

1. Motivation

Tourism is an important economic activity for Greece with its contribution to the GDP (% of GDP) being about 21% in 2019.

2. Methodology and Data

To this aim we calculate the **Holiday Climate Index (HCI)** for urban and beach activities as well as the **Fire Weather Index (FWI)** using an ensemble of three RCMs from EURO-CORDEX.

3-Periods: 1971-2000, 2021-2050, 2071-2100 with the future periods being under RCP2.6, RCP4.5 and RCP8.5.

2.1 HCI

Holiday Climate Index was developed based on tourist climate preference survey data

$$\text{HCI urban} = 4(\text{TC}) + 2(\text{A}) + (3(\text{P}) + \text{W})$$

$$\text{HCI beach} = 2(\text{TC}) + 4(\text{A}) + (3(\text{P}) + \text{W})$$

TC = Thermal comfort: combination of daily maximum temperature (°C) and mean relative humidity (%)

A= Aesthetic: cloud cover (%)

P=Physical: combination of precipitation (mm) and wind speed (km/h).

Each climatic variable is rated on a scale from 0 to 10, with an overall HCI index score of 0 (potentially dangerous for tourists) to 100 (ideal for tourism)

2.2 FWI

- **FWI** is a daily meteorologically based index used worldwide to estimate fire danger in a generalised fuel type (mature pine stands).
- It consists of different components that account for the effects of fuel moisture and wind on fire behaviour and spread.
- Since 2007, the **FWI** has been adopted at the EU level by the **European Forest Fire Information System (EFFIS) of the Copernicus Emergency Management Service (CEMS)** to assess fire danger level in a harmonized way throughout Europe.

European forests' classification

Very low <5.2

Low 5.2- 11.2

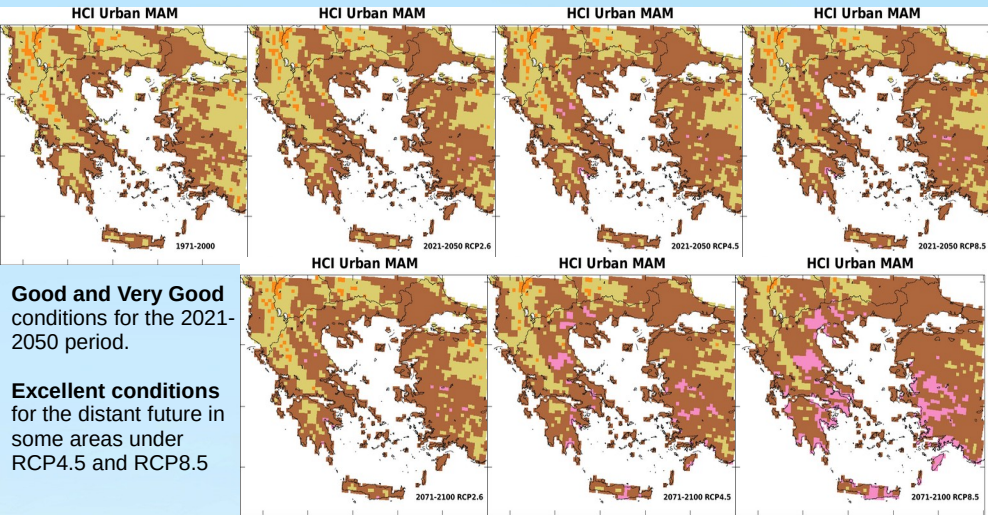
Medium 11.2 - 21.3

High 21.3 - 38.0

Very high 38.0-50.0

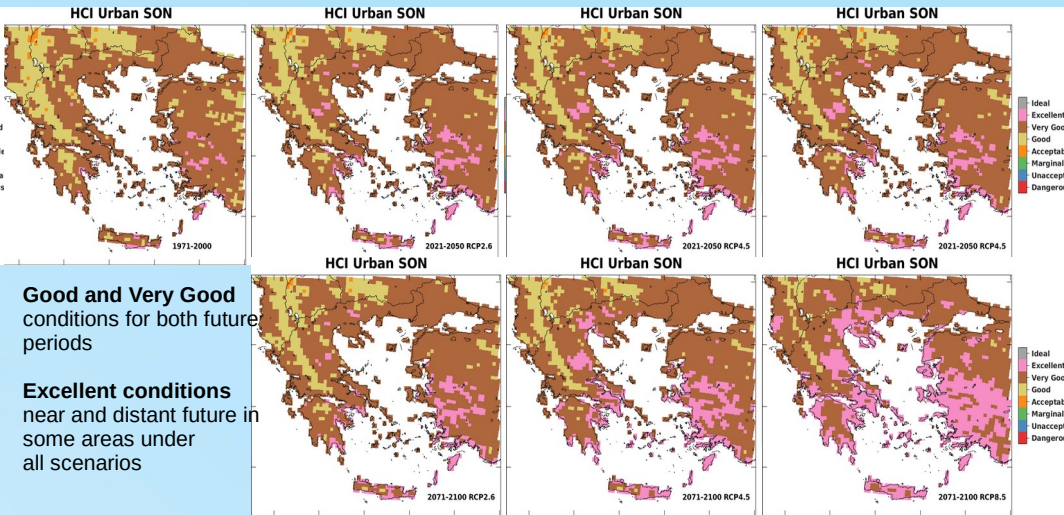
Extreme > 50

4. Results



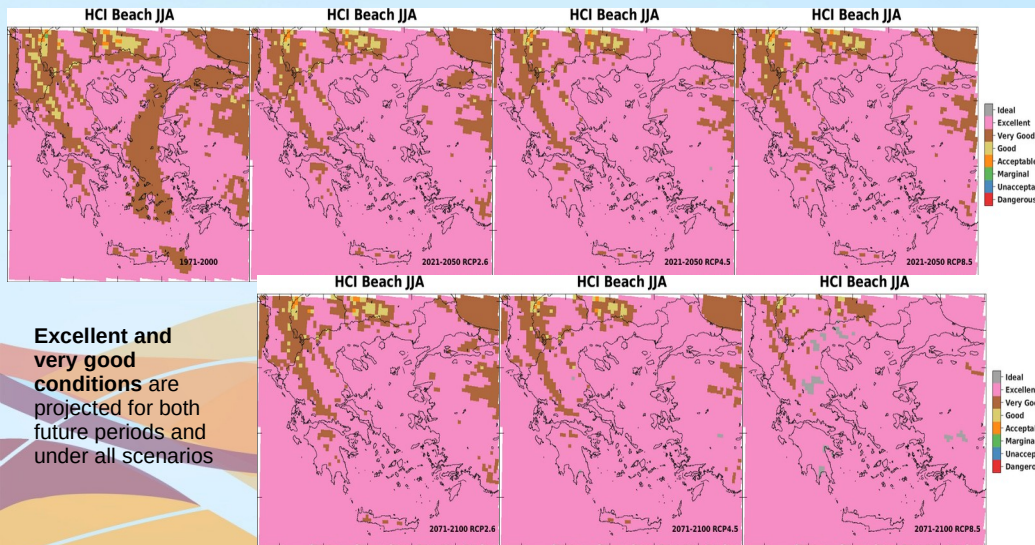
Good and Very Good conditions for the 2021-2050 period.

Excellent conditions for the distant future in some areas under RCP4.5 and RCP8.5

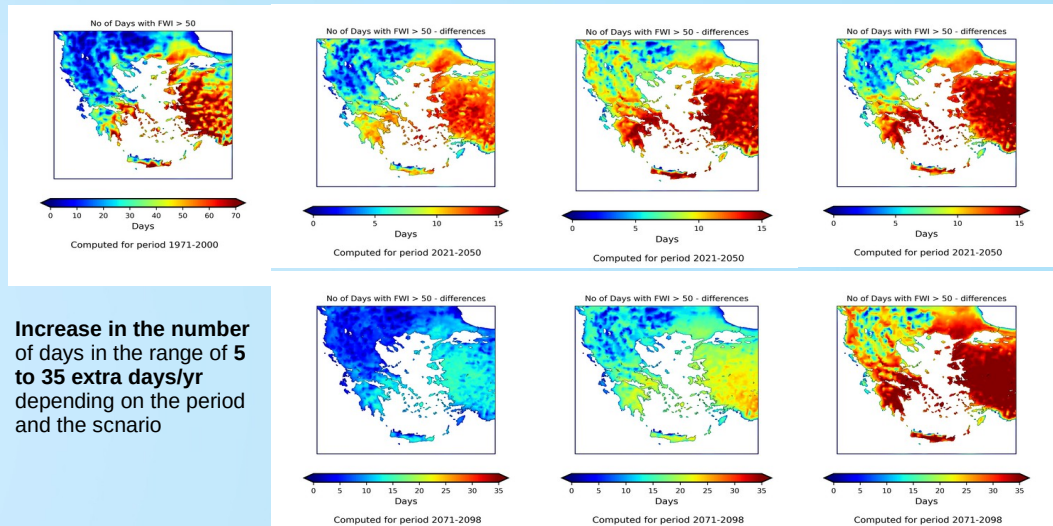


Good and Very Good conditions for both future periods

Excellent conditions near and distant future in some areas under all scenarios



Excellent and very good conditions are projected for both future periods and under all scenarios



Increase in the number of days in the range of 5 to 35 extra days/yr depending on the period and the scenario