

# Climate Change and Tourism: Responding to Global Challenges

Davos, Switzerland  
1 October 2007

## Technical Report

Commissioned for the Second  
International Conference on Climate  
Change and Tourism



# Experts Team

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Dr. Daniel Scott (Lead Author) - University of Waterloo, Canada \*

Dr. Bas Amelung - University of Maastricht, Netherlands

Dr. Susanne Becken - Lincoln University, New Zealand \*

Dr. Jean-Paul Ceron - Limoges University, France \*

Ghislain Dubois - TEC Conseil, France

Dr. Stefan Gossling - Lund University (Sweden),  
Western Norway Research Institute (Norway)

Paul Peeters - Breda University, Netherlands

Dr. Murray C. Simpson - University of Oxford, England

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- Members of WMO Expert Team on Climate and Tourism
  - Lead author, 4<sup>th</sup> Assessment report, IPCC, Working Group 2

# The New Realities of Tourism in an Era of Global Climate Change

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- **Impacts and Adaptations at Tourism Destinations**
  - » *Mountain regions*
  - » *Coastal regions and islands*
  - » *Natural and cultural heritage*
- **Implications for Tourism Demand**
  - » *Geographic and seasonal shifts*
- **Emissions from Tourism: Status and Projections**
  - » *Sub-sectors: transport, accommodations, activities*
  - » *Results for 2005 baseline and 2035 projection*
- **Mitigation Measures in Tourism**
  - » *Mitigation potential for 2035*



# Climate Change Impacts at Tourism Destinations



# Assessment of Major Impact Types at Tourism Destinations

## ■ Direct climatic impacts

- » Warmer Summers
- » Warmer Winters
- » Precipitation Changes (water supply)
- » Increased Extreme Events

## ■ Indirect environmental change impacts

- » Biodiversity Loss (terrestrial and marine)
- » Sea Level Rise
- » Disease

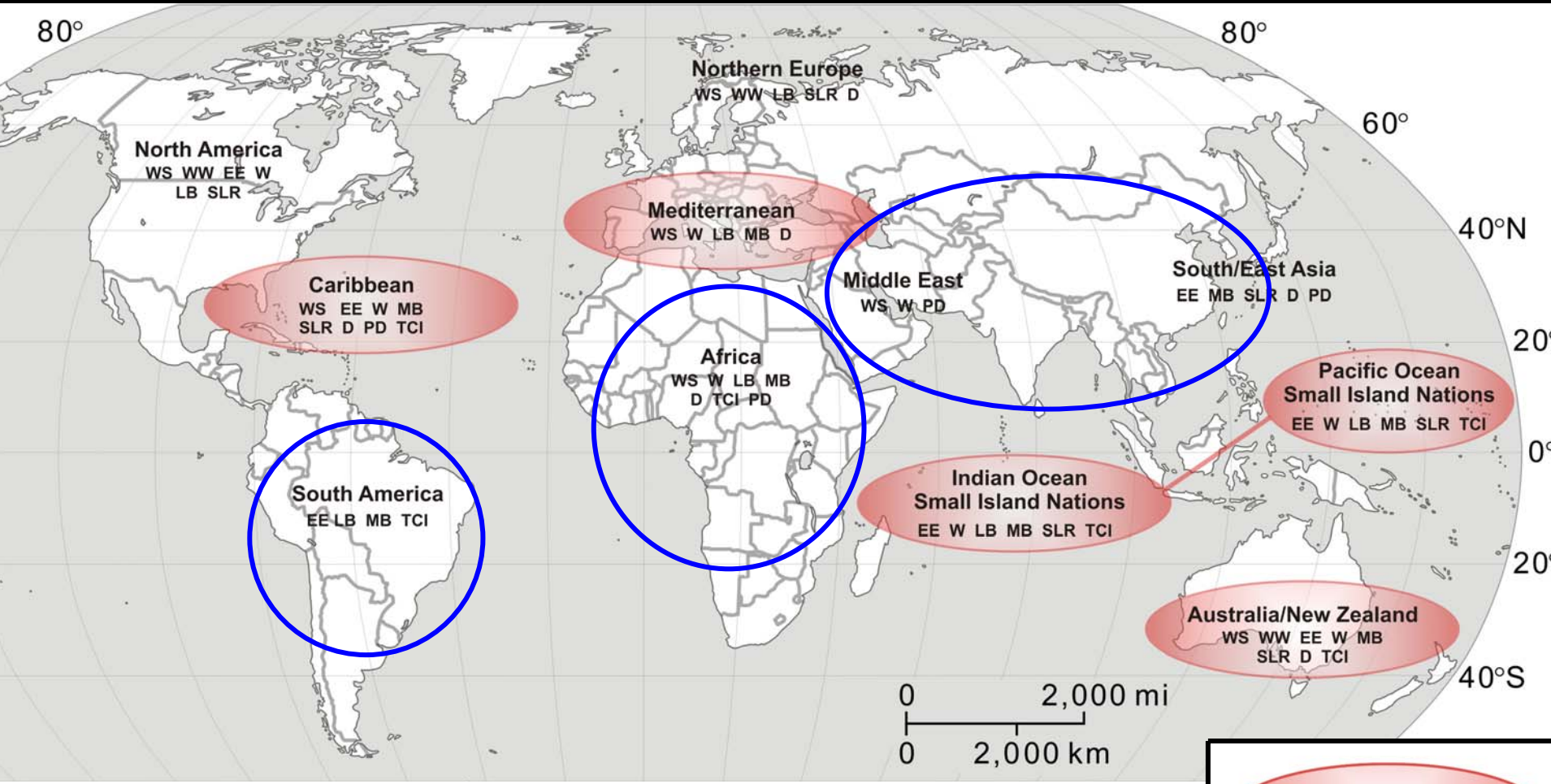
## ■ Impact of mitigation policy on tourist mobility

- » Travel Costs and Destination Choice

## ■ Indirect societal change impacts

- » Global/Regional Economic Impacts
- » Increased Security Risks (social/governance disruption)

# Tourism Vulnerability 'Hotspots'



WS = warmer summers

WW = warmer winters

EE = increase in extreme events

SLR = sea level rise

LB = land biodiversity loss

MB = marine biodiversity loss

W = water scarcity

PD = political destabilization

D = increase in disease outbreaks

TCI = travel cost increase from mitigation policy

Hotspot

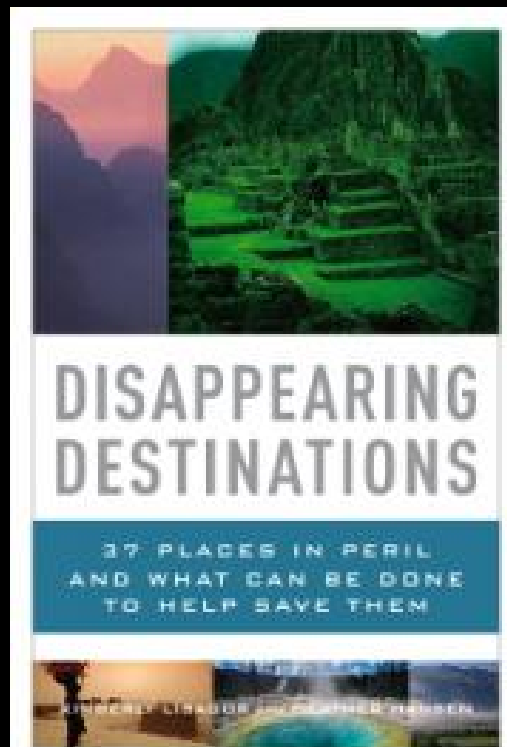
Regional Knowledge Gaps

# Destination Level Adaptation

- All tourism businesses and destinations will need to adapt in order to minimize risks and capitalize on an new opportunities in an sustainable way
  - » *it is no longer sufficient to rely on past experience*
- Very limited knowledge of the capacity of current adaptations to cope successfully with future climate change
  - » *some evidence that tourism operators are over-estimating adaptive capacity*

- Adaptive capacity in tourism sector is high, but varies substantially between sub-sectors, destinations and businesses
  - » *some tourism stakeholders-regions will require assistance to adapt effectively to climate change*
  
- ‘Mainstreaming’ of adaptation in the tourism sector remains years away
  - » *little evidence of anticipatory adaptation occurring*
  
- The process of adaptation needs to start now
  - » *information requirements for successful adaptation will increase substantially over the next 25 years*
  - » *Infrastructure and market transitions will take decades in some cases*

# Implications of Climate Change for Tourism Demand



## ■ **Changes in climate resources for tourism:**

- » Alter geographic and seasonal distribution of demand
  - *proportionately more tourism spending in temperate nations*
- » No impact on demand at global scale

## ■ **Indirect environmental change:**

- » Impact demand at destination-regional level
- » No impact on demand at global scale

## ■ **Indirect societal change:**

- » Impact demand at destination-regional level
- » Reduce demand growth at global scale if economic growth adversely affected (*reduced discretionary income*)

## ■ **Mitigation policy:**

- » Increased travel cost and environmental concern over tourism travel may impact long-haul and air travel
- » Market research is required to better estimate impact

- Tourist perceptions of destination impacts and of the environmental consequences of travel will likely play a central role in travel decision-making

- » Important influence by the media

- Accurate information on tourism and climate change is essential

- » *Speculation and misinformation on impacts exists and is dangerous*

*Example: 'The likelihood [is] that Mediterranean summers may be too hot for tourists after 2020' -The Guardian, 28 July, 2006*

- » *Improved science on impacts is in the best interest of the tourism industry and decision-makers*



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# Emissions from Global Tourism: Status and Projections

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# Calculation of Emissions from the Tourism Sector

## ■ 'Global Tourism Emissions Model' for 2005

- » UNWTO Department of Statistics and Economic Measurement of Tourism prepared a specific database for the project
- » Three sub-sectors: transport, accommodation, activities
- » Includes international and domestic tourism

## ■ 'Business as Usual' Scenario for 2035

- » Arrivals and LOS trend projections: '*Tourism Vision 2020*', nation and industry forecasts
- » Energy efficiency trend projections: Boeing (2006), EU MuSTT Study (2004)

# Global Tourism Emissions in 2005: CO<sub>2</sub> Only

<u>Sub-Sectors</u>	CO <sub>2</sub> (Mt)	
Air transport *	522	40%
Car transport	418	32%
Other transport	39	3%
Accommodation	274	21%
Activities	52	4%
<b>TOTAL</b>	<b>1,307</b>	
<b>Total World</b> (IPCC 2007)	<b>26,400</b>	
<b>Tourism Contribution</b>	<b>4.95%</b>	

Transportation of Tourists = 75% of Sector Emissions

\* - does not include non-CO<sub>2</sub> emissions and impact on climate

# Emissions from global tourism in 2005

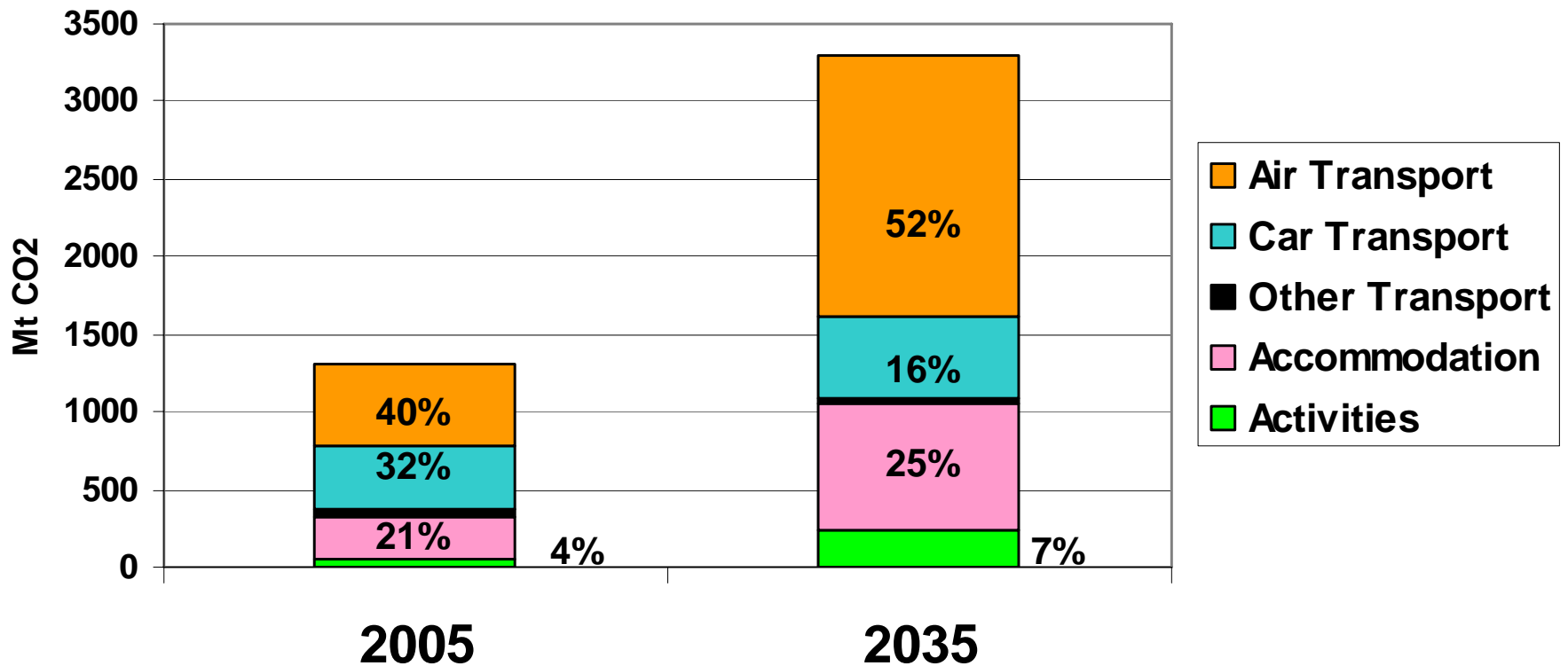
(including same-day visitors)

	CO <sub>2</sub> (Mt)	Contribution to RF (W/m <sup>2</sup> )	
		Excluding Cirrus impact	Including maximum cirrus impact
Air transport	517	0.0398	0.0982
Other transport	468	0.0199	0.0199
Accommodation	274	0.0116	0.0116
Activities	45	0.0019	0.0019
<b>TOTAL</b>	<b>1,307</b>	<b>0.0734</b>	<b>0.1318</b>
Total world	26,400*	1.6 <sup>iii</sup>	1.68 <sup>(a)</sup>
Share (%)	4.95	4.59	7.85

# If Tourism was a Country

Rank	Country	Percentage of total emissions (2005)
1	 United States	22.2 %
2	 China	18.4 %
-	 <i>European Union</i>	11.4 %
3	 Russia	5.6 %
-	<b>Global Tourism Sector</b>	<b>4.95%</b>
4	 India	4.9 %
5	 Japan	4.6 %
6	 Germany	3.0 %
7	 Canada	2.3 %
8	 United Kingdom	2.2 %
9	 South Korea	1.7 %
10	 Italy	1.7 %

# 'Business as Usual' Projection of Future CO<sub>2</sub> Emissions from Tourism\*



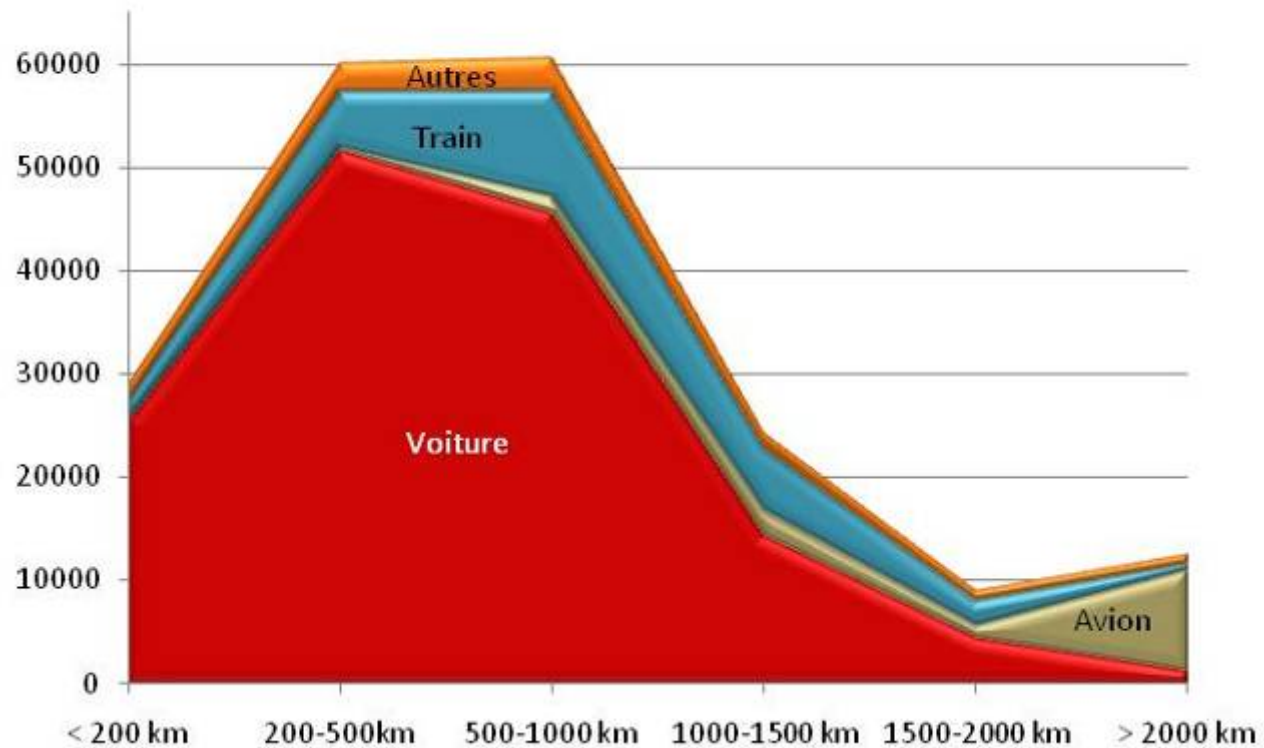
\* Excluding same-day visitors

# Transport related emissions from French tourists

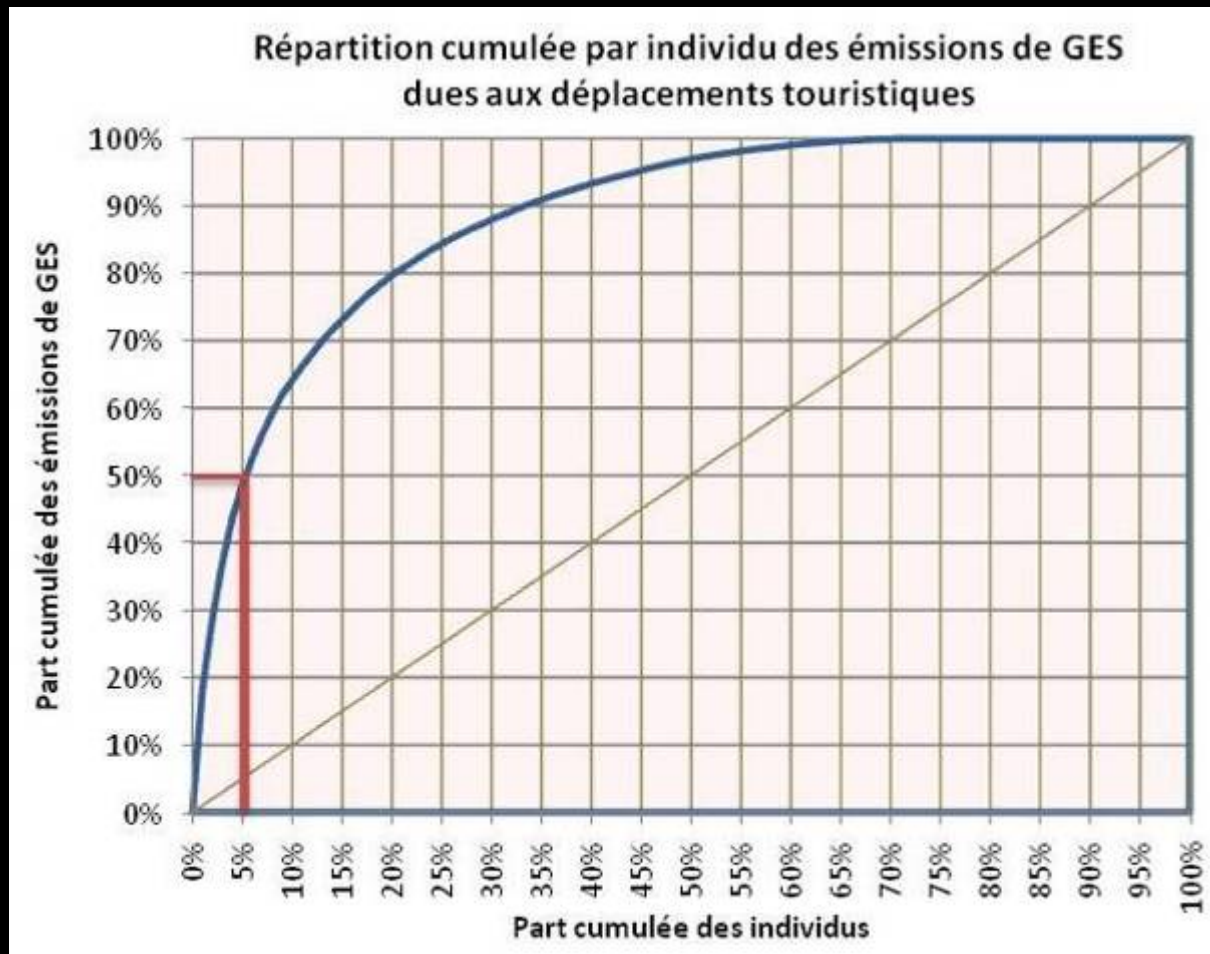
- Calculations based on the Suivi des déplacements touristiques (SDT)
  - A panel of 20 000 French residents questioned each month on their tourist trips
  - An additional panel (8000) concerns same day trips
- We associate the SDT with a distance matrix and emission coefficients (ADEME)

# A few results

Répartition des séjours par mode de transport et par classe de distance parcourue (aller-retour)

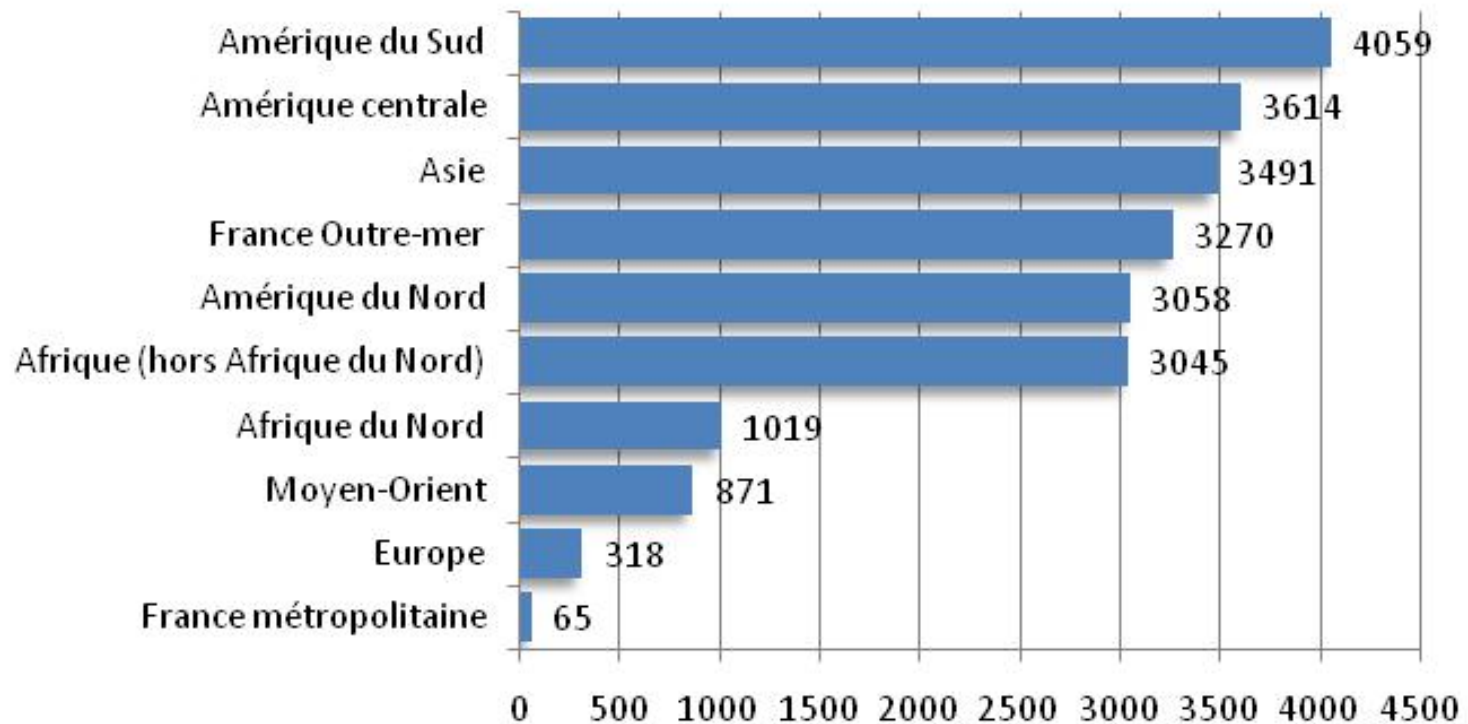


# A few results (2)



# A few results (3)

Classement de l'émission moyenne des déplacements (en kg)  
par séjour et par continent ou région de destination





atmosfair



# Mitigation Policies and Measures

**EV Rental Cars**



The Nation's Only Environmental Rental Car Company

**KEEP WINTER COOL**  
FIGHT GLOBAL WARMING. WINTER'S SHORT ENOUGH ALREADY.



# Tourism Mitigation Scenarios for 2035

## **High Tech-Efficiency Scenario:** (changes versus BAS)

- reduction in aviation energy consumption per pkm of 50% (vs 32% in BAS)
- additional 2%/year reduction in car emissions per pkm
- additional 2%/year reduction in other transport emissions per pkm
- additional 2%/year reduction in accommodation emissions per guest-night
- additional 2%/year reduction in activities emissions per trip

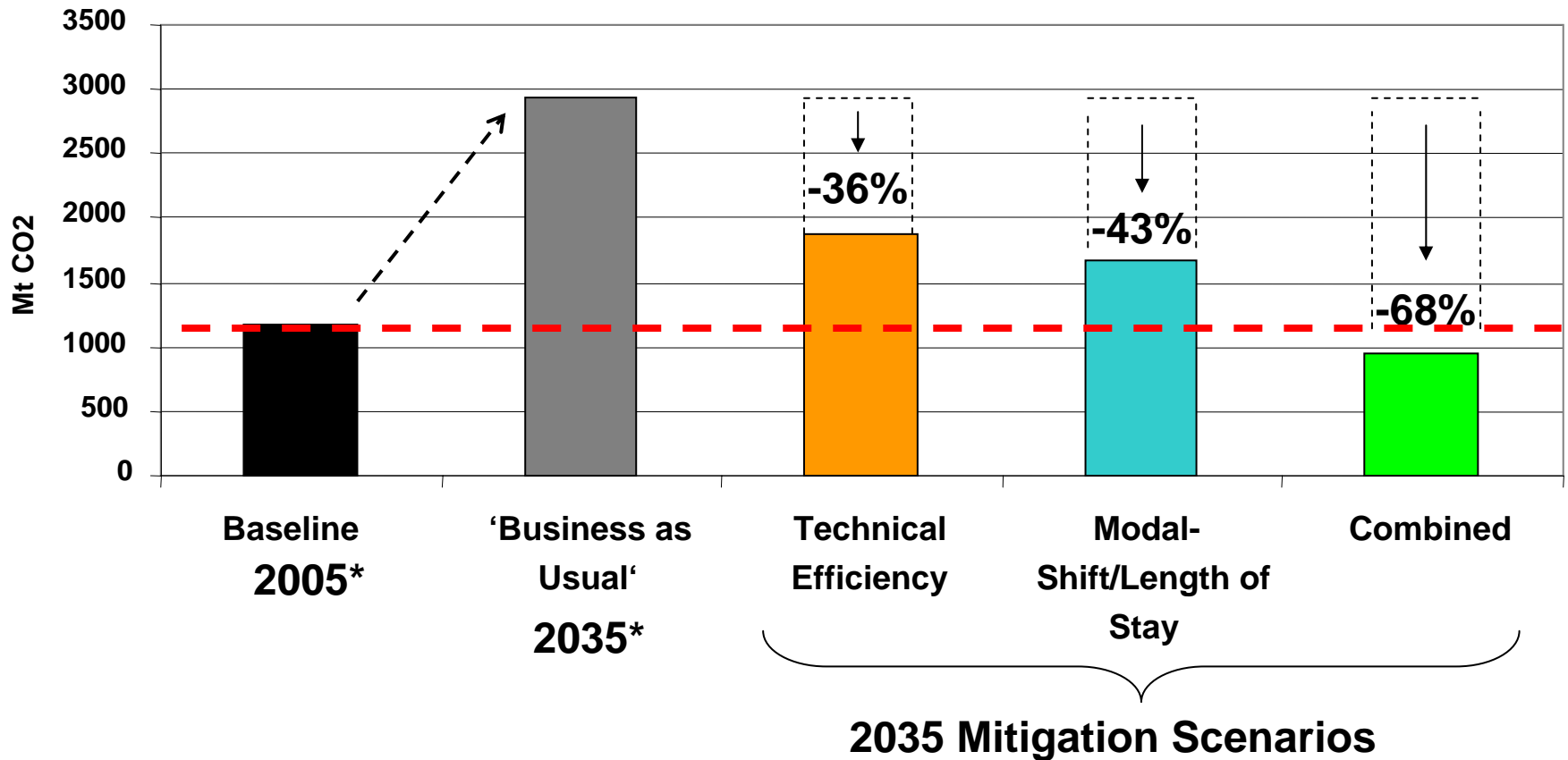
## **Modal Shift-Longer Stay Scenario:** (changes versus BAS)

- no further growth in aviation number of trips and pkm [i]
- growth in rail/coach of 2.4% to 5% per year to keep total number of trips growth constant with BAS
- 0.5%/year increase in average LOS vs 0.5% reduction/year in BAS

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[i] The number of pkm is kept constant, using average trip distance as found in BAS, thus also keeping the number of trips by air transport constant. However, it is possible to reach the same emissions reduction with some growth in the number of trips by air when the average distance is reduced (i.e. less long haul and more medium haul).

# Future CO<sub>2</sub> Emissions from Global Tourism: Scenarios of Mitigation Potential in 2035



\* Excludes same-day tourists

# *The Future is Now*

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- The scientific evidence is clear - climate change must be considered the greatest challenge to sustainable development and tourism in the 21st century.
- Tourism can play a significant role in addressing climate change. It must show leadership as an agent of change for both adaptation and mitigation – the time for action is now.

Jean-Paul Ceron

CRIDEAU/ Université de Limoges

[ceron@chello.fr](mailto:ceron@chello.fr)

33 5 87 70 78 90

Documents téléchargeables sur

[www.tec-conseil.com](http://www.tec-conseil.com)