

Some clarifications about the climate

The myth of luxuriant Greenland

The example of Greenland is often mentioned, to show the climate changes caused by man. About one thousand years ago the Viking Erik the Red called the largest island in the world “Grönland”, or “green land”. 84% of its surface today is covered with ice. In 982 A.D. the Viking escaped from the south-western part of Norway, his native land, due to some homicides, and he ventured towards unknown faraway lands. He first reached Iceland and then Greenland. This land is characterized by short summers and very long cold winters, which, however, seen by a Norman who was used to extreme climates, might have seemed more hospitable than his own country due to the large amount of edible fish and sea mammals and birds that were present. In order to settle in an area where survival is however not so easy, Erik needed to attract people who would follow him. When he returned to his country he enthusiastically described a fertile land that, in fact, he called “green land”, and convinced twenty five ships to set sail with him towards this “green paradise”. Therefore the name “green land” alone cannot be an irrefutable proof of a much warmer climate at the time of the Vikings, but could instead be a kind of publicity “slogan” to convince others to settle in a rather inhospitable area. There are really many geographical names that do not reflect the exact reality of a place, such as Conca d’Oro (Gold valley) near Palermo where once there were citrus orchards, and certainly no signs of gold.

There is another fact which must not be overlooked, the remains of Viking settlements have been found in the south-western coast of Greenland in areas that are still green today due to the presence of inland fjords that mitigate the temperature.

However, in 2007, illustrious scientists analyzed the DNA of fossil materials that were extracted from the depths of the ice in Greenland and so it was possible to identify the organisms that were present in the area: European spruce, pine trees, birches, alders, poplars, beetles, flies, spiders and butterflies. The researchers estimated that the DNA that was found dated back to a period 450,000 to 800,000 years ago, which was much before the period in which Erik the Red lived.

Medieval Warm Period and the Little Ice Age

We have all read about the Medieval Warm Period and the Little Ice Age in the newspapers and books. These terms, which are now commonly used, were introduced by the climate-historian Hubert Lamb in 1965 and by the glaciologist Francois Matthes in 1939, respectively. Climate historians and paleoclimatologists, however, do not agree on the time and duration of these periods and also the estimates of the variations in the temperature that characterized them are different. Furthermore the climate change in these periods did not vary only from one year to the another but also from one area to another of the Planet. Lamb positioned the Medieval Warm Period between 950 and 1200 for European Russia and Greenland, while for Europe he indicated the period between 1150 and 1300, with temperatures that were 1-2°C higher than in the first years of the Twentieth Century. Some experts disagreed with these statements and concluded that “in some part of the Globe, at some time of the year, relatively warm conditions could have prevailed”. The Little Ice Age, instead, is a period of relative cooling, that regarded the Northern Hemisphere from 1300 to 1850. Even this cold period was not constant and global, and according to Fagan “there never was a monolithic deep freeze”, but a “climatic seesaw”, in other words an alternation of warm and cold periods often accompanied by disastrous climatic phenomena.

The different theories proposed by the scientists with regard to the Medieval Warm Period and the Little Ice Age have led to the diffusion of not very precise information which has often been used as proof that the current climate changes have not been caused by humans. For a clearer explanation, refer to the chapter on “Paleoclimate” in the Fourth IPCC-WG1 Report, an authoritative source that states that the Medieval Warm Period and the Little Ice Age were respectively warmer and colder than the periods that preceded and followed them. Furthermore they were local phenomena that did not influence global climate and did not affect the entire planet at the same time. And, in particular, they cannot be compared with the current rise in temperature. In fact the climatic data indicate that up to 1900 the variations in temperature were limited to a few tenths of a degree.

“Frozen” Thames

Since there has been a continuous alternation of very cold periods and very hot periods in the past, some believe that the current variations in temperature are quite natural and negligible. In this way the importance of climate changes is minimized and it is “convenient” to believe that this is an invention of the media. As proof of a past that was much colder than today, the frozen Thames is often mentioned. The Thames, in fact, used to freeze often during the cold season, but this has not occurred since the winter of 1814. It is true that the temperatures have changed, but there have been other very cold winters as the one of 1963, the coldest of the 20th Century, when even lake Constance froze. Actually there are other reasons for the Thames not freezing anymore. In 1831, the London Bridge was built again with wider arches and without a dam to control the tides which therefore flow further upstream, and this prevents the water freezing in winter. In fact the frozen Thames would block the entire port, and also all the commercial activities. Furthermore the increase in civil and industrial waste discharged in this river increases the water temperature, which also prevents the formation of ice.

Venice on ice

Another example which has been mentioned to prove the cold in the Little ice age is the frozen Venice lagoon. There is a large amount of written evidence about the difficulties caused by the intense cold during the winter of 1788-1789, even in paintings showing boats stuck in the ice, which prevented supplies of goods and navigability. Actually the lagoon of Venice has frozen many other times, even after the so-called Little Ice Age. In fact there is proof of these events at the end of 1920, in 1956 in 1985 and even recently in 1991. However, in the past decades the ice in the Venice lagoon has surely been a less frequent condition, and this is not only due to an increase in the temperature, but also because here too there have been large structural changes in the port and the construction of canals that have changed the hydro-geological order of the lagoon. This has favoured better water circulation, but also the *acqua alta* (high water) phenomenon.