

# CLIMATE AT THE TIME OF THE BASTLES



**The Little Ice Age** *If I were further from the tempestuousness of Cheviot Hills, and were once retired from this accursed country whence the sun is so removed, I would not change my homlyest hermitage for the highest palace ther.* Wyllughby, AD1600

## The Armada storms

Perhaps the most famous storms were those of 1588, which endangered the retreating Spanish Armada.

The first storms struck off Scotland's east coast in August-

*we experienced squalls, rain and fogs with heavy seas and it was impossible to distinguish one ship from another*

The stragglers of the fleet then encountered a gale off western Ireland on September 21st-

*there sprung up so great a storm on our beam with a sea up to the heavens so that the cables could not hold, nor the sails serve us and we were driven ashore*

## Effects of the worsening climate

Increased rainfall and lower temperatures had a severe effect on agricultural output and food supplies, leading at times to famine conditions.

- cool, wet summers produced poor grain harvests resulting in high prices; these became more frequent from about 1550, culminating in four terrible years from 1594-1598 with prices for wheat, beans, peas and oats all doubling

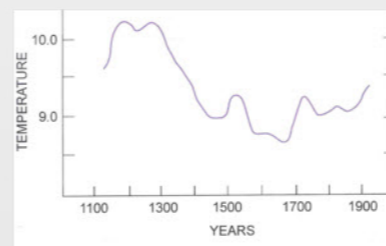
- excessive rain also led to widespread disease in livestock, with 'cattle plague and sheep-rot'



Ships of the Armada caught in storms off Scotland 1588



Group of female witches listening to a sermon by the devil, North Berwick 1590



Graph of average annual temperatures 1000 - 2000AD

## Increasing storm activity and cold

There is a wealth of evidence to suggest that the deteriorating climate of the latter part of the 16th century made life even more difficult in the Border region. This brought economic hardship, which seems to have instigated an increase in reiving activity and the need for bastles.

The winter of 1570/71 was the harshest, with snow beginning in the middle of November lasting until the end of February.

- there is plenty of contemporary evidence to show that the climate was more benign between 800 until 1200
- the climate probably began to cool from about the mid 14th century; wine production had almost ceased in England by 1440
- cultivation in the Lammermuir Hills, begun in the 12th was abandoned in the 14th and 15th centuries
- early in March 1565 a snow storm made travel from Edinburgh to Berwick impossible ; when the snow melted, rivers were impassable
- in August 1570, the Earl of Sussex (the royal lieutenant in the North) was forced to delay his raids into Scotland owing to 'marvailous stormes and rayne'
- Buccleugh's dependents were prevented from raiding in England due to 'extreamitie of wether'

## Witchcraft and weather

From the Middle Ages witches were held responsible for all types of misfortune - famine, disease, crop failure and abnormal weather. Trials for witchcraft reached a peak in England in the severe weather years of 1587 and 1588.

- James VI of Scotland experienced severe storms in 1590 whilst returning from Denmark and claimed that witches 'can raise storms and tempests in the air either upon the sea or land.'
- a number of people in North Berwick who were accused of conjuring up the storms were tortured and put to death

## Evidence for climatic change

Scientifically recorded temperature and rainfall observations do not extend far back into history so evidence has to come from other sources. These include anecdotal records and the vegetation history provided by pollen deposits and tree rings.

**Anecdotal** While this evidence is often impressionistic and unreliable, monastery and estate archives hold records of harvest prices and yields. These provide important verification of individual reports about weather conditions.

**Pollen Analysis** of the peat bogs along Hadrian's Wall show that from c.1040 woodland trees like alder, birch and oak decreased as the land was cleared for agricultural use. From c.1350 woodland regeneration occurred as farmland was abandoned, possibly due initially to disease followed by border warfare and a worsening climate.