



## The impact of climate change on recreation tourism in Croatia

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The paper analyzes the suitability of the climate conditions and the impacts of climate change on climate suitability for different types of tourist activities in Croatia. Besides the most popular beach tourism which is one of the most important economic sectors, due to its geographical diversity, Croatia has the potential for wide range of different types of recreation. Different kinds of tourist activities need different weather requirements. For quantitative estimation of climate potential of different kinds of tourism, climate index for tourism (CIT) is used. CIT integrates thermal, aesthetic and physical facets of atmospheric environment and therefore is suitable for estimation of climate satisfaction that ranges from very poor to very good. The thermal component is estimated using the physiologically equivalent temperature (PET). Here we analyze climate index for tourism for different kinds of tourist activities: cultural tourism, beach tourism, cycling, hiking, football, golf, sailing and motor-boating, in two different parts of day (06 UTC and 12UTC) In the warmest part of the day (12 UTC) the results point at the shift of the most suitable seasons for most types of activities from summer to spring and autumn. The season of beach tourism will be prolonged, but in the southern Adriatic a reduction of ideal conditions for beach tourism appears during summer. Early in the morning (06 UTC) the improvement of favourable climate conditions for all types of tourist activity can be expected during the whole year.

Changes in climate potential of tourism in Croatia are estimated by changes of the climate index for tourism in the two future 30-year periods 2011-2040 and 2041-2070 comparing with referent period 1971-2000. In the scope of the CORDEX initiative ensemble of five climate realisations with regional climate model (RCM) SMHI-RCA4 forced by five CMIP5 global atmosphere-ocean circulation models (GCM) HadGEM2-ES, CNRM-CM5, EC-EARTH, IPSL-CM5A-MR and MPI-ESM-LR is used. The change of touristic indices in the future is considered under two IPCC emission scenarios RCP4.5 and RCP8.5. The integration domain covered almost the whole Europe with approximately 12.5-km horizontal resolution and for the purpose of this study sub-daily fields were used. Results indicate sensitivity to the selection of the forcing GCM, while differences between simulations using two different RCPs are more expressed in 2041-2070 period. We suggest other CORDEX participating RCMs to share their sub-daily fields for the purpose of the robust estimation of the CIT and PET changes between historical and future climate.