



Determining the frequency of unfavorable conditions for sailing in Adriatic Sea channels

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The intricate coastline of the Adriatic Sea presents challenges for sailing, especially through narrow island channels in severe weather conditions. To plan construction work, an assessment was requested to determine the most favorable period for conducting maritime activities in two channels in the first half of the year, the Hvar Channel and the Korčula Channel. Motivated by that request, climatological analysis using available measurements of several meteorological parameters was conducted.

Favorable conditions for sailing usually include weak or moderate wind intensity, often generated by island or coastal circulation. To determine the unfavorable conditions for maritime transport several meteorological parameters are examined with emphasis on wind, wave height, and thunderstorms, as these might contribute to the most hazardous sailing conditions in this region. The eastern coast of the Adriatic Sea is exposed to the strong winds blowing during the colder part of the year: the bora (northeast wind) and the jugo (southeast wind). Due to the orientation of the Adriatic Sea and analyzed sea channels, the jugo usually generates larger waves than the bora thus endangering maritime transport. However, navigating in strong bora conditions poses different risks due to its typically turbulent nature and strong intensity.

With these considerations in mind, unfavorable navigation conditions are defined using three criteria: (i) wind strength reaching or exceeding Force 5 (Beaufort scale) and at least a moderate wave height, (ii) wind strength reaching or exceeding Force 8 regardless of the sea state, and (iii) the presence of thunderstorm conditions involving hail, thunder, and showers.

In the analysis, it is concluded that the number of days with unfavorable conditions decreases from January to June, as expected. The most unfavorable conditions are most likely to occur in January, while June proves to be the most suitable month for conducting work with an average of 5.7 days with unfavorable conditions. Throughout all considered months, there should be at least 10 days with favorable conditions. Moreover, in June of any year, the number of days with unfavorable conditions did not exceed 7.