*Topic T4. Global changes in the coastal zone: analysis, adaptation and mitigation, downscaling issues and relative to large scale changes. Poster*



# ASSESSING CLIMATE CHANGE IMPACTS ON FLOODING RISKS IN THE BELGIAN COASTAL ZONE

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Within the scope of the Belgian project CLIMAR an attempt is made to develop an evaluation framework for adaptation scenario's as a response to the climate change induced impacts in the North Sea area. For given scenarios of changes in physical parameters, such as sea level rise, precipitation and wind speed, are presented the magnitude of the impacts on flooding as well as the impacts on other sectors such as fisheries and tourism. These different sectoral effects are the secondary impacts resulting from the primary impacts of climate change. In this paper results will be presented regarding the secondary impacts of flooding only.

Climate change induced primary effects such as sea level rise and increased storminess lead to higher risks of flooding of low-lying coastal areas. For each of the sets of these changing parameters a related storm scenario is statistically determined. In a first approach, the flooding risks during an extreme storm corresponding to the worst-case scenario of expected climate change are estimated. By means of a set of numerical models the areas susceptible to flooding in the Belgian coastal plain are identified. The resulting flooding risk maps are then used to estimate the magnitude of the secondary impacts.

One of the most significant secondary effects of climate change is the number of people at risk due to flooding. An important economical effect of climate change is the amount of damage costs due to flooding. This secondary impact is quantified by describing the flooded properties and goods in monetary terms. Besides direct damages there will also be indirect economic effects such as temporary suspension of production and loss of jobs. The most significant ecological effects of increased flooding risks are the loss of beach and dune area, as well as other specific coastal habitats such as wetlands. Indirectly this leads to loss of biodiversity. The magnitude of these effects is evaluated by measuring the number of coast specific species and the area of coastal habitats. The percentage of the shoreline under erosion and the total number of people living in the predicted flood area are used as indicators for flooding risks.