

INTRODUCTION

The following is a concise overview of the current knowledge on the 'sectoral' impacts of climate change in Malta, both at present and over the coming decades. It provides an overview of facts and projections related to climate change for the Mediterranean and Malta until the end of the 21st century for which data and model projections have been made available.

The compilation is made pursuant to the National Environment Policy obligations and is based on the latest national reports and strategies on the subject as well as on the most recent investigations made public after the launch of these reports.

Our climate has always been changing since its formation. Scientific measurements are providing us with past and current rates of climate change to a reasonable degree of accuracy. However, its projection and related future consequences can only be estimated if the human contribution to our future climate is known. As there is still considerable disagreement about the weight of the human contribution to changes in the climate, it follows that our predictions are intrinsically associated with a fairly large degree of uncertainty. This is why IPCC has based its projections on a limited number of likely scenarios based on the collective (in)actions taken by the international community in the immediate future.

As this overview only considers the climate change impacts on Malta, the uncertainties of the projected impacts become even greater because regional and local climate expectations are less certain than those averaged globally. One must therefore bear in mind that the projected effects listed hereunder are *not* predictions, but rather based on accepted sets of scenarios¹.

This overview describes the magnitude and range of local impacts that are sector-specific. It is aimed at a wide, high-level readership and therefore contains no detailed scientific explanations. Those who are interested in more scientific detail should refer to other publications¹. Texts have been limited to brief statements of the likely impacts based on published information.

¹ In *scenario* studies, scientists explore how a system responds under different assumptions. A *scenario* is a coherent set of assumptions about how factors outside of the simulation model could develop. Generally, the uncertainties in these analyses increases substantially the longer the time horizon and the further up in the causal chains of effects.

Salient impacts:

- *The climate is changing. In the 20th century the temperature rose by about 0.7°C worldwide. Increases in temperature from 1.0 to 5.5°C is anticipated by the end of the 21st century, which are higher than projected global warming (1.8-4.0°C), with the largest warming over eastern and Northern Europe in winter, and over Southern Europe and Mediterranean in summer.*
- *The probability of extremely cold winters will decrease.*
- *The annual average precipitation in Malta has remained the same with no statistically significant trends. But the annual number of precipitation (rainfall) days is very likely to decrease in the Mediterranean area*
- *Dry periods are projected to increase in length and frequency.*
- *An increase in extreme rainfall is expected. There will be a higher probability of extreme cloudbursts with local floods.*
- *Climate projections for the Mediterranean basin consistently show a pronounced decrease in precipitation, especially in the warm season².*
- *The drying of the Mediterranean is associated with increasing anti-cyclonic circulation over the region which causes a northward shift of the mid-latitude storm track over the European continent.*
- *Data shows that the local sea surface temperature is increasing and is already well above the global average³.*

² This drying is due to increased anti-cyclonic circulation that yields increasingly stable conditions and is associated with a northward shift of the Atlantic storm track. A pronounced warming is also projected, maximum in the summer season.

³ However for precise long term predictions more accurate studies have to be undertaken.