



Prediction of wind-blown sand transport on different beach throughout Japan

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Wind-blown sand plays an important role in the exchange of sand between the beach and the dune. Some area west coast of Japan is suffered from the risk of high amount wind-blown sand in winter because of Asia monsoon. To prevent and mitigate the wind-blown sand from livelihood space, sand dunes and coastal forest have been developed seashore in Japan. For appropriate management of the sand dunes and coastal forest, it is necessary to know how much wind-blown sand transport should be prevented. However, it is difficult to quantify it because the field measurement of the wind-blown sand is labor-intensive and time-consuming. Therefore, we estimated potential (or maximum) wind-blown sand transport using Mesoscale Model and the database of sand particle size distribution.

From recent seven years Mesoscale Model data, west coast beaches had high wind-blown sand transport as expected, for example, a coast at Esashi showed $>60 \text{ m}^3 \text{ m}^{-1} \text{ year}^{-1}$. The inter-annual variation was relatively low. Most of sand were transported toward the inland in winter and stable in summer. On the other hand, east coast beaches usually had relatively lower wind-blown sand transport, for example, a coast at Futtsu showed around $30 \text{ m}^3 \text{ m}^{-1} \text{ year}^{-1}$. However, sometimes huge wind-blown sand transport was occurred by stiff wind derived from typhoon and bomb cyclone . The inter-annual variation was relatively high. From these estimations, we will determine the amount of wind-blown sand transport that should be mitigated by sand dunes and coastal forest at each seashore in nationwide scale.