



Calm winds

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Knowledge of calm winds is of societal importance in connection with distribution pollution from natural sources (dust, volcanic gases and ash) as well as antropogenic sources. Time series from a multitude of automatic weather stations in Iceland have been explored and the climatology of calmness is established. This climatology underlines the importance of not only absence of large scale winds, but more importantly, the presence of surface inversions.

Calmness is most frequent in summer, with secondary maxima in autumn and winter. The autumn calmness coincides with a period when frequency of synoptic scale cyclones does not increase, while the frequency of surface inversions increases rapidly.

There is a very strong diurnal cycle in frequency of calm winds in the summer. The data indicates strongly that the nocturnal calmness is a result of a surface inversion, not the absence of sea breeze.

The frequency of calm winds is not only low at the coast, but also in the mountains, in spite of higher surface roughness away from the sea.

The frequency of calm winds is much greater inside valleys and fjords than anywhere else. There are indications that open water in fjords has limited effect on the frequency of calm winds along the fjord.