Tourism in Transition: Climate Change

THE CANARY ISLANDS

TENERIFE • GRAN CANARIA • Lanzarote • FUERTEVENTURA • LA PALMA • LA GOMERA • EL HIERRO
European Union
Distance from European continent: 1500 km
Ultra-peripheral region of Europe
Strategic location between three continents
Leading European tourist region in terms of overnight stays

15,500,000 tourists
2,000,000 cruise passengers
104,000,000,000 overnight stays
35.2% of GDP

35.3% of taxes

40.3% of employment

9.2% of government spending
- 104.4 million overnight stays
- 3.6% market share

Source: Eurostat and European Commission
Lies → Damn lies → Astrology → Tourism statistics
Tourism arrivals
Research and Know-How
A new strategy

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• Measuring market and non-market impacts of Climate Change (CC) through surveying techniques, employing revealed and stated preference methods (Discrete Choice Experiments - DCE), and big data analysis.

- **Goal:** understand how Climate Change affects the behavior of individuals

- **Challenge:** measure the economic impact of the effects of CC on sectoral activities and of the effects produced by changes in social behavior
12 european islands represented

- Azores
- Balearic
- Baltic (Fehmarn)
- Canary
- Corsica
- Crete
- Cyprus
- West Indies
- Madeira
- Malta
- Sardegna
- Sicily
Physical and Natural Systems Modelling
CLIMATE CHANGE INFographics
IMpACTS ON TurISMo SECTOR

INCREASED TEMPERATURE

- Average cost for marine habitat restoration: US$80,000-$1,600,000 per hectare (2010)
- Loss of habitat ranges from 20% to 70%
- Loss of coral reefs biodiversity and quality
- Loss of turtle nesting beaches
  - Destination loyalty
  - Expenditure per capita
  - Economic losses: US$45-$192
  - US$18 mill.

FOREST FIRES

- 42% tourists arrive only under very high risk scenario
- Attractiveness of the destination
- FLORIDA (USA)
- MOSCOW (2010)
- 11,000 excess deaths over only 6 weeks

HEAT WAVES

- Demand for indoor activities
- 25% water consumption
- BONAIRE AND BARBADOS
  - Reduced beach area
- CARICOM countries
  - 1m SDR
- MARTINICA
  - 25cm SLE
- AUSTRALIA
  - Beach erosion
- 87% beaches availability
- 17-23% tourism arrivals
- Short-term damage for all businesses
- Even more pronounced for small firms

SEA LEVEL RISE

- 60% resort properties affected
- 29% prob. of inundations in resort properties
- 87% beaches availability
- Adaptation measures
  - NO CHANGE

EXTREME EVENTS
24 partners specialized in 4 sectors
(Universities, SME’s, Regional Authorities, Other Research Organizations)
Aquaculture

1. Decrease in production due to an increase in surface water temperature
2. Increased fragility of the aquaculture activity due to an increase of extreme weather.

Marine Energy

1. Risk of changes in power generation due to long term climate change and variability
2. Risk of changes in energy demand due to changes in precipitations and temperatures
3. Risk of damages to transmission grids due to extreme events.

Maritime transport

1. Risk of damages in port infrastructures due to floods and waves
2. Damages to ships on route (open water and near coast) due to extreme weather events
3. Risk of transport disruption due to transport disruption
Coastal and maritime tourism

1 - Loss of tourist experience value in the destination due to changes in environmental attributes
   1-1- Loss of attractiveness of touristic marine environments (due to loss of species and/or increase of exotic invasive species; or degradation of landscape)
   1-2- Loss of attractiveness due to increased danger of forest fire in touristic areas
   1-3- Loss of attractiveness of touristic land environments (due to loss of species and/or increase of exotic invasive species; or degradation of landscape)
   1-4- Loss of attractiveness and comfort due to beach surface reduction

2 - Loss of tourist experience value in the destination due to changes in human being comfort
   2-1- Loss of comfort due to increase of thermal stress
   2-2- Increase of health issues due to emergent diseases

3 - Loss of tourist experience value in the destination due to the quality of infrastructure and facilities
   3-1- Decrease of available domestic water for the tourism industry
   3-2- Increase of damages to infrastructures and facilities (accommodation, promenades, water treatment system, etc.) due to sea level rise and storms
   3-3- Loss of attractiveness due to loss of cultural and patrimonial heritage (monuments, gastronomy)
Added value

- Impact chain as a validated method for vulnerability assessment....
Added value

- **Downscaled coupled ocean-atmosphere Regional Climate Models**

Source: ENEA, SOCLIMPACT Kick-Off Meeting
• We need to understand our current situation and future scenarios.

• We need to add value through sustainability.

• We need to generate productive investment in sustainability.

• We need to work together, plan together and act together.
Canary Islands

Left:
- Legislation
  - European Union and others
  - State
  - Regional Government
  - Cabildo (Island Council)
  - City Council
  - Citizens

Right:
- Eco-areas model
- Involvement

Conventional model