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Coopération transfrontalière
ITALIETUNISIE



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CLUSTER transfrontalier à SERvice du réseautage et qualification des filières AGRicoles en oléiculture



LES RAVAGEURS DES CULTURES ET LES CHANGEMENTS CLIMATIQUES:

l'exemple de la mouche de l'olive

Dr. Ing. Ghazi Krida – Entomology - INAT



BARACK OBAMA
2020

"I'M SORRY."
WE COULD HAVE STOPPED
CATASTROPHIC CLIMATE
CHANGE... WE DIDN'T. "

tektectek
GARDENKOR

COPENHAGEN 2009
ACT NOW - CHANGE THE FUTURE

India not taking climate change seriously: Shiva

Shiv Prasad Shukla, former Union Minister for Environment and Forests, has said that India is not taking climate change seriously. He said that the government is not taking any concrete steps to reduce greenhouse gas emissions and is not implementing any effective policies to combat climate change. He also said that the government is not taking any steps to protect the environment and is not implementing any effective policies to conserve natural resources.



Climate change department: Gujarat goes California way

Centre for Strategic Studies (CSS)

INTERNATIONAL CONFERENCE ON CLIMATE CHANGE PARADIGMS

20-21 November 2017, Chennai, India

The conference will address the latest progress in global climate change research and governance for the 2015 UN Climate Change Summit to be held in Paris later this year.

Earth hottest now, and getting hotter

THE Earth is on track to be the hottest it has been at any time in the past 11,000 years — a period spanning the history of human civilisation — a study says.

Using fossil samples and other data from 12 sites worldwide, scientists have reconstructed the history of the planet's temperature from the end of the last Ice Age, about 11,000 years ago, to now.

They have determined that the past 10 years have been hotter than 80 per cent of the past 11,000 years. But virtually all climate models predict Earth's atmosphere will be hotter in decades to come than any time since the end of the Ice Age.

"We already know that, on

"Now we know that it is warmer than most of the past 11,000 years."

"This is of particular interest because (it) spans the entire period of human civilisation."

The data shows temperatures cooled by 6.5C over the past 10,000 years, but have risen again in the past 100 years, particularly in the northern hemisphere, where land masses are larger.

Climate models project average global temperatures will rise 1.5C-6.5C by the end of the century, depending on the level of carbon dioxide emissions from human activities.

"What is most troubling is that this warming will be significantly greater than at any time during the past 11,000

CLIMATE CHANGE

SOUTH ASIAN MEDIA BRIEFING WORKSHOP ON

Basement Theatre, India Habitat Centre
Lodhi Road, New Delhi

Nations Unies
Conférence sur les Changements Climatiques 2015
COP21/CMP11
Paris, France

President, Secretary-General, and other leaders raising their hands in celebration.

'Farmers must adopt new techniques'

Agri Researchers Come Up With New Findings To Survive Climate Change

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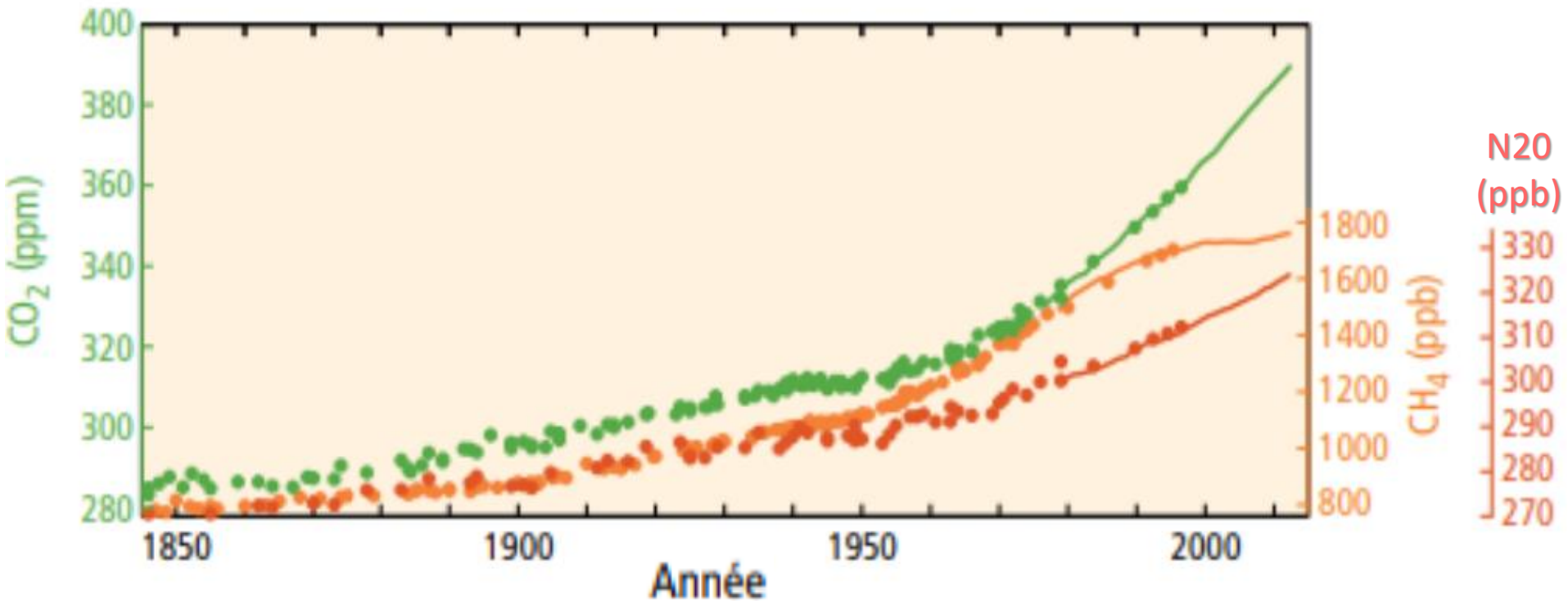
Agri Researchers Come Up With New Findings To Survive Climate Change

COP27

EGYPT CLIMATE SUMMIT:
Implications for Real Estate

CUSHMAN & WAKEFIELD

Moyenne mondiale des concentrations de gaz à effet de serre



En 2021:

[CO₂] = 415,7 ppm ↗ + 49 %
[CH₄] = 1 908 ppb ↗ + 162 %
[N₂O] = 334,5 ppb ↗ + 24 %

par rapport à l'époque préindustrielle

(FAO, 2022)

Répartition des émissions de GES entre les secteurs économiques

L'Effet de serre: des causes anthropiques



Production d'électricité
et de chaleur
25 %

AFAT
24 %

Bâtiment
6,4 %

Transports
14 %

Industrie
21 %

Autres secteurs
énergétiques
9,6 %

Émissions directes de GES

Énergie
1,4 %

Industrie
11 %

Transports
0,3 %

Bâtiment
12 %

AFAT
0,87 %

Émissions indirectes de CO₂

Des hivers de plus en plus chaud!

Selected Significant Climate Anomalies and Events: January 2021



GLOBAL AVERAGE TEMPERATURE

January 2021 average global land and ocean temperature was the seventh highest for January since records began in 1880.

EUROPE

Wetter-than-average conditions were present across much of Europe during January. Madrid, Spain, had over 30 cm (11.8 in.) of snow on 9 January 2021 — the heaviest snowfall Madrid had since March 1971.

ARCTIC SEA ICE EXTENT

The January 2021 Arctic sea ice extent was 6.5% below the 1981-2010 average. This was the sixth-smallest January extent since satellite records began in 1979.

ASIA

Much of northern Asia had below-average temperatures during January, while parts of southern Asia had above-average conditions. This resulted in Asia's smallest January temperature departure since 2012.

NORTH AMERICA

North America had its second-warmest January on record. Only January 2006 was warmer.

KINGDOM OF BAHRAIN

Bahrain's mean temperature for January 2021 tied with 1953 and 1999 as the fifth highest on record.

CONTIGUOUS UNITED STATES

The contiguous U.S. January 2021 temperature tied with 1923 as the ninth highest in the nation's 127-year record.

CARIBBEAN

The Caribbean region had its fifth-highest January temperature on record.

MALAYSIA

Torrential rain fell across Malaysia on January 11, causing deadly floods.

SOUTH AMERICA

South America's January 2021 temperature was the 14th highest on record.

AFRICA

January 2021 was Africa's warmest January on record, surpassing the previous record set in 2010.

TROPICAL CYCLONE ELOISE

Eloise made landfall on Mozambique as an equivalent Category 1 hurricane in the Saffir-Simpson scale on January 23. The storm brought strong winds and heavy rain that caused severe floods in the region.

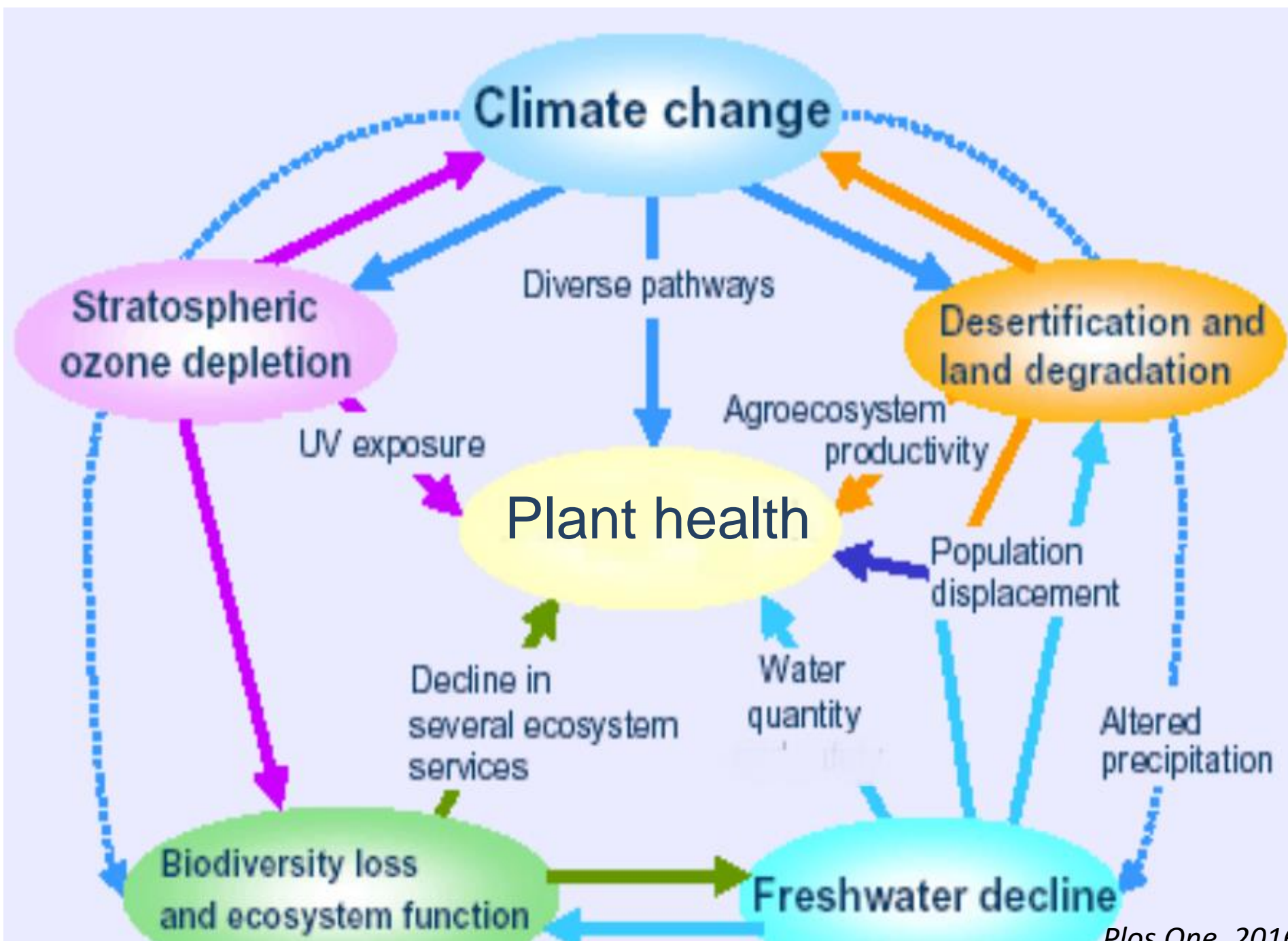
GLOBAL TROPICAL CYCLONES

The Southern Hemisphere was active this month, with a total of 10 named storms. This is one storm shy of tying the record of 11 set in 1985, 1986, and 1997. The Northern Hemisphere had no storms.

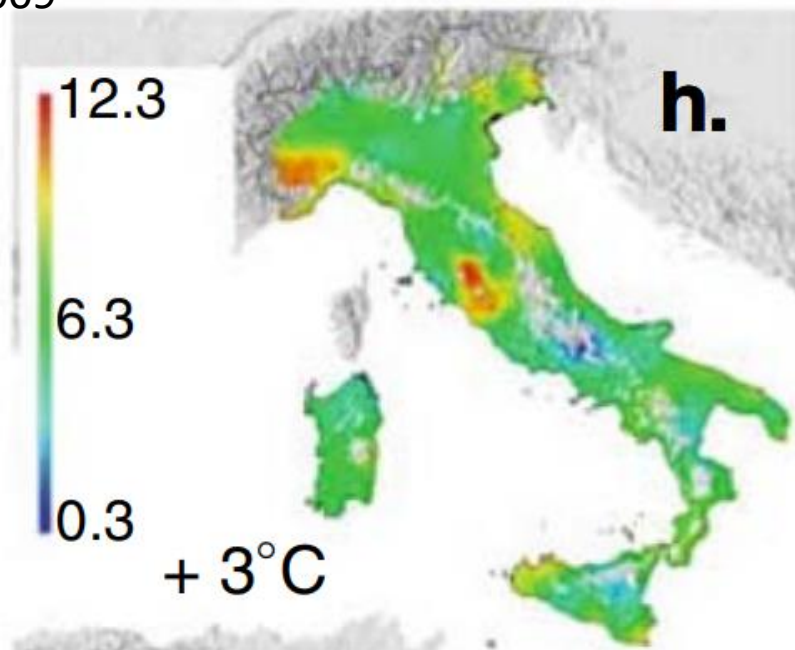
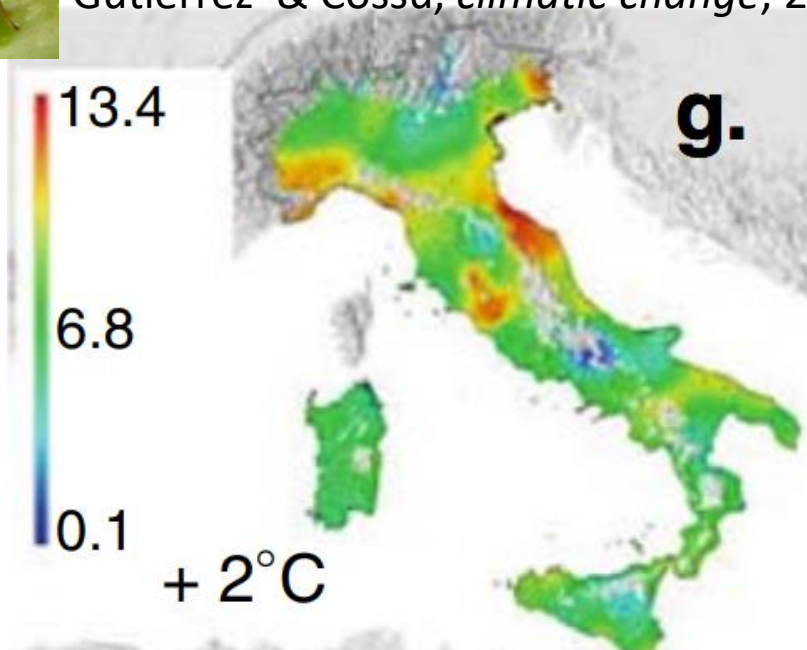
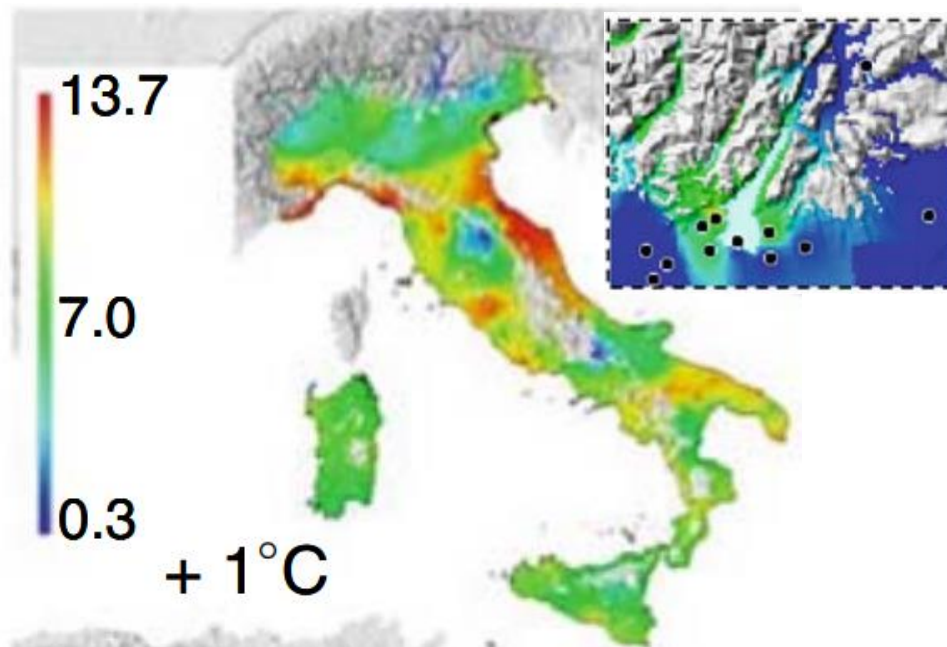
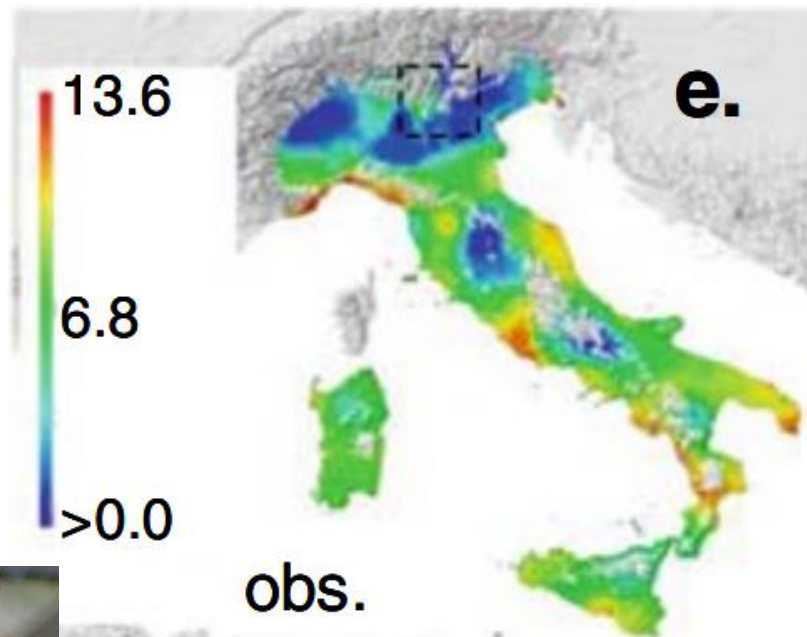
Remontée des zones arides vers le nord



(Fabio Orlandi, 2021)



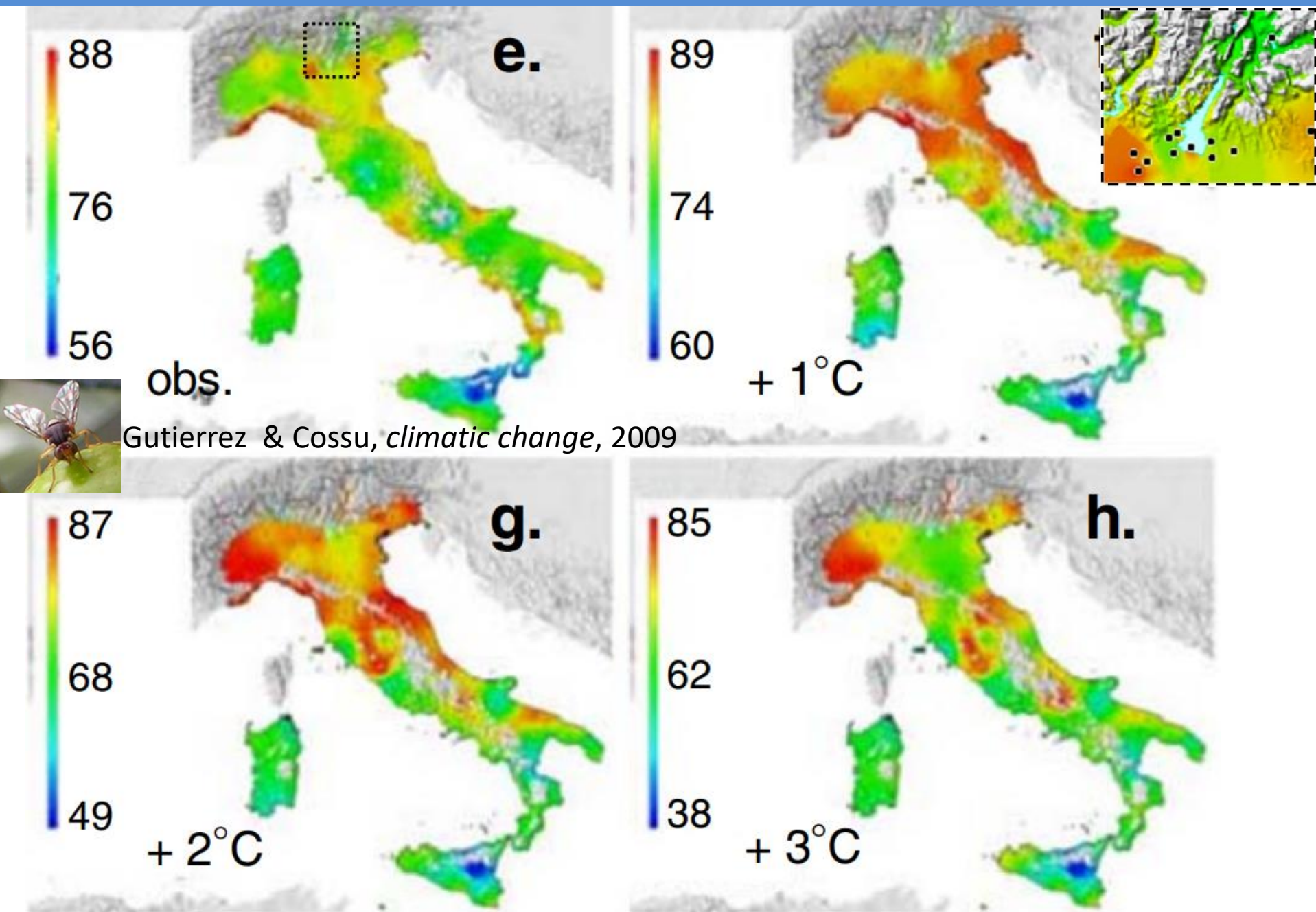
Nombre moyen de pupes de la mouche de l'olive par saison 10^3



Gutierrez & Cossu, *climatic change*, 2009



Pourcentage moyen de fruits attaqués par la mouche de l'olive



D'une manière générale,

La mouche de l'olive génère des **taux d'infestation de plus en plus faibles** dans les pays du bassin méditerranéen, en particulier loin des côtes, où les chaleurs sont fortes et l'humidité relative est faible.

(Volpi et al, *Comput. Electron. Agric.*, 2020).

(Ait Mansour et al., *Agric. Ecosyst. Environ.*, 2012)



CONCLUSION

Renforcer le suivi des ravageurs et poursuivre le développement de moyens de lutte alternatifs

Comment:

- Développer les services de dépistage offerts aux producteurs;
- Former les producteurs intéressés;
- Améliorer les outils de partage de l'information;
- Développer les outils d'aide à la décision.

Merci de votre attention

