



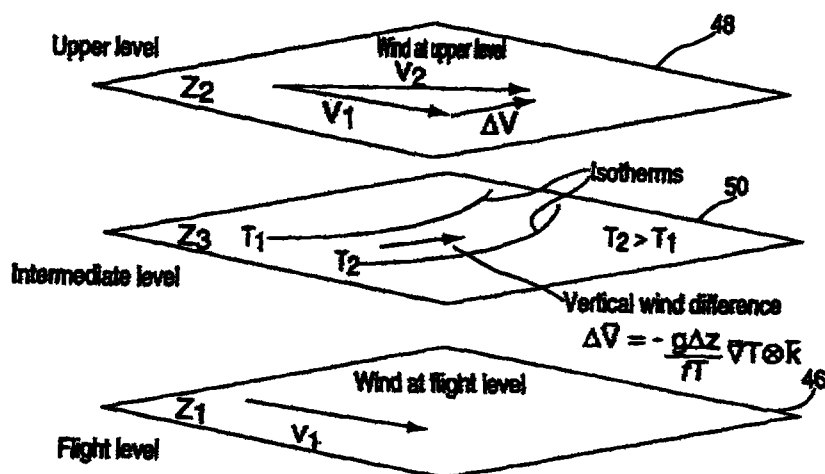
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(54) Title: **APPARATUS AND METHOD FOR DETERMINING WING PROFILES AND FOR PREDICTING CLEAR AIR TURBULENCE**



(57) Abstract

The invention provides a system for passive measurement of atmospheric temperature using a passive direction detector for detecting the energy of a narrow wavelength band emanating from a volume of atmospheric gas. The resulting signal can be associated with an effective temperature. The effective temperature can be associated with an effective range. The system generates a temperature map which can determine, at predetermined time intervals, atmospheric temperatures in an azimuth plane associated with a predefined range from the detector. The temperature map can then be used to calculate temperature gradients that in turn can be used to compute the vertical wind vector difference and to determine the presence of clear air turbulence.