

**Richardson number and its application for forecast
problem of clear air turbulence (CAT)****Katarina Stanković**Federal Hydrometeorological Institute, Zagreb, Yugoslavia*

In this paper it is demonstrated that Richardson number (Ri), which is very favoured theoretical predictor of CAT, in practice constitutes complicated problem for application in forecast of CAT. It is shown that Ri is very sensitive to the vertical resolution of input data. It has not been possible to obtain the critical value of Ri for the generation of Kelvin-Helmholtz instability that is required by the theory ($Ri = 0.25$), because the data with required resolution were not available. The possibility to diagnose and prognose CAT by means of Ri number is tested on a concrete situation in which CAT has been observed by pilots in the area above Yugoslavia. Input fields are given by interpolation in network of points 100×100 km apart with vertical resolution of 100 hPa. Above Zagreb and Beograd Ri number has been determined from data with vertical resolution of 1 km. Critical value for generation of CAT has been determined in accordance with the thickness of chosen layer and by combining experience and various estimations. It has been compared with area in which CAT has been diagnosed by other predictors and area in which CAT has been observed by pilots in flight.

* Presented at the Symposium „Observations and Modelling in Geophysics”, organized by the Geophysical Institute, Faculty of Science, University of Zagreb. The Symposium was held at Zagreb, Yugoslavia, between 11 and 13 June 1986.