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## The impact of land use and climate change on Syria

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Natural hazards are one of the major challenges for sustainable development in any country, but the consequences will be severe in a country like Syria, which is already suffering from an ongoing armed conflict.

Using remote sensing (Sentinel-2 and Landsat satellite imagery), this study examines changes in land use/land cover changes before and during the Syrian conflict in two different parts of the country (the Euphrates River Basin and the Salamiyeh district). It also assesses the expected changes in temperature, precipitation, solar radiation and cloud cover characteristics over Syria under a moderate emissions scenario (RCP4.5) and a high emissions scenario (RCP8.5) for the near future (2031-2050) and for the distant future (2080-2099) based on four regional climate model simulations obtained from the CORDEX initiative. The results within the Euphrates River Basin showed that the area was affected by an overall decrease in water bodies and green cover, and that the rate of change was higher during the period of the Syrian conflict (periods of (2003 - 2011) and (2011 - 2019)). These findings were also reflected in the results for the actual cultivated area within the Salamiyeh district over almost the same period.

On the other hand, the regional climate model simulations show a pronounced warming over Syria, which is expected to reach 6°C by the end of the 21st century under the high emissions scenario (RCP8.5), while the results for solar radiation vary between seasons and locations across the country under both scenarios. Furthermore, the simulations analysed also show a decreasing trend in cloud cover (up to 10%) and precipitation (up to 9%) by mid to late century, regardless of the forcing scenarios.

Such an increase in these variables, combined with a decrease in precipitation, will shift Syria's climate towards a more arid one.