

Climate Change and Coastal Tourism

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Based on observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global mean sea level, the Intergovernmental Panel on Climate Change in its latest report (IPCC 2007) has declared that "warming of the climate system is unequivocal." Greenhouse gases have increased at an unprecedented rate since the start of the industrial revolution. Carbon dioxide increased from the preindustrial level of 280 ppm to 387 ppm in 2008.

Widespread decreases in glaciers and ice caps and warming ocean surface temperature have contributed to a sea-level rise of 1.8 mm per year from 1961 to 2003, and approximately 3.1 mm per year from 1993 to 2003. The IPCC (2007) sea-level rise scenario of 18-59 cm does not consider complex melting processes of ice sheets which may speed sea-level rise of up to 2 m.

In 2008 the global tourist industry contributed an estimated US\$5,800 billion or nearly 10% of total global GDP and generated 230 million jobs worldwide. Coastal tourism is the most important component in the tourism industry. For example, more than 60% of European holidaymakers prefer the coast compared with 25% each for the mountains and the cities. Climate change has distinct impacts on coastal tourism.

While beach erosion can result from various factors – increased wave energy, interruptions to littoral transport, deprivation of sediment input, human activities such as beach mining and inappropriate coastal protection works – sea-level rise accelerates beach erosion and is a long term threat to coastal tourism.

While the impact of climate change on their frequency is not yet evident, cyclones/hurricanes have increased in intensity. Hurricanes George and Mitch caused extensive damage to Caribbean, US\$450 million to St. Kitts and Nevis alone. Storm insurance costs are prohibitively high or simply not available.

Coral reefs are an important tourism resource for many tropical islands in the Caribbean, Indian Ocean, and Pacific Ocean. Prolonged temperature increases of 1-2°C above average are sufficient to induce bleaching. Ocean acidification is also a problem. More dissolved carbon dioxide in the oceans means an increase in dissolved bicarbonate and decrease in available carbonate in the seawater, making it difficult for plants and animals to make skeletons.



23-27 November • Manila, Philippines

The small island developing states (SIDS) with their dependency on coastal tourism are the most vulnerable to climate change. Already limited in physical size, with generally limited natural resources, a high susceptibility to natural hazards, relatively thin water lenses that are highly sensitive to sea-level changes, and exposed small economies with a high sensitivity to external market shocks – their tourist industries and virtually their entire economies are exacerbated by the combined effects of climate change and sea-level rise.