

From Grandparents against Climate Change

3. Early warning signals - 1950-1990

Sixty years ago, when many of us were less than ten years old, there were clear early warning signals from scientists of the danger in burning fossil fuels and predictions of where this would lead. In 1958 Frank Capra made a film called 'The Unchained Goddess' which was shown on American TV and explains what weather is, and how it works and the risk of man-made climate change.

1953 Gilbert Plass, a Canadian scientist published a series of papers predicting that a doubling of Carbon Dioxide (CO₂) would warm the planet by 3.6°C, that CO₂ levels in 2000 would be 30% higher than in 1900 and that the planet would be about 1°C warmer in 2000 than in 1900. 54 years later in 2007 the [IPCC Fourth Assessment Report](#) estimated that a doubling of CO₂ would lead to a 2 - 4.5°C temperature increase, when CO₂ had already risen 37% and temperature had increased by around 0.9°C since pre-industrial times (0.7°C from 1900-2000 average). In the past decade the temperature has increased a further 0.2°C.

1957 Roger Revelle, director of the Scripps Institution of Oceanography, and Hans Suess studied the rate CO₂ had accumulated in the atmosphere and the proportion taken up by the oceans. They said, "Human beings are now carrying out a large scale geophysical experiment of a kind that could not have happened in the past nor be reproduced in the future".

1958 Charles David Keeling began systematically monitoring atmospheric CO₂ levels on Mauna Loa, in Hawaii. In 1961 he produced data showing that CO₂ levels were rising steadily year on year in what became known as the 'Keeling Curve' and is probably the most respected and referred to set of data in climate science.

1959 Edward Teller, as guest of honour at a celebration in New York City to mark the 100th anniversary of the US oil industry, told his audience of 300, "CO₂ has a strange property; it transmits visible light but absorbs the infrared radiation which is emitted from the earth. Its presence in the atmosphere causes a greenhouse effect. It has been calculated that a temperature rise corresponding to a 10% increase in CO₂ will be sufficient to melt the icecap and submerge New York. All the coastal cities would be covered, and since a considerable percentage of the human race lives in coastal regions, I think that this chemical contamination is more serious than most people tend to believe".

Through the '60s and '70s, when many of us were teenagers, US presidents were fully informed of the dangers, as was the US oil industry whose research into climate change clearly reflected the results of scientists in academia and government.

1965 President Lyndon Johnson received a report from his Science Advisory Committee titled '[Restoring the Quality of Our Environment](#).' The report concluded with a prediction and a warning of what could follow, "By the year 2000 the increase in atmospheric CO₂ will be close to 25%. This may be sufficient to produce measurable and perhaps marked changes in climate and will almost certainly cause significant changes in the temperature and other properties of the stratosphere".

1965 The American Petroleum Institute (API) president [Frank Ikard](#) told an oil industry conference. "The warning is clear and dire and the source unexpected. This report unquestionably will fan emotions, raise fears, and bring demand for action".

1977 James Black, Exxon's Scientific Advisor, told [Exxon's](#) management committee of top executives that emerging science showed that CO₂ levels were rising, likely driven by fossil fuel use, and such increases would boost global temperatures, leading to widespread damage.

1978 President Jimmy Carter received a [report](#) from an independent group of elite scientists called the [Jasons](#) which advises the United States government on matters of science and technology. They reported levels of CO₂ were predicted to double from pre-industrial levels by 2035 and 2060 at the latest and giving a temperature rise of 2-3°C.

1979 The First World Climate Conference was held on 12-23 February 1979 in Geneva and sponsored by the World Meteorological Organization. In his keynote address the Chairman, Robert M. White said, *“In little more than twenty years, we will celebrate the year 2000. This millennium may very well represent the ending of one era in the relation of humanity to the planet and the beginning of another. The millennium may mark a fundamental change in the ability of the planet to sustain its people or at least in the ways in which this will be done”*.

1988 Jim Hansen told a US Congressional meeting he was 99% certain the earth was warmer than it had ever previously been measured and there was a clear cause and effect relationship with the greenhouse effect. 1987 became the warmest year on record and 1981, 1983 and 1987 became the warmest three years since records began.

Thirty years ago could have been a turning point when, at the 1990 Second Climate Conference in Geneva, the British Prime Minister [Margaret Thatcher](#) made a significant contribution, encouraging the world to work together and take action.

“The danger of global warming is as yet unseen, but real enough for us to make changes and sacrifices, so that we do not live at the expense of future generations. No-one should under-estimate the imagination that will be required, nor the scientific effort, nor the unprecedented co-operation we shall have to show. We shall need statesmanship of a rare order”.

Sadly, it was not a turning point, the world didn't get the statesmanship of a rare order and the situation accelerated out of control.