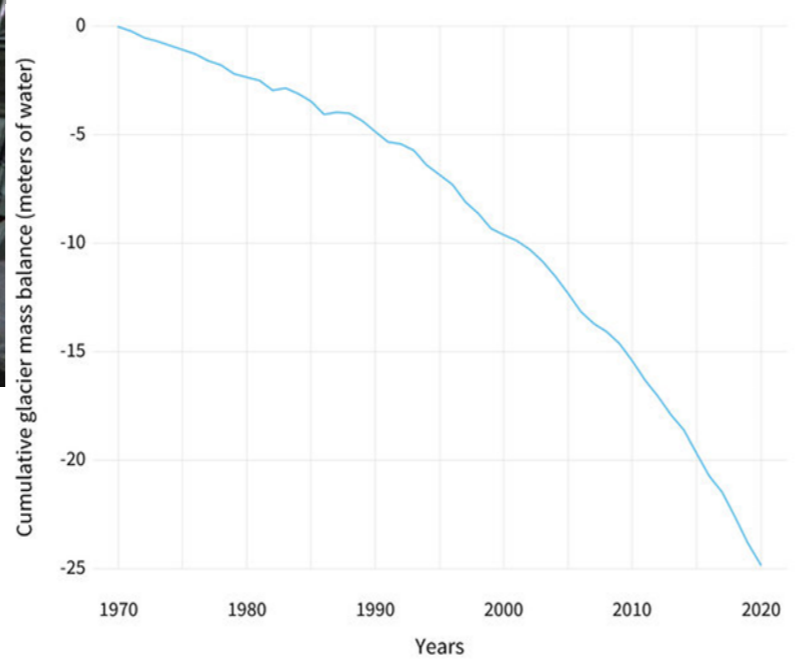


### Ice Cores

Ice cores are cylinders of ice drilled out of an ice sheet or glacier.

Scientists use ice cores to identify temperature changes. Falling snow traps air into the ice. By measuring the concentration of gases in the ice cores the atmosphere and climate when the snow fell is revealed. This data is used to calculate the temperatures at the time.

Scientists have measured temperatures of every year for the last 400,000 years. Evidence shows a increases in temperature over the last few decades.



### Glacial Retreat

Evidence Earth's climate is warming is shown in the retreat and loss of glaciers as they shrink or disappear. Since 1970, glaciers lost a volume of ice equivalent to nearly 25m of liquid water, this is the same as slicing 27.5m of ice off of each glacier. 2020 was the 33<sup>rd</sup> year in a row that glaciers lost rather than gained ice. Melting glaciers and ice sheets are the biggest cause of sea level rise so pose a threat to water supplies in many parts of the world.



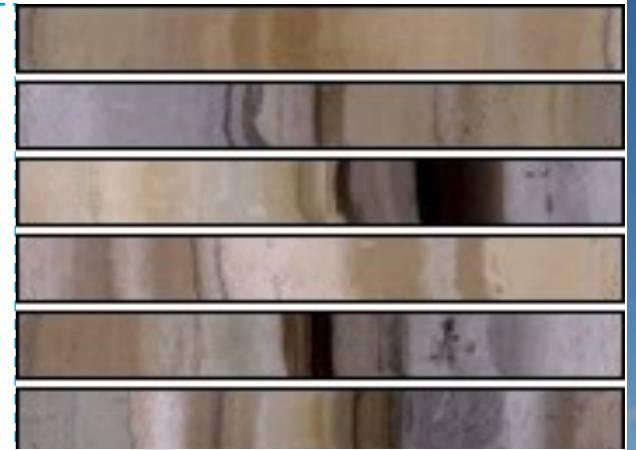
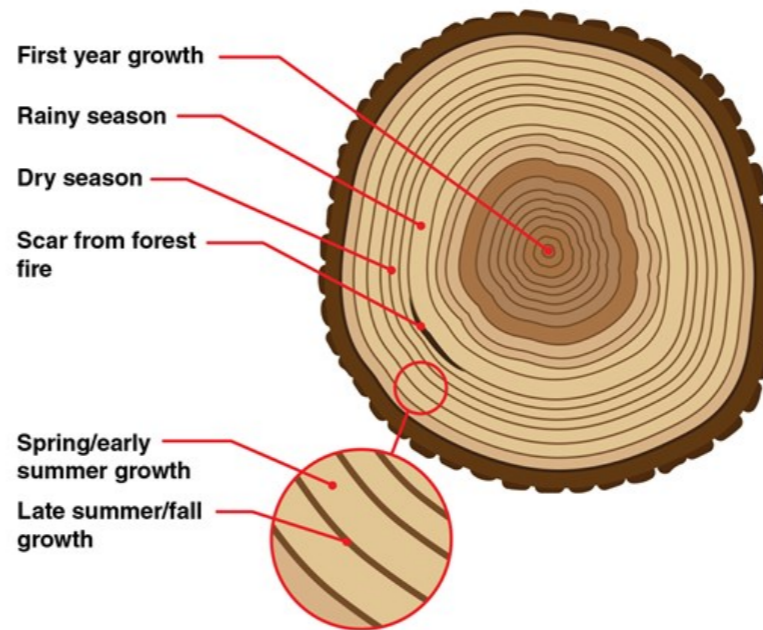
### Tree Rings

Trees can live for hundreds of years. During a trees life it can experience conditions that are wet, dry, cold, hot, frosts and droughts even fires!

Tree rings tell us the weather each year of its life.

Tree rings usually grow wider in warm, wet years and thinner in cold, dry years. In stressful conditions, like drought, the tree rings might hardly grow at all.

Scientists can compare tree rings with local measurements from weather stations as well as ice core data to find past climate knowledge.



### Sediment Cores and Fossils

Sediment cores, like ice cores, are sections of the ocean floor. Over time, dead marine life, dust blown from the land, and river sediment settle on the ocean floor creating layers. This makes a timeline, the deeper the sediment, the older it is. By studying the sediments and microfossils we can reconstruct and analyse the ocean conditions and global climate of the past. The varieties and concentration of fossils, oxygen and carbon in the cores show changes in deep-sea temperatures, global ice levels and the carbon cycle.

Levels of carbon dioxide & methane over the last 1000yrs

