

## 風波が発達する界面下の吹送流特性

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### 要 旨

本研究は風洞水槽実験結果に基づいた吹送流(質量輸送流)の特性について論じたものである。計測には高速ビデオカメラを用いた画像計測法を採用し、PIVによる風波内部速度場の算出を行った。また波高計との同期計測を行い、波高計直下における流速の鉛直分布を時系列的に抽出することで時間平均による吹送流の分布を求めた。この実験手法の最大の特徴は、トラフレベル以上の吹送流分布を求めることが可能な点であり、風波の発達が発達する界面下の吹送流分布に影響を及ぼす点について明らかにすることができた。また、トラフレベル以上で輸送される実質の流量が相当量存在することを示し、吹送流の予測計算において波浪の存在を無視することができないことも併せて示すことができた。

キーワード：質量輸送流，吹送流，風波，PIV

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## Characteristics of Wind-driven Current with Fully Developed Wind Waves

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### Synopsis

In this study, the characteristic of wind-driven current was discussed based on the experimental results using wind wave flume. A PIV technique was adopted as the measurement method of the water flow under fully developed wind-waves. A wave gauge was also set at the point where it was reflected at the center of the video image. The acquisition of the video image synchronized with the data of the wave gauge. We decided the water surface elevation at the center of the video image using the data of the wave gauge. Therefore, we could extract the water flow vector from the PIV result. The vertical profile of the water flow vector under the wave gauge was averaged, and then we could get the vertical profile of the wind-driven current including the area from wave crest to trough. We researched the relationship between wind wave development and the wind-driven current. It was clarified that the wind-driven current under the trough level weakens by the development of the wind waves. Also, The water flux transported in the part upper than the trough level was at least 20%. We concluded that the influence of the waves could not be disregarded for the wind-driven current model.

**Key Words:** mass flux, wind-driven current, wind wave, PIV

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