Changes of wave climate inferred from scenario simulations

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This study is based on 30-year long simulations of the wind-wave field in the Mediterranean Sea carried out with the WAM model for the A2, B2 emission scenarios and a control CTR simulation based on the 1960-1990 emission level. Changes of wave climate are linked to those of the weather systems generating them. The wave model is forced by the wind field computed by a regional climate model simulation with a 50km resolution. The monthly mean SWH (Significant Wave Height) field of the A2 scenario is lower over large fraction of the Mediterranean sea in winter, spring and Autumn. In summer the SWH is reduced in the central part of the basin and increased in the eastern and western parts. All these changes are smaller or less significant in the B2 scenario, but in winter when average SWH is higher in the B2 scenario and in the western basin. The SWH reduction is valid also for extreme values and is larger for the A2 than for the B2 scenario. The only exception in a significant increase of the SWH extremes in the central Mediterranean during summer. In general results shows a milder wave climate in future scenarios than in the present climate, with changes that are consistent with those of the atmospheric circulation and cyclone activity.