## E1-05 : NUMERICAL ANALYSIS OF ATMOSPHERIC SOUNDING

*P Dewundege; Dept. of Meteorology, Colombo.*

A measure of stability (instability) is important to describe the physical state of the atmosphere. A number of measures of the stability have been devised. However if current practices are followed, the stability would have to be computed either graphically or by referring to tables for routine use. This is an onerous task.

This difficulty can be overcome by formulating the atmospheric processes mathematically. These formulations facilitate the preparation of computer programmes.

In this paper, numerical formulations for adiabatic and pseudoadiabatic processes of the atmosphere are described and algorithms to compute Lifting Condensation Level (LCL), Moist adiabats are presented. Moist Adiabatic Energy profiles are constructed.

Four familiar stability indices are computed with the help of a computer programme developed by using the above mentioned algorithms. Monthly values of these indices are computed using 10-year average of radiosonde data at Colombo. Average monthly variation at Colombo are investigated. The variations were found to be reasonable and consistent with the seasonal stability variations of the atmosphere.

A user friendly computer programme (Menu driven) to compute Atmospheric variables and stability indices has been prepared and is ready for operational purposes when radiosonde data is available.

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