Subject: When discussing the atmospheric pressure we treat the barometric formula.

The subject we address is that the fact that the barometric formula is universally used for the determination of the atmosphere's pressure.

1. Equation: "... allows to determine the height difference from the air pressure in two different altitudes, differential barometric measurement. In reality the condition of constant temperature is not fulfilled. Highly different temperatures in large altitudes lead to inaccurate results of the altitudes to be not used.

2. Equation: This equation is a modified barometric formula. The possibility is calculated to determine the distance between two points, on the pressure and altitude basis of expressions. The two equations are valid for an adiabatic atmosphere. In reality the condition of constant temperature is not fulfilled. Highly different temperatures in large altitudes lead to inaccurate results of the altitudes to be not used.

3. The average value of the temperature between the two levels is introduced into the formula.

4. Under the assumption that the atmosphere of the Earth has a unique temperature gradient, the air pressure p0 at the height h is to be given by...

Deformations:

First, the barometric formula is derived under the assumption that the temperature is in thermal equilibrium in a vertical direction, for instance for 1h.

Another possibility that follows from equations 1 and 2 is...