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Voluntary Observing Ship (VOS) data as an experimental background of wind-sea studies

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The global visual wave observations (VOS) are re-analyzed within the theoretical concept of self-similar wind-driven seas (1). The core of the analysis is one-parametric dependencies of wave height on wave period. Theoretically, wind-driven seas are governed by power-like laws with exponents close to Toba's one 3/2 while the corresponding swell exponent (-1/2) has an opposite signature. This simple criterion was used and appeared to be adequate to the problem of swell-wind sea discrimination. This discrimination does not follow exactly the VOS data. This important issue is considered both in the context of methodology of obtaining VOS data and within the physics of the mixed sea. The results are detailed for the areas which wave climatology based on VOS data is well studied and the swell component is well pronounced (2). Prospects of further study are discussed. In particular, satellite data are seen to be promising for tracking ocean swell and for studies of physical mechanisms of its evolution.

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