On the world stage – key global events

It took a while for humans to figure out about climate change, and even longer to agree to do something about it!

We didn't always know that Climate Change is a big deal for the Earth and every living being. Some key events in the recent history of climate change have been summarised below:

1712	The steam engine invented – paving way for the industrial revolution.
1800	Human population reaches 1 billion.
1824	French physicist (Joseph Fourier) describes the "greenhouse effect" of the Earth's atmosphere.
1896	Swedish chemist (Svente Arrhenius) concludes that coal burning will enhance the greenhouse effect, which could be useful to humanity in preventing another ice age.
1930	Human population reaches 2 billion.
1938	British Engineer (Guy Callendar) uses weather stations all over the world to show that temperatures have risen in the previous century. He proposed that this was due to increasing CO_2 in the atmosphere.
1938	Serbian mathematician (Milutin Milanković) calculated that long term climate changes such as ice ages depended on small temperature changes, due to slight changes in the position of the Earth relative to the sun - this theory was met with general disbelief.
1958	An American Scientist (Dave Keeling) begins systematically measuring CO_2 at Mauna Loa, Hawaii – providing the first proof that CO_2 concentrations in the atmosphere are rising.
1960	Human population reaches 3 billion.
1965	"Restoring the Quality of Our Environment" report by the US President's Science Advisory Committee warns of the effects of fossil fuel emissions and states that "man is conducting a vast geophysical experiment".
1968	Ice age speculation combined with radioisotope dating and ice core studies over the past decade generate convincing evidence about ice age cycles that supports Milanković' calculations. Over time the Earth's climate system responds dramatically to subtle changes in sunlight.
1975	"Global Warming" is first mentioned in the title of a scientific paper, however, unusually severe winters in 1972 and 1973 (in Asia and North America) also pushed the idea of global cooling to the public eye.
1975	Human population reaches 4 billion.
1981	Consensus about global warming begins to form. NASA global temperature analysis was published, showing warming of 0.5-0.7 °C in the last century.
1987	Human population reaches 5 billion.
1987	Montreal Protocol agreed by all 197 UN members – restricting ozone depleting chemicals (these chemicals are also greenhouse gases).
1988	Intergovernmental Panel on Climate Change (IPCC) formed to gather evidence on climate change.
1990	First IPCC report concludes that the Earth's temperatures have risen over the last century and that emissions resulting from human activities are adding to the natural greenhouse gases, which will result in additional warming of the Earth's surface.
1992	The Earth Summit, Rio de Janeiro. Governments agree to the UN Framework Convention on Climate Change (UNFCCC) to stabilise greenhouse gas concentrations. This paves the way for an annual Conference of the Parties (COP). Developed countries agree to return GHG emissions to 1990 levels.
1995	Second IPCC report concludes that human activities are altering the Earth's climate, and the long time-scales of the climate system may mean these changes are irreversible.

1997	The Kyoto Protocol (COP3). Developed nations pledge to reduce emissions below 1990 levels by 2008-12, with a wide variation of targets. India and China were still considered developing nations at this time and were not subject to the requirements.
1999	Human population reaches 6 billion.
2001	President George W Bush removes the US (the world's largest GHG emitter) from the Kyoto protocol.
2001	Third IPCC report conveys "new and stronger evidence" that humanity's emissions are responsible for the warming seen in the last 50 years, with the 1990s the warmest decade on record.
2005	The Kyoto Protocol becomes law for those still inside it.
2006	China overtakes the US as the world's biggest GHG emitter.
2007	Fourth IPCC report cites over 6,000 peer-reviewed scientific studies and states that warming of the climate system is undeniable and it is "very likely" (more than 90% probability) that humanity's emissions are responsible for the warming seen since the 1950s.
2007	Al Gore and IPCC received the Nobel Peace Prize "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change".
2008	The Mauna Loa Keeling project show that within 50 atmospheric years CO_2 concentrations have risen from 315 ppm (1958) to 380 ppm.
2009	At the Copenhagen Summit (COP15), nations were unable to agree on targets and no legally binding treaty was created.
2011	Human population reaches 7 billion.
2013	The Mauna Loa Keeling project show that CO_2 concentrations have now surpassed 400 ppm.
2013	Fifth IPCC report reviewed over 9,000 studies and states it is "extremely likely" (95-100% probability) that humans are the "dominant cause" of global warming since the 1950s.
2013	COP19 established the Warsaw Mechanism for Loss and Damage (associated with extreme weather/slow onset events linked to climate change) that many developing countries are vulnerable to. These countries are wanting compensation for the damage caused by historical emissions of rich nations.
2015	The Paris Agreement (COP 21) set a goal to keep global warming "well below" 2 °C, while "pursuing efforts" to keep it under 1.5 °C. This agreement included China and India, and was the most ambitious global climate agreement the world has ever seen. Each country determine how they can achieve the treaty aims, known as nationally determined contributions (NDCs), which need to increase in ambition every 5 years.
2019	A special Climate Action Summit was arranged, against the backdrop of youth climate strikes around the globe and widespread concern that the world is way off course to meet the 1.5 target. Seventy nations committed to cut emissions by more than their Paris pledges, but these nations represented less than 7% of global emissions.
2020	USA President Donald Trump removes the United States from the Paris Agreement.
2020	Paris Agreement takes legal effect.
2021	USA President Joe Biden re-admits the United Stated into the Paris Agreement.
2021	Sixth IPCC report reviewed 14,000 scientific papers and had the plainest and gravest message yet, that humanity is on track for major inevitable and irreversible climate changes, and immediate action is required.
2021	Glasgow Summit (COP26, postponed by 1 year) established an agency focussed on loss and damage, stopping short of the compensation requested by the vulnerable countries. It is the first COP to explicitly target action against fossil fuels.
2022	Human population reaches 8 billion.

What the timeline shows is that although consensus about global warming occurred in the 1980s, there wasn't significant action by nations until climate change effects started being seen in the 1990s and beyond. The global political environment is a slow and clunky beast, but the 2020s is being characterised by a never-before-seen speed of decarbonisation, buy-in by the larger emitters, and a global movement by ordinary people concerned that not enough is being done. The 2020s are also being characterised by more and more extreme weather events that make climate change harder to ignore.

This timeline was developed from the following references:

- Global Climate Agreements Through the Years | Climate Reality Project 3/8/22
- A brief history of climate change - BBC News 3/8/22
- The history of global climate change negotiations (parliament.uk) 3/8/22
- Timeline - UNFCCC -- 25 Years of Effort and Achievement 3/8/22
- Past Climate Cycles: Ice Age Speculations (aip.org) 3/8/22
- Climate change - Wikipedia 3/8/22