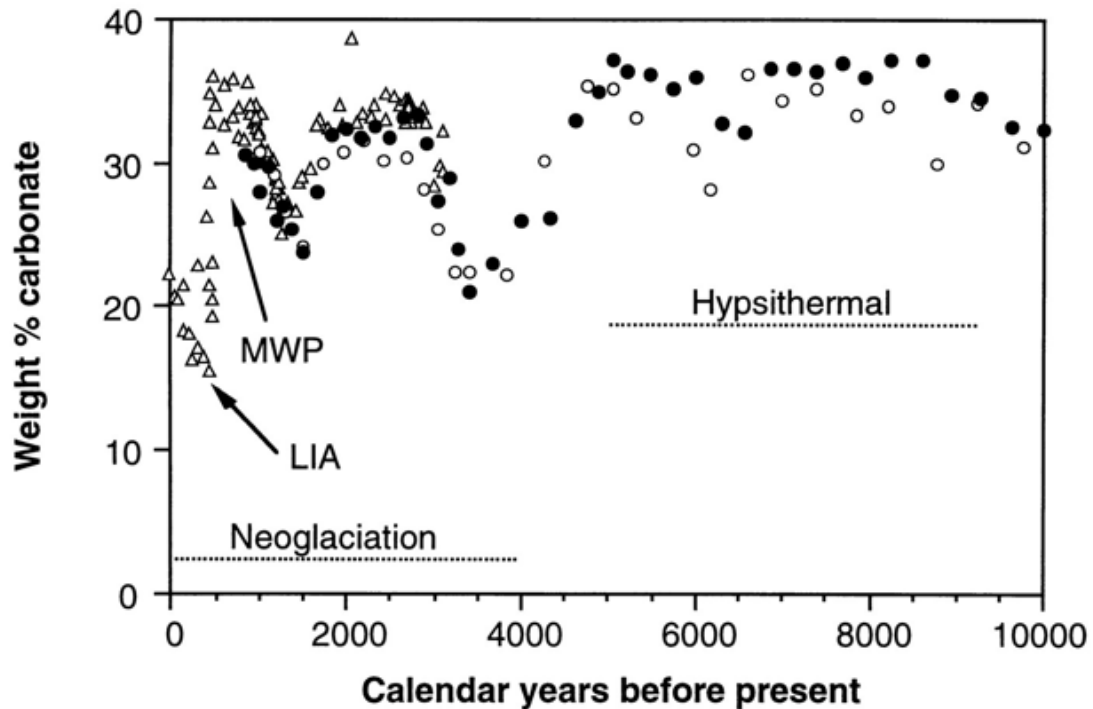
[http://www.bsh.de/en/Marine\\_data/Observations/Sea\\_surface\\_temperatures/](http://www.bsh.de/en/Marine_data/Observations/Sea_surface_temperatures/)

Sea surface temperature (SST), salinity, and flux of terrigenous material oscillated on millennial time scales in the Pleistocene North Atlantic, but there are few records of Holocene variability. Because of high rates of sediment accumulation (200 cm per thousand years), Holocene oscillations are well documented in the northern SARGASSO SEA. Results from a radiocarbon-dated box core show that SST was  $\sim 1^{\circ}\text{C}$  cooler than today  $\sim 400$  years ago (the Little Ice Age LIA, AD1500 - 1700) and 1700 years ago, and  $\sim 1^{\circ}\text{C}$  warmer than today 1000 years ago (the Medieval Warm Period MWP, AD 950–1250). Thus, at least some of the warming since the Little Ice Age appears to be part of a natural oscillation.

\* Report - The Little Ice Age and Medieval Warm Period in the Sargasso Sea

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Percent carbonate results from core GPC-5 (solid circles), GGC-1 (open circles), and BC-004 (triangles). The three major **carbonate minima** (~3500, ~1500, and ~400 years ago) are closely matched by oxygen isotopic maxima.

### Holocene 全新世

The Holocene is a geological epoch which began approximately 12,000 years ago[1] (10 000 14C years ago). According to traditional geological thinking, the Holocene continues to the present. The Holocene is part of the Quaternary period. Its name comes from the Greek words ὅλος (holos, whole or entire) and καινός (kainos, new), meaning "entirely recent". It has been identified with the current warm period, known as MIS 1, and can be considered an interglacial in the current ice age.

Human civilization, in its most widely used definition, dates entirely within the Holocene. The word anthropocene is sometimes used to describe the time period from when humans have had a significant impact on the Earth's climate and ecosystems to the present.

全新世 (Holocene) 是最年輕的地質時代，從11700年前開始。根據傳統的地質學觀點，全新世一直持續至今。其名稱源自希臘語 holos (完全的) 和 kainos (新的)，意即「完全新近的」。

全新世的氣候變化與人類社會的發展有密切的關係，因此詳細研究全新世的氣候和環境變化至關重要。研究全新時氣候變化的主要材料包括高緯度和高海拔冰芯，湖泊沉積物紀錄，樹輪，石筍及其他洞穴沉積物，高沉積速率的深海沉積物等。

<http://www.sciencemag.org/content/274/5292/1503.full>

[http://en.wikipedia.org/wiki/Medieval\\_warm\\_period](http://en.wikipedia.org/wiki/Medieval_warm_period)

In 1965 Hubert Lamb, one of the first paleoclimatologists, published research based on **data from botany**, **historical document** research and **meteorology** combined with records indicating prevailing **temperature** and **rainfall** in England around 1200 and around 1600. He proposed that "Evidence has been accumulating in many fields of investigation pointing to a notably warm climate in many parts of the world, that lasted a few centuries around A.D. 1000–1200, and was followed by a decline of temperature levels till between 1500 and 1700 the coldest phase since the last ice age occurred." - called the **Little Ice Age** (LIA)

### 中世紀溫暖時期 (MWP)

在這段時期，釀酒用的**葡萄**能遍佈歐洲，最北達英國南部。大西洋**鱈魚**盛產，鹽醃鱈魚的消費幾乎遍及歐陸，甚至一度成為軍糧與繳納物。

中世紀溫暖時期，北大西洋地區的**氣候十分不正常**，當時正歐洲的中世紀，大約在8世紀至13世紀。

中世紀溫暖時期，**北極海域的浮冰大量減少**，使古斯堪地納維亞人（或稱維京人）能橫越北大西洋，抵達格陵蘭和北美東岸。

<http://zh.wikipedia.org/zh-tw/%E4%B8%AD%E4%B8%96%E7%B4%80%E6%BA%AB%E6%9A%96%E6%99%82%E6%9C%9E>

小冰期（Little Ice Age，簡寫作LIA）是指一段在中世紀溫暖時期之後開始的時段。

這個名稱由弗朗索瓦-埃米爾·馬泰 (François-Emile Matthes)

於1939年所創立。當時馬泰用這個名詞來描述一個在美國加州一條以原來的氣候學不能解釋其存在的冰河。大約15世紀初開始，全球氣候進入一個寒冷時期，通稱為「小冰期」，在中國也稱為「明清小冰期」，小冰期結束於20世紀初期。小冰期期間全球範圍頻繁出現**饑荒**，這也是明朝末年饑荒連年，農民叛亂疊起的原因之一。直到比小麥、**水稻等穀類作物更耐寒的新大陸作物：馬鈴薯、玉米**等被廣泛種植之後情況方得以改善。

<http://zh.wikipedia.org/zh-tw/%E5%B0%8F%E5%86%B0%E6%9C%9F>

It must not be forgotten that in the Baltic Sea region, and particularly in the north, **winter ice was a positive advantage for communications**. It was possible, by horse and sledge or on skates, to travel more quickly over long distances in the winter than in the summer. During the high middle ages great winter markets were common, well documented, for example, in Uppsala and other central Swedish towns. One sign of this winter traffic in the Viking age comes from the many hundreds of **ice skates** made from the **long-bones of cattle or horses** which were discovered in the Black Earth of Birka.

*Helen Clarke and Bjorn Ambrosiani, Towns in the Viking Age, London: Leicester University Press, 1991. P.133*



Hundreds of bone skates were discovered during excavations of the Black Earth at Birka. They are polished on the underside, where the bone came in contact with the ice, and roughened above to give a grip for shoes (Photo Mats Spett)



Bone skates in use. This illustration from Olaus Magnus 1555 shows skates of an exaggerated length, probably because of a misunderstanding by Olaus' south European draughtsman.