



## **Observational study of atmospheric surface layer and coastal weather in northern Qatar**

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Atmospheric surface layer is the interaction medium between atmosphere and Earth's surface. Better understanding of its turbulence nature is essential in characterizing the local weather, climate variability and modeling of turbulent exchange processes. The importance of Middle East region, with its unique geographical, economical and weather condition is well recognized. However, high quality micrometeorological observational studies are rare in this region. Here we show experimental results from micrometeorological observations from an experimental site in the coastal region of Qatar during August-December 2015. Measurements of winds are obtained from three sonic anemometers installed on a 9 m tower placed at Al Ghariyah beach in northern Qatar (26.08 °N, 51.36 °E). Different surface layer characteristics is analyzed and compared with earlier studies in equivalent weather conditions. Monthly statistics of wind speed, wind direction, temperature, humidity and heat index are made from concurrent observations from sonic anemometer and weather station to explore variations with surface layer characteristics. The results also highlights potential impact of sea breeze circulation on local weather and atmospheric turbulence. The observed daily maximum temperature and heat index during morning period may be related to sea breeze circulations. Along with the operational micrometeorological observation system, a camera system and ultrasonic wave measurement system are installed recently in the site to study coastline development and nearshore wave dynamics. Overall, the complete observational set up is going to provide new insights about nearshore wind dynamics and wind-wave interaction in Qatar.