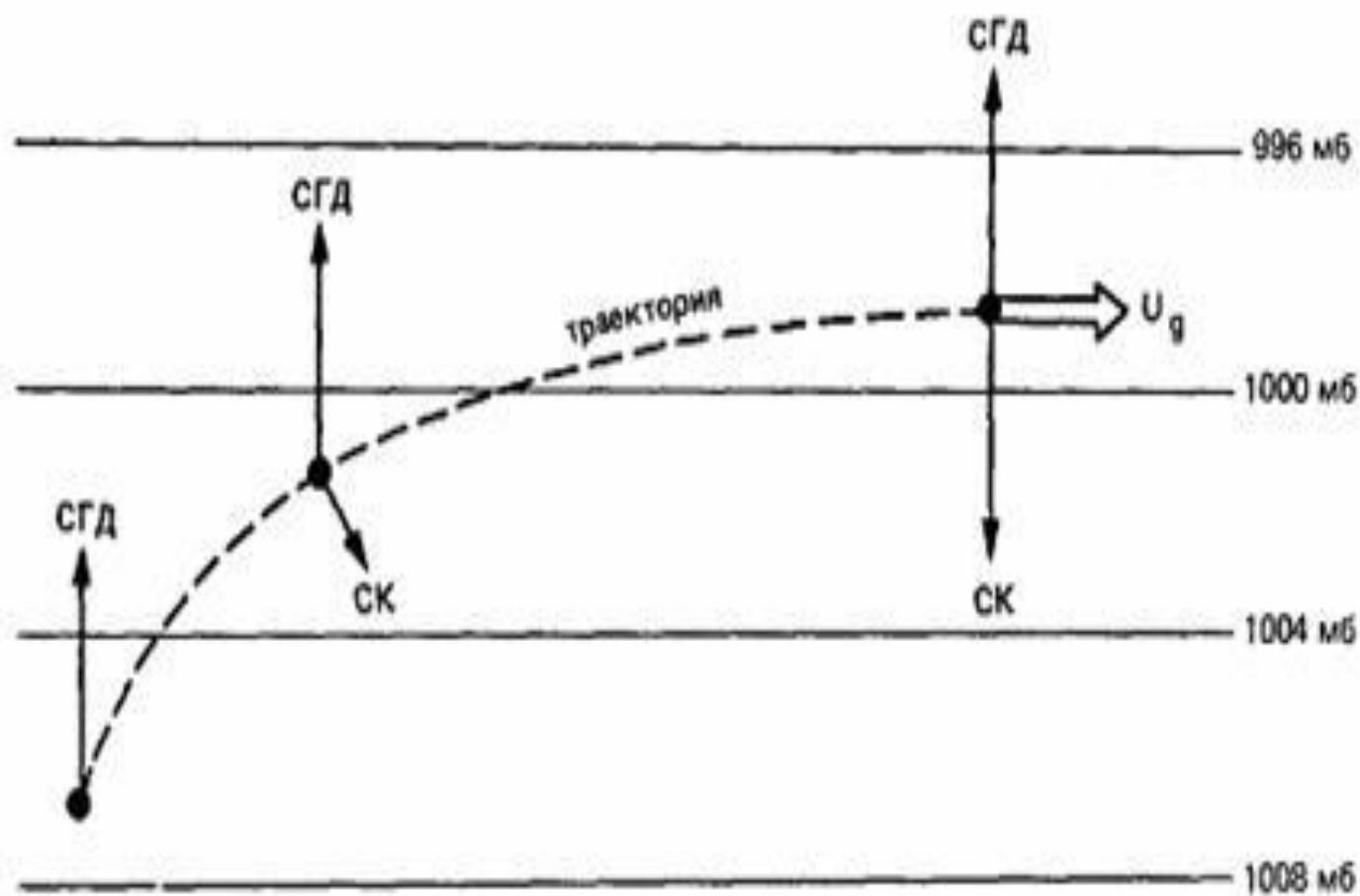


Швидкість вітру у вільній атмосфері

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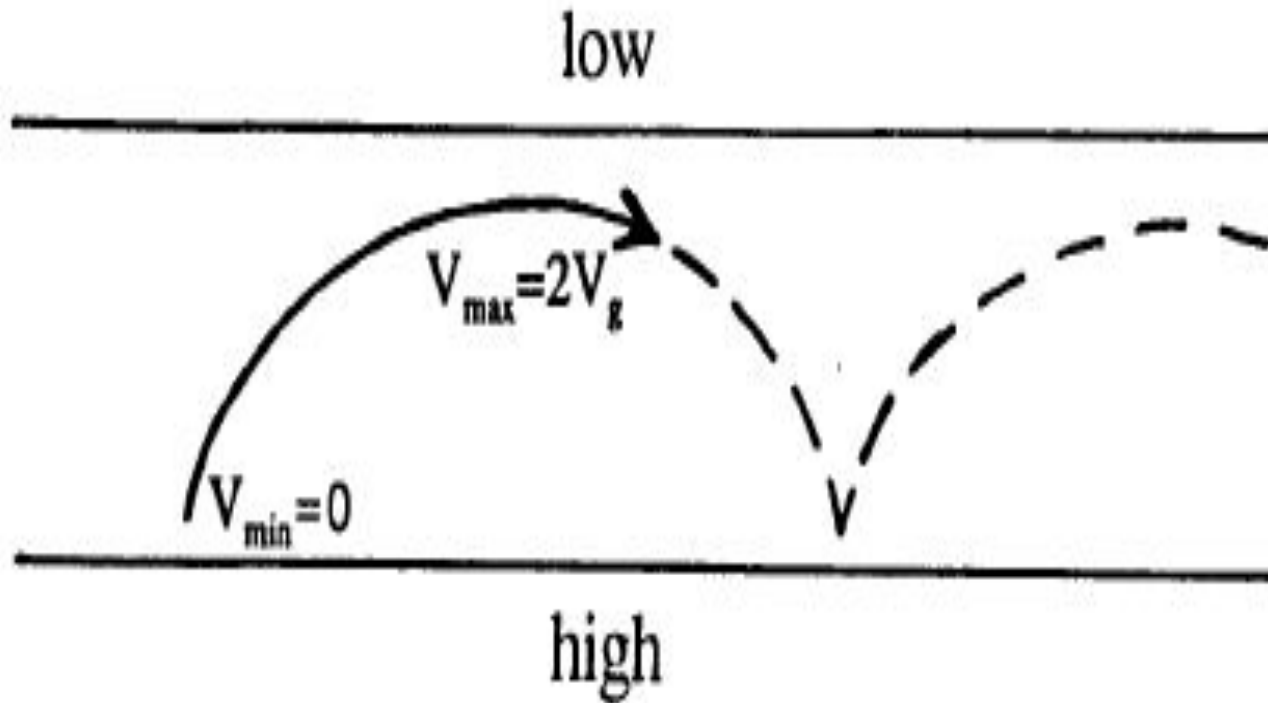


Fig. 7 When an air parcel from rest enters a pressure gradient that is not changing with time it will follow a normal cycloid

$$\begin{cases} \frac{du}{dt} - fv = 0 \\ \frac{dv}{dt} + fu = -\frac{\partial p}{\rho \partial y} \end{cases}$$

$$v = \frac{du}{dt} * \frac{1}{f}$$

$$\frac{dv}{dt} = \frac{d^2u}{dt^2} * \frac{1}{f}$$

$$\frac{d^2u}{dt^2} * \frac{1}{f} + fu + \frac{\partial p}{\rho \partial y} = 0$$

$$\frac{d^2u}{dt^2} + f^2u + \frac{f}{\rho} * \frac{\partial p}{\partial y} = 0$$

$$u = A \sin ft + B \cos ft + C$$

$$\frac{du}{dt} = Af \cos ft - Bf \sin ft$$

$$\frac{d^2u}{dt^2} = Af^2(-\sin ft) + Bf^2(-\cos ft)$$

$$u_g = -\frac{1}{\rho f} * \frac{\partial p}{\partial y}$$

$$\begin{cases} u = u_g (1 - \cos ft) \\ v = u_g \sin ft \end{cases}$$

$$u_g = -\frac{1}{\rho f} * \frac{\partial p}{\partial y}$$

$$v_g = \frac{1}{\rho f} * \frac{\partial p}{\partial x}$$

$$\begin{cases} u = (u_0 - u_g) \cos ft + (v_0 - v_g) \sin ft + u_g \\ v = (v_0 - v_g) \cos ft + (u_g - u_0) \sin ft + v_0 \end{cases}$$