



## Study of the Low Level Wind Shear using AMDAR reports

Ana-Denisa Urlea (1) and Mirela Pietrisi ()

(1) UNIVERSITY OF BUCHAREST, BUCHAREST, Romania (denisaurlea@yahoo.com), (2) UNIVERSITY OF BUCHAREST, BUCHAREST, Romania (mirela.niculae@gmail.com)

Study of the Low Level Wind Shear using AMDAR reports

Ana Denisa Urlea

University of Bucharest, Faculty of Physics, P.O.MG-11, Romania  
Romanian Air Traffic Services Administration

Mirela Pietrisi

University of Bucharest, Faculty of Physics, P.O.MG-11, Romania  
National Meteorological Administration

Abstract

The aim of this work is the study of the effects of the wind shear on aircraft flights, in particularly when it appears on path of take-off or landing phase which is the most troublesome phase. This phenomenon has a lot of generating sources as: convection, frontal surfaces, strong surface wind coupled with local topography, breezes (either sea or mountain originated), mountain waves or low level temperature inversions. Low Level Jet is also a most frequent cause of Low Level Wind Shear. It has a lot of generating causes, but in Romania the most encountered is the presence of a Mediterranean low in southeastern part of Europe mainly in winter, sometimes in the first days of spring or the last days of autumn. It generates Low Level Wind Shear between surface and up to 600m, affecting approaching, landing or take-off phases of an aircraft flight. Diagnosis of meteorological general and local conditions and presence of Low Level Jet- generating Low Level Wind Shear is made using Meteo-France ARPEGE products model and ALARO high resolution model dedicated to Romanian area. The study is focused on use of real-time and in situ data as AMDAR (Aircraft Meteorological Data Relay) registrations with verification of a mobile Doppler SODAR registrations-("SONic Detection And Ranging" system -PCS.2000-Metek manufactured by Meteorologische Messtechnik GMBH) in the processes of estimation of the quantitative and qualitative manifestation of Low Level Wind Shear. The results will be used to improve the timing and the accuracy of the Low Level Wind Shear forecasting for the aerodrome area.