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Turbulent structure above wind-sheared air-water interface KAMRAN SIDDIQUI, NASIR UDDIN, Concordia University — The flow dynamics immediately above and below the air-water interface in the presence of wind and waves is very challenging. The understanding of flow dynamics in near-interfacial regions is vital to improve our knowledge of the physical mechanisms responsible for the heat, mass and momentum transport across the interface. The measurement of airside velocity field close to the fluctuating water surface in the presence of waves is very challenging. The difficulty arises in the region between the wave crest and trough, where any particular spatial location lies sometimes in water and sometimes in air, which is the main obstacle in using point measurement techniques in this region. We report on a series of laboratory experiments conducted to investigate the airflow structure above the wavy water surface using PIV. The results have shown that the flow characteristics in the crest-trough region above the waves are significantly different from that at greater heights. The results showing the turbulent structure in this region will be presented and discussed.

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