

Multi-year Expert Meeting
On Transport and Trade Facilitation:

**Maritime Transport and
the Climate Change Challenge**

16-18 February 2009

**Climatic change and
implications for maritime transport**

by


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Climatic change and implications for maritime transport

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Overview

- Anthropogenic climate change
- Climate projections to 2100
- Consequences for maritime trade
- Conclusions

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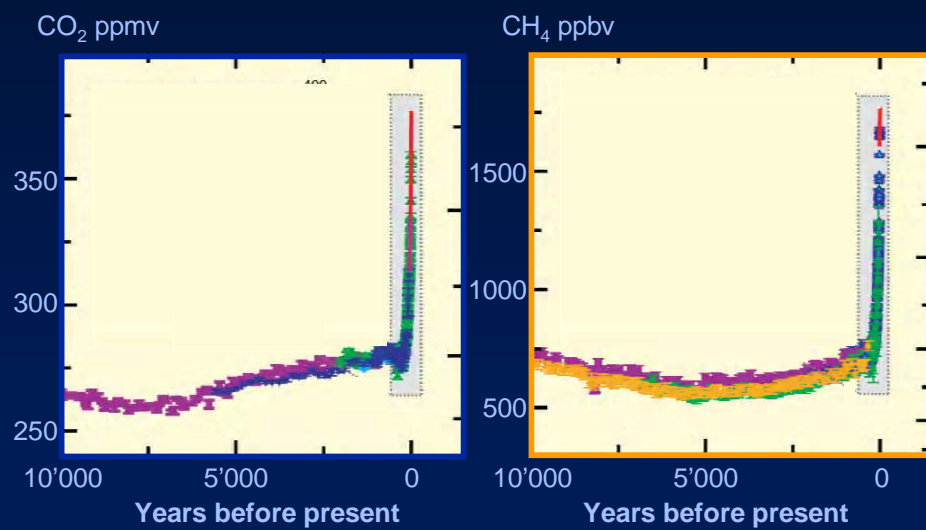
1

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CO₂ and CH₄ concentrations

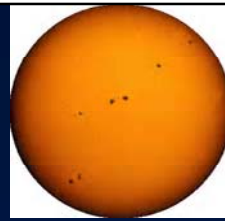


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The greenhouse effect

Infrared radiation

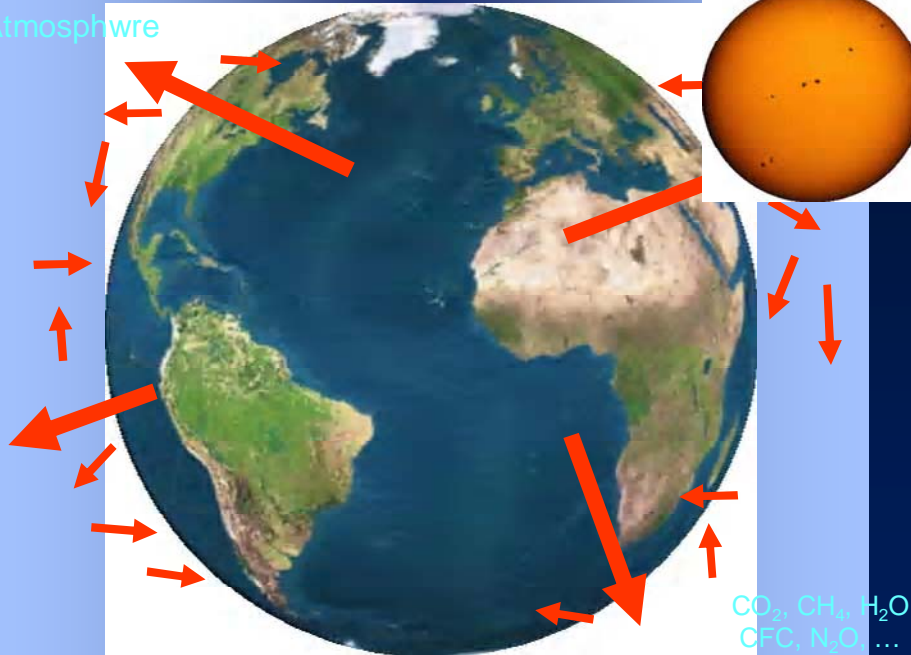


Solar radiation

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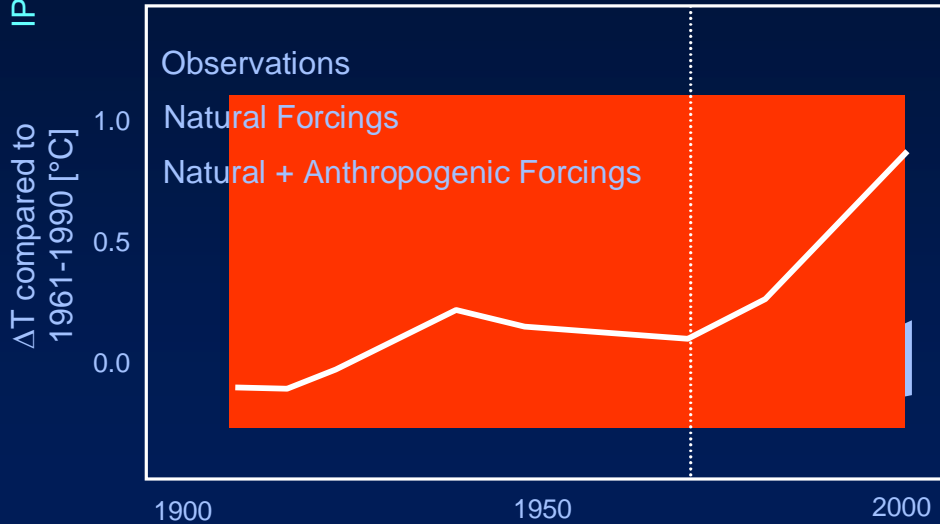
Atmosphere



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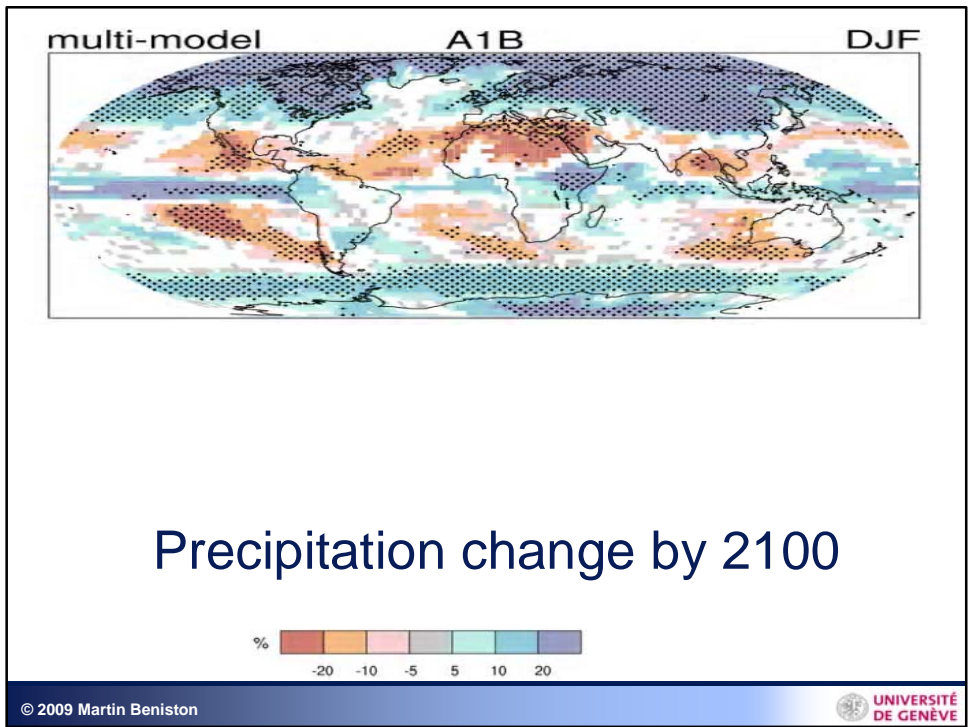
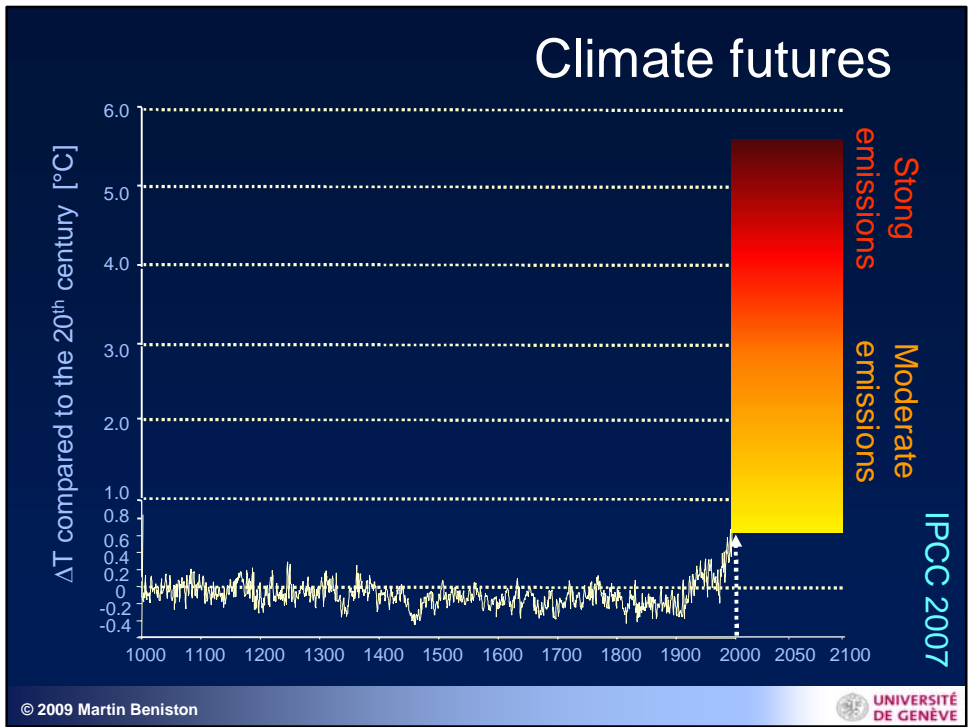
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Why human activities are partially responsible ...



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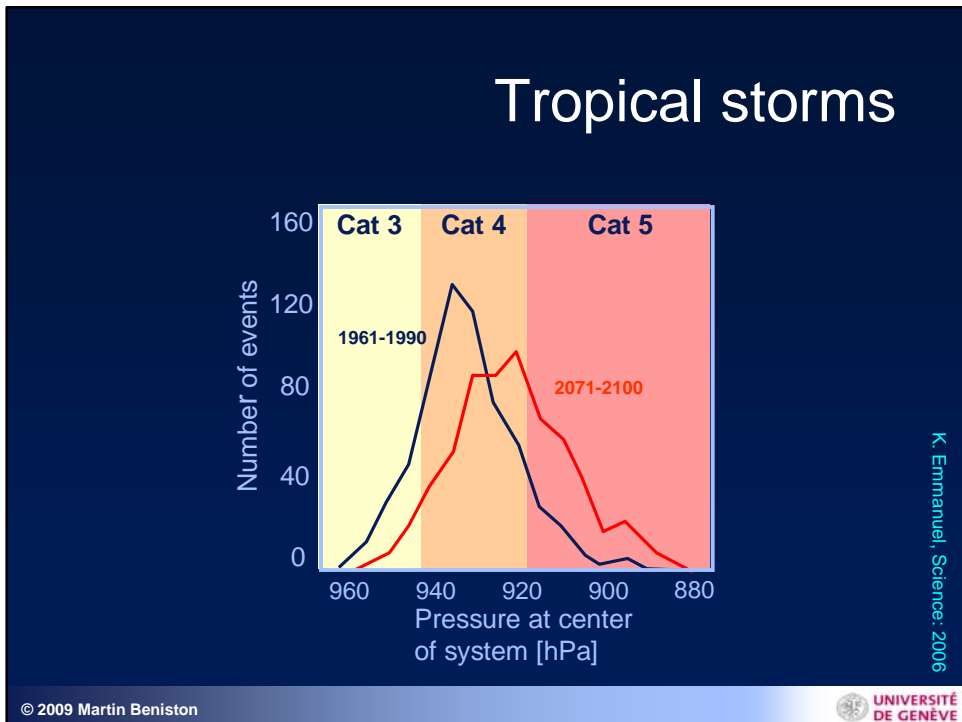
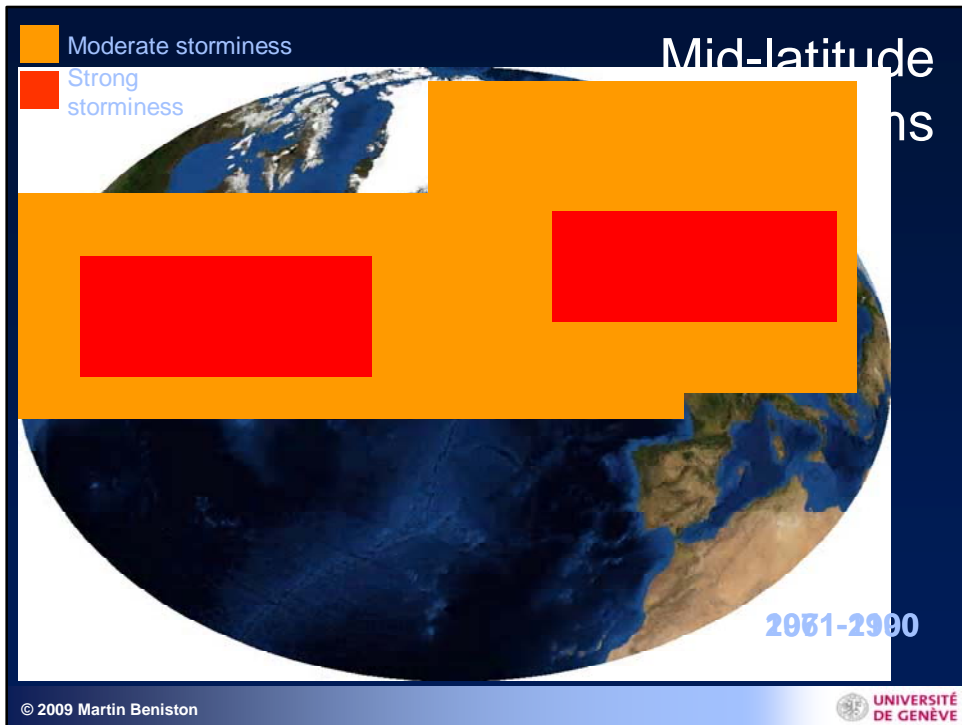
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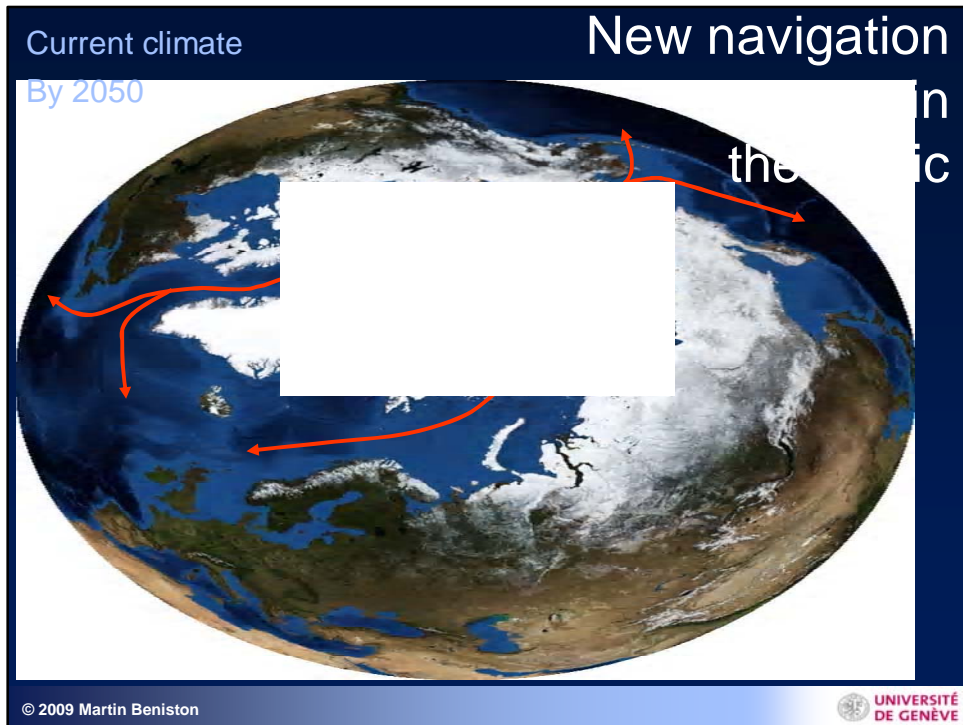
New coastal geography in the south-eastern United States



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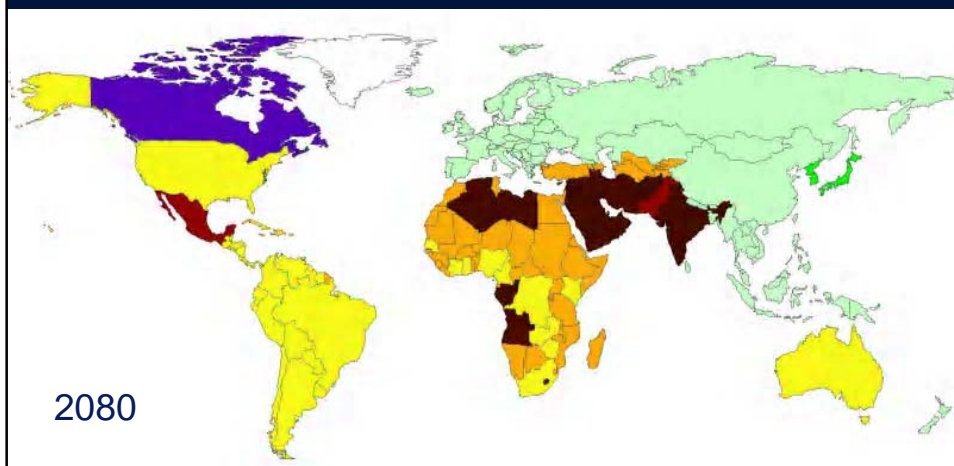
Outlook for maritime trade

- Of all the transportation sectors, shipping contributes the least to greenhouse-gas emissions (estimated between 1.8-3.4% of global CO₂ emissions)
- Shipping may be one of the least affected sectors by climatic change, but needs to factor in new/changing problems:
 - ◆ Coastal flooding and restricted access to ports
 - ◆ Shifting zones of storminess
 - ◆ Potentially stronger hurricanes
- New opportunities can arise:
 - ◆ Opening of the Arctic sea routes
 - ◆ Changing trade patterns as a result of changing resource availability and use
 - Water
 - Agricultural products

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Changing cereal yields



-40% -30% -20% -10% 0% +10% +20% +30%
Changes with respect to 1990

Rosenzweig and Parry,
2000

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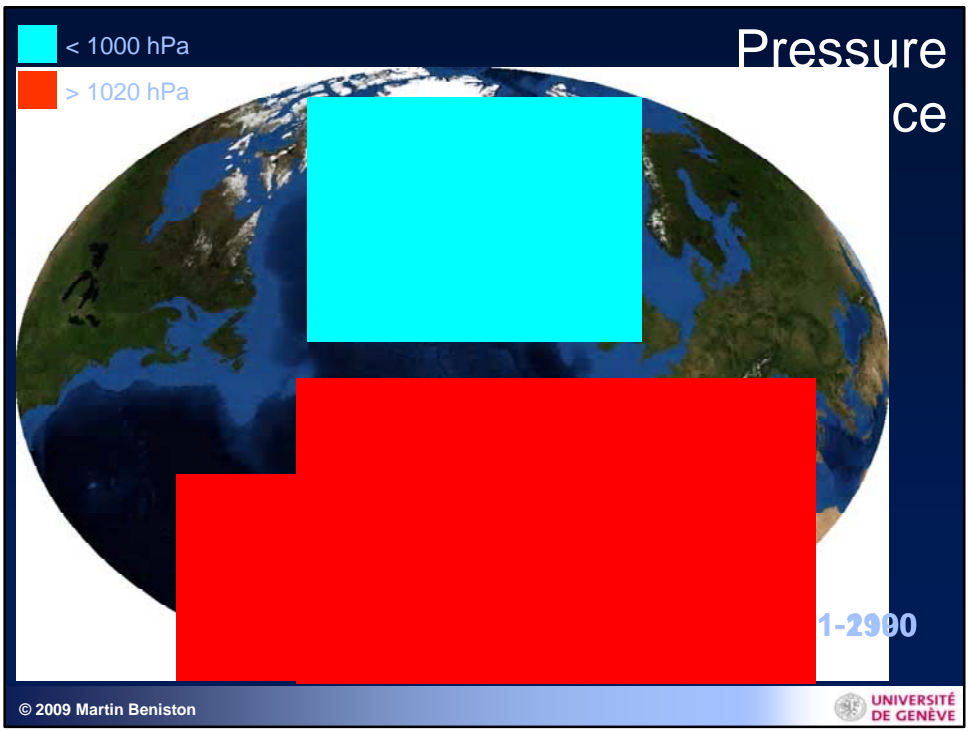
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Many thanks for your attention!

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Coastal zones at risk by 2100



Costs of coastal protection

Netherlands: € 12 bn
Germany: € 23 bn
Poland: € 1,5 bn