Human influence on the climate system is clear. The concentration of CO2 emissions in the atmosphere has increased beyond any level observed in the last 800,000 years. CO2 during glacial and warm periods in the last 800,000 years (its concentration has been reconstructed using ice cores).

Climate change is a reality: the planet is heating up. 19 of the hottest 20 years since records began have occurred since 2001. The increase in the concentration of CO2 (line) coincides with the increase in temperatures (bars).

A number of indicators point to this warming.

- Antarctic ice sheet loss of the ice sheet mass in 2007-2017 as compared to 1997-2006
- Estimated rate of increase Sea level rise +3.2 mm/year
- Extreme events + Their frequency and/or intensity are increasing
- The oceans' oxygen inventory has decreased by 1-2 %
- 23 % of annual CO2 emissions are absorbed by the ocean, which is acidifying
- 84 % of ocean waters experienced at least one marine heatwave in 2019
- 90 % of the extra heat is absorbed by the oceans

With a considerable effect on human welfare and all sectors of activity. Their impact directly or indirectly influences natural and socio-economic systems.

- Shrinking harvests
- Whole populations will have to relocate
- Prices of basic foodstuffs and consumer goods will rise
- Extreme weather phenomena will cause widespread poverty
- Fresh water will be in short supply in some areas
- More wars to gain access to limited resources
- Diseases will spread due to higher temperatures
- Loss of ability to work due to heat

Some climate change is inevitable, even if we keep the warming below 2 ºC, and it will require action to adapt…

Comparison of some effects expected in 2021 in certain scenarios

<table>
<thead>
<tr>
<th>Warming by 2100</th>
<th>Physical effects</th>
<th>Rise of the sea level (cm)</th>
<th>Probability of an ice-free Arctic in summer</th>
<th>Tropical cyclones</th>
<th>Probability of less intense (#cat 1-5)</th>
<th>Rate of change</th>
<th>Frequency of extreme precipitation</th>
<th>Probability of more intense (#cat 4-5)</th>
<th>Increase in the extent of fires</th>
<th>Surface of the earth habitable for malaria</th>
<th>People exposed to extreme heatwaves</th>
<th>Surface of the earth habitable for malaria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 ºC</td>
<td>1.5-2.6 m</td>
<td>1 in 30</td>
<td>-17 %</td>
<td>+28 %</td>
<td>-16 %</td>
<td>x1.4</td>
<td>+18 %</td>
<td>+10 %</td>
<td>+16 %</td>
<td>+12 %</td>
<td>x22</td>
<td>+12 %</td>
</tr>
<tr>
<td>2 ºC</td>
<td>3.0-5.1 m</td>
<td>1 in 6</td>
<td>-3 %</td>
<td>+18 %</td>
<td>-16 %</td>
<td>x1.6</td>
<td>+18 %</td>
<td>+10 %</td>
<td>+30 %</td>
<td>+27</td>
<td>x27</td>
<td>+27%</td>
</tr>
<tr>
<td>5 ºC</td>
<td>4.0-8.1 m</td>
<td>6 in 6 (100 %)</td>
<td>Unknown</td>
<td>+55 %</td>
<td>Unknown</td>
<td>x2.0</td>
<td>+36 %</td>
<td>+70 %</td>
<td>+150 %</td>
<td>x80</td>
<td>x300</td>
<td>+46 %</td>
</tr>
</tbody>
</table>

Some climate change is inevitable, even if we keep the warming below 2 ºC, and it will require action to adapt…

...but mitigation action is vital: slowing down each one-tenth of a degree rise in temperature will prevent the effects from increasing exponentially

Climate neutrality must be reached by 2050 to limit the increase in global temperature by 2050 to below 1.5 ºC

Although some change is inevitable, it will minimize the problem in the medium and long term and reduce the costs of adapting to the future.

Climate action will have a profound effect on the global climate. Worldwide efforts to reduce emissions must be accompanied by actions to adapt to the changing conditions in order to face up to this challenge.