CLIMATE CHANGE
IMPACTS ON CULTURAL
AND NATURAL HERITAGE:
FACING THE CHALLENGE

UN CLIMATE CHANGE
CONFERENCE
COP 25 SIDE EVENT

Climate change and Cultural Heritage:
Capacity Building for adaption measures

Prof. Constantinos Cartalis

National and Kapodistrian University of Athens

COP-25

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Towards Climate literacy
Education and Capacity Building

The United Nations have already highlighted the role of education both in raising awareness and building the capacity for climate change management.

Education increases "**climate literacy**", cultivates sustainable behaviors and help us adapt to the new conditions.

The Greek Ministry of Education and Religion Affairs, along with the Ministries of Culture and Environment strongly support these efforts.

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International Summer school for Capacity Building on the theme “Climate Change and Cultural Heritage”

building momentum for adaptation

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Main characteristics

- Interdisciplinary character (archaeologists, climate and energy experts, economists, etc.)
- For both **tangible** and **intangible** cultural heritage
- Referring to archeological sites and adjacent Museums
- Hands on – case studies to be worked out
- Supported mainly by the Ministry of Culture (a Standing Committee on "Climate Change and Cultural Heritage" has been established immediately after the NY Summit of 9/2019).
- Also supported by international entities, including UNESCO, ICOM and ICOMOS.
- **Target group**: administrators from the public sector

The “architecture” of the Summer School

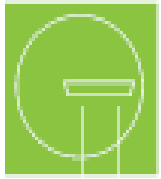
Introductory **Module**

- updated information on related international conventions (e.g. UNFCCC, UNESCO, UN-CBD, Council of Europe on Landscape, etc.) and initiatives (e.g. ICOM, ICOMOS, Europa Nostra, etc.)

Module 1

Acquaintance with the terms:
- exposure
- sensitivity
- adaptive capacity
- **vulnerability**
-resilience

with respect of such climate change induced dangers as:
forest fires, floods, draught/erosion, landslides, heat waves and SLR



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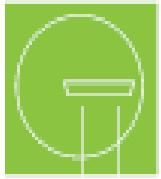
Module 2

Climate modelling, projections and scenarios:

- updated information on climate modelling
(*towards high resolution simulations – the CORDEX case*)

- climate scenarios for climate change impacts and vulnerability from the “bright” side (RCP2.6) to the dark side (RCP 8.5)



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Module 3

Climate change impacts, for example updated information on both observed and future impacts of climate change.

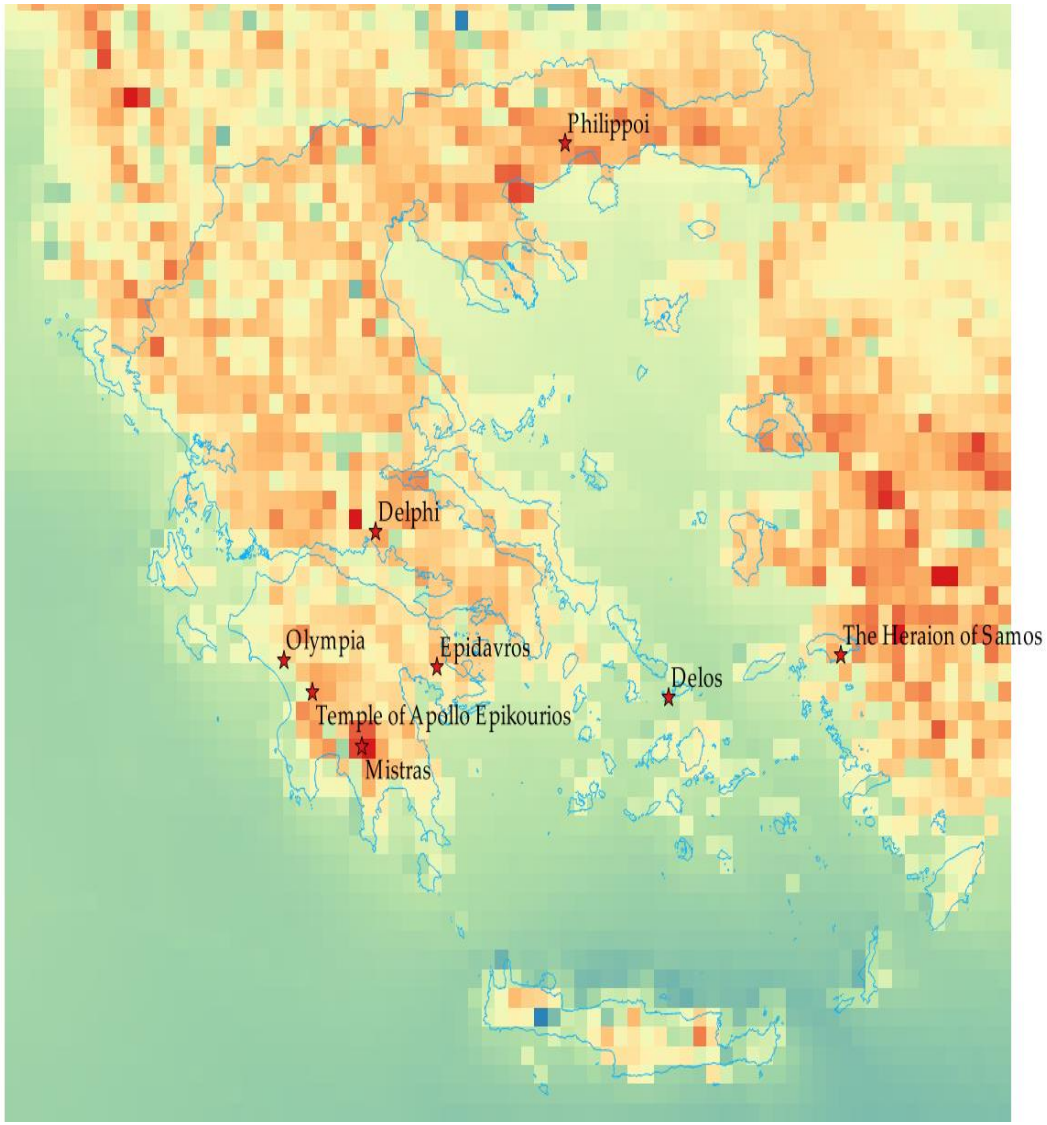
(by also taking note of the close interplay between cultural and natural heritage, practically how **human culture shapes the environment** and if, at the same time, **nature's feedback processes reshape culture**)

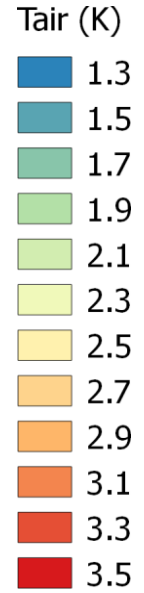
ENSEMBLE of models, RCP 2.6 at 12km grid (0.11 deg)

Monthly Mean Air Temperature Difference (SP-RP)* for July

Μνημεία UNESCO

1: Αρχαιολογικός χώρος των Φιλίππων
2: Άγιον Όρος - Άθως
3: Παλαιοχριστιανικά και βυζαντινά μνημεία Θεσσαλονίκης
4: Αρχαιολογικός χώρος Αιγών (Βεργίνα)
5: Μετέωρα
6: Παλαιά Πόλη Κέρκυρας
7: Αρχαιολογικός χώρος Δελφών
8: Μονή Δαφνίου, Μονή Όσιου Λουκά και Νέα Μονή Χίου
9: Αρχαιολογικός χώρος Ακροπόλεως
10: Ιερό του Ασκληπιού στην Επίδαυρο
11: Αρχαιολογικοί χώροι Μυκηνών και Τίρυνθας
12: Αρχαιολογικός χώρος Ολυμπίας
13: Ναός του Επικούρειου Απόλλωνος στις Βάσσες
14: Αρχαιολογικός χώρος Μυστρά
15: Αρχαιολογικός χώρος Δήλου
16: Ιστορικό κέντρο (Χώρα), Μονή Αγίου Ιωάννη του Θεολόγου και Σπήλαιο Αποκαλύψεως στην Πάτμο
17: Αρχαιολογικός χώρος Ηραίου Σάμου
18: Μεσαιωνική πόλη της Ρόδου





Source: C. Cartalis, Project **Climascape**

* Simulated Period: 2046-2065 (RCP 2.6)
Reference Period: 1986-2005

Archeological Site of Epidaurus

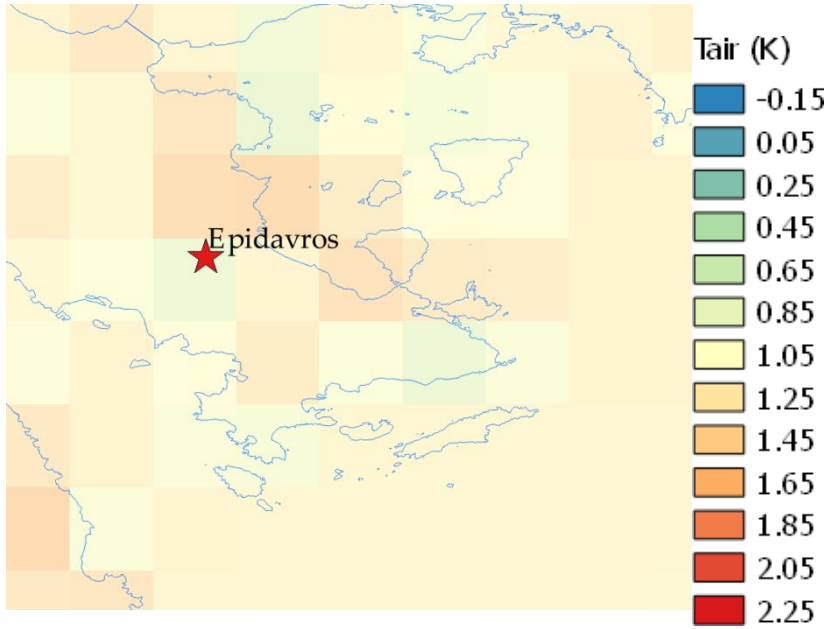
Vulnerable in extreme weather events, flood, drought

Variables

Temperature

Precipitation

Mean Air Temperature Difference (SP-RP)*

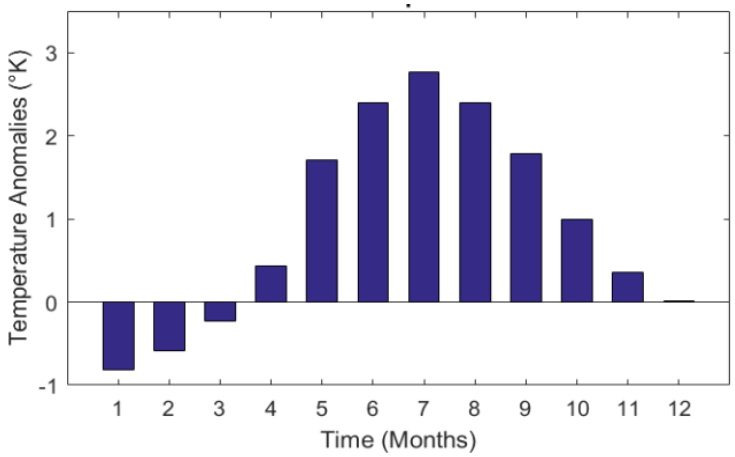


Temperature Differences Epidaurus

Mean: + 0.85 °K

Jan: -0.75 °K

July: +2.54 °K



* Simulated Period: 2046-2065 (RCP 2.6)
Reference Period: 1986-2005

Source: C. Cartalis, Project Climascape

Module 4

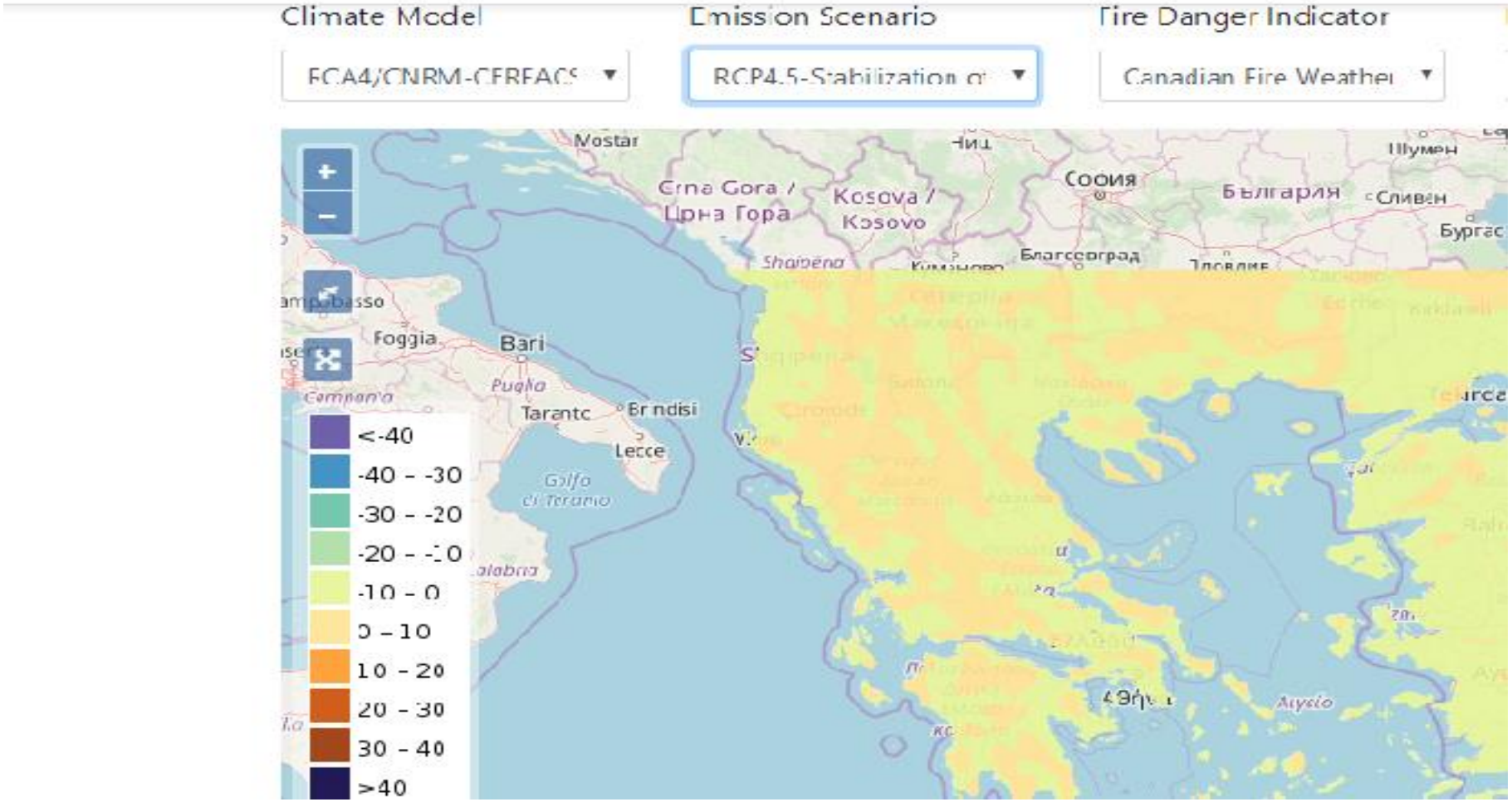
Acquaint with climate change services, tools and data sets

For instance the Copernicus Climate Data Store (CDS) provides a single point of access to a variety of climate datasets, including observations, re-analyses of past observations, seasonal forecasts and climate model projections.

Fire danger index

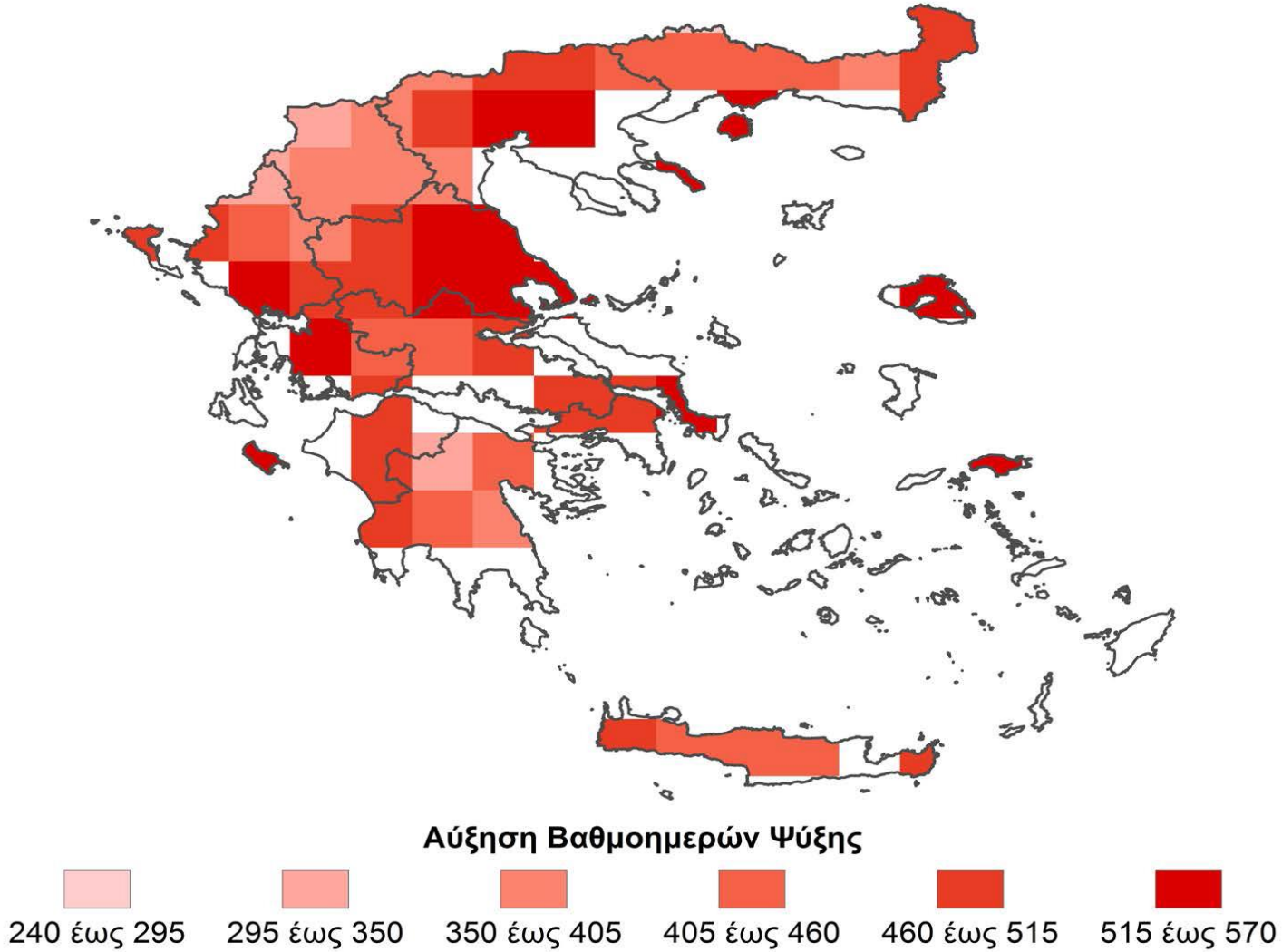
Source: Meteo.gr

Interreg
Balkan-Mediterranean
DISARM



Source: http://map.disarmfire.eu/

not only for the sites… but also for **open air visitors and employees and the thermal conditions in the Museums**



Increase of Cooling Degree Days* for the period 2046-2065 as compared to 1961-1990

* Number of times (at hourly scale) that the air temperature exceeds a predefined level, thus increasing cooling needs.

Source: C. Cartalis et al., 2017

Module 5

How to **draft domestic adaptation plans and enhance National Adaptation Plans**

through a broader look to regional/local development patterns, spatial – and landscape - planning, energy production and consumption patterns, financing, interlinks with the tourism industry, etc.

And at the same time taking note of some ("new") preconditions:

- Monitor how climate change and the socio-economic changes may impact the communities which supports conservation of cultural heritage.
- Exhaust all efforts to promote **adaptation on site** so as to respect the immoveable concept and **avoid the loss of cultural memory**.
- Communicate **indigenous knowledge** in adaptation.

and **Module 6**

Monitoring and evaluation framework:
tools for assessing adaptation actions

Where and when:

Delphi-Greece

September 2020 (exact time tbd)