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**On the Distribution of Velocity Gradients, Viscosity and Reynolds Stresses in Varied Bed Elevation Turbulent Flow** HANIEH TABKHI, ARASH NAYEBZADEH, University of Central Florida — There is wide variation of depth across a cross section along the axis of the estuaries and coastal regions. In addition to bed turbulence and secondary circulations, structure of turbulence flow at these regions is affected by variation in the depth of the bed. Lateral variations of depth cause strong transverse free shear layers due to steep velocity gradient. Many experimental and laboratory studies have mentioned these shear layers in previous studies. At present study, three dimensional modeling in a Cartesian coordinate system has been performed for varied bed elevation flow. Normal and shear Reynolds stresses have been calculated applying k-epsilon and k-omega turbulence models. Model is validated by previous related studies and mutual effects of velocity gradients on turbulence viscosity and Reynolds stresses have been investigated. Results show that velocity gradients monotonically increase by increasing magnitude of turbulence viscosity and Reynolds stresses.

Hanieh Tabkhi
University of Central FLorida

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