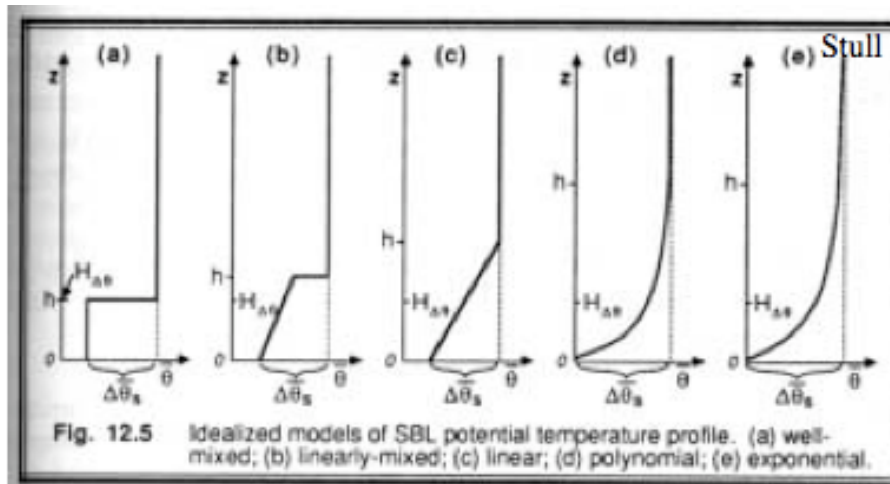
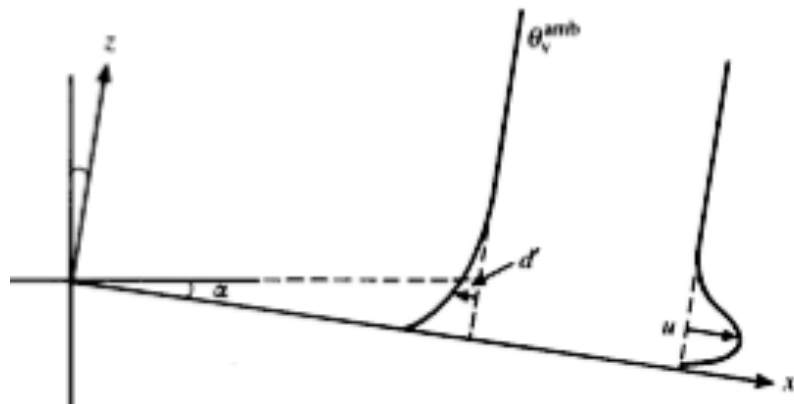


Stable BL features

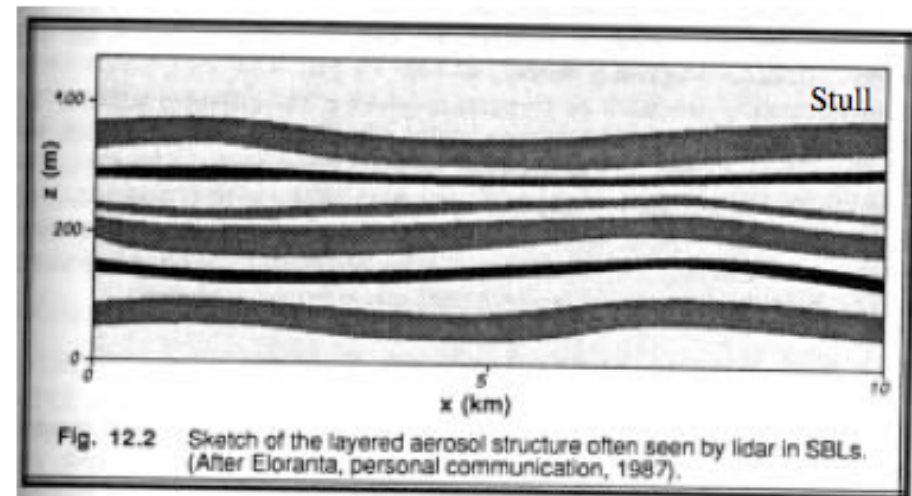


(b) typifies strong-wind NBL, (d) a weak-wind NBL under clear sk

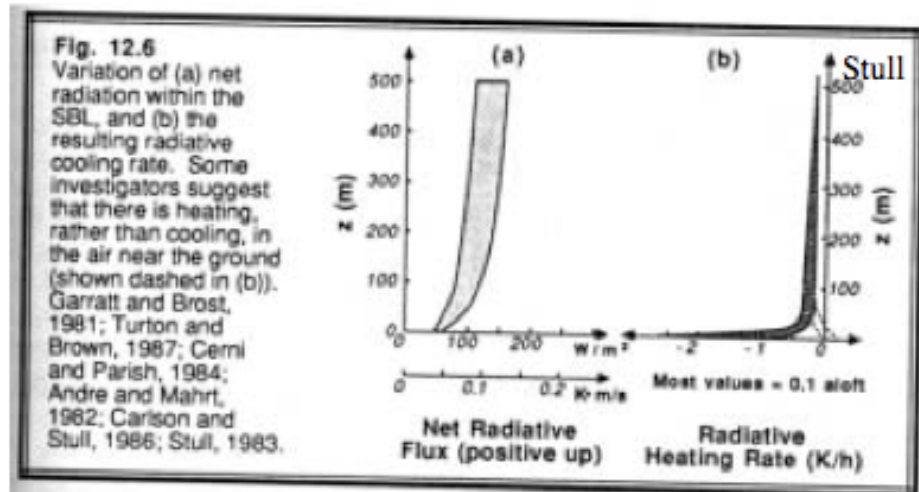


Katabatic downslope flow

Garratt



Layered NBL with gravity wave undulations that can modulate local shear, stratification, and hence turbulence.



Near a cold surface, radiative cooling can be surprisingly fast and helps maintain a stable stratification.

Nocturnal jet development

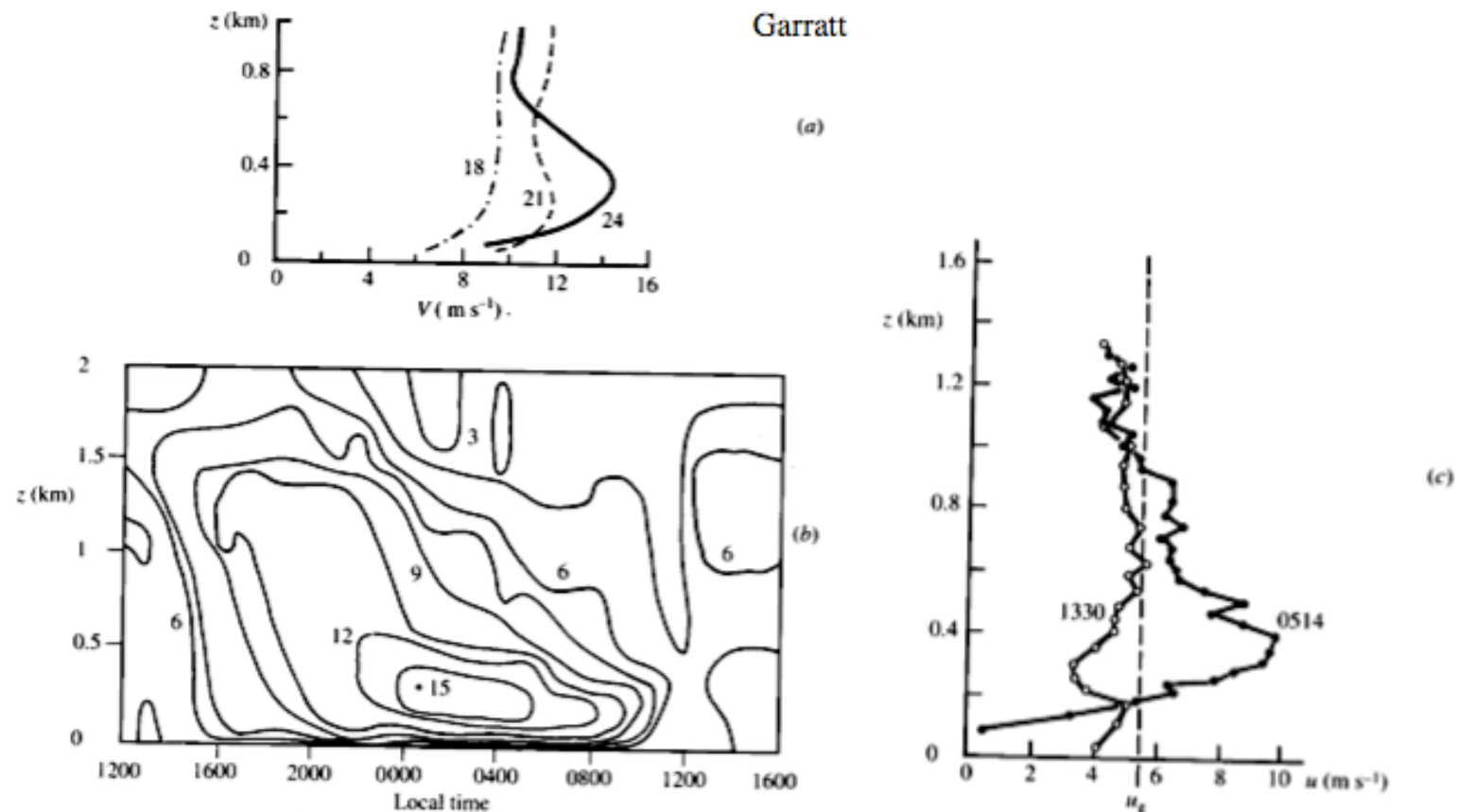


Fig. 6.18 Observations illustrating the formation of the nocturnal jet. (a) Wind-speed profiles on day 13 of WANGARA, local times indicated. (b) Height-time cross-section of wind speed (in m s^{-1}) on days 13/14 at WANGARA. Isopleths of wind speed are drawn at 1.5 m s^{-1} intervals. (c) Profiles of the u -component of the wind velocity, with the x -axis along the geostrophic wind direction, for mid-afternoon (1330 UT, 6 August, 1974) and early morning (0514, 7 August, 1974) near Ascot, England. After Thorpe and Guymer (1977), *Quarterly Journal of the Royal Meteorological Society*.

Inertial oscillation and nocturnal jet

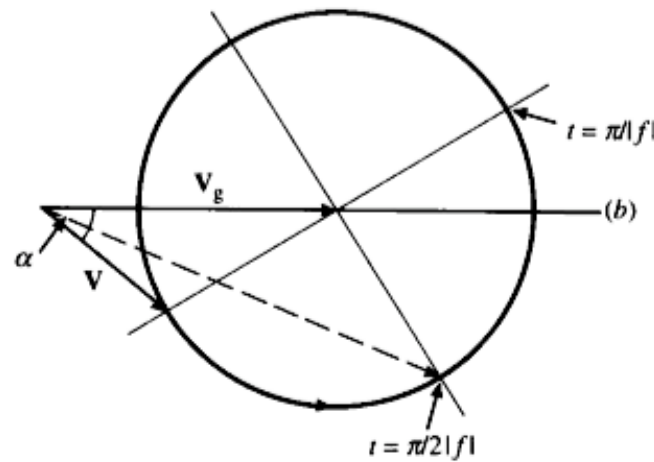
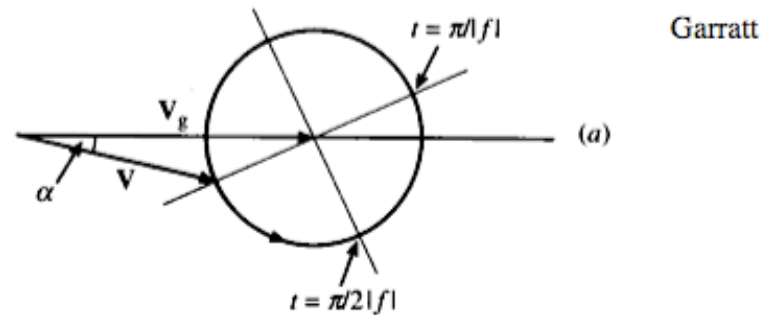


Fig. 6.19 Illustrated solutions of the unbalanced momentum equation (Eq. 6.77) for (a) a low-roughness surface and (b) a high-roughness surface; undamped inertial oscillations are shown for the southern hemisphere in the form of anticlockwise rotation of the wind vector ($\mathbf{V}$) about the geostrophic wind vector ($\mathbf{V}_g$).