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Turbulent Viscosity in Ekman Flow CEDRICK ANSORGE, JUAN PEDRO MELLADO, Max Planck Institute for Meteorology — Direct numerical simulation of neutrally stratified turbulent Ekman flow is carried out at different Reynolds numbers in the range $200 < \mathbf{Re} = \delta^+ < \mathbf{700}$ where δ^+ is the boundary layer (BL) thickness expressed in wall units. Even if no logarithmic layer is found yet, the data suggest that in this intermediate range of **Re** certain measures of the flow approach Re-independency. The fully resolved three-dimensional fields of the turbulent flow are used to extract vertical profiles of the reynolds stresses and vertical shear. The assumption of a constant eddy viscosity over a wide range of the turbulent portion of the BL is valid with only small deviations. On the contrary, the data show that on a rotating plane (f-plane) the vectors of shear and vertical stress flux are not aligned. Hence, the assumption that the eddy viscosity is a linear function of the shear is not valid. It turns out that up to small deviations the directional offset of the shear and stress vectors is constant with height and, if varying at all, a function of **Re**. This makes it possible to account for the directional offset between stress and shear in turbulence closures.

Cedrick Ansorge
Max Planck Institute for Meteorology

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