

BLACK SEA STORM RISK FACTOR FOR THE CRITICAL INFRASTRUCTURE OF THE ROMANIAN COASTAL SPACE

Georgeta BANDOC¹

Rezumat: Mediul costier românesc este afectat, după cum reiese din analiza hărții regionalizării fenomenelor de risc din România, de două categorii distincte de riscuri naturale și anume de riscurile climatice (în principal furtuni) și de riscurile generate de schimbarea nivelului mării. Riscurile climatice acționează pe termen scurt și foarte scurt, generând accelerarea tuturor proceselor de țărm și plajă, provocând schimbări profunde morfologice asupra ecosistemelor și inducând pagube materiale prin distrugerea amenajărilor, construcțiilor portuare, localităților etc. Riscurile provocate de schimbarea nivelului mării au efect pe termen lung, ritmurile actuale de creștere provocând pagube în viitorii 25...50 de ani. Combinate, aceste două categorii de riscuri naturale induc efecte negative proporțional mai mari pentru infrastructura critică din spațiul costier românesc.

Abstract: Romanian coastal environment is affected, as clearly appears in the analysis of phenomena regions risk map of Romania, by two distinct categories of natural hazards namely climate risks (mainly storms) and the risks arising from changes in sea level. Climate risks act on short and very short term, resulting in acceleration of all coastal and beach processes, causing profound morphological changes on ecosystems and property damage by inducing destruction of facilities, port construction, settlements, etc. Risks caused by changing sea levels have long-term effect, current growth rates causing damage in the coming 25 ... 50 years. Combined, these two categories of natural hazards adversely induce higher proportion of critical infrastructure in the Romanian coastal area.

Keywords: storm, risk factors, aero-synoptic conditions, critical infrastructure

1. Introduction

Knowledge of the storms in northwestern Black Sea basin is of particular importance in terms of weather (the genesis and evolution of these storms), in terms of wind engineering (evaluation speed and gust of wind characteristics for proper sizing of structures subjected extreme wind action) and in terms of coastal hydraulics (appreciation of the exceptional characteristics of specific storms waves to protect the coastal region and the perimeter port basin of north-western Black Sea). Black Sea Basin aero-synoptic specific conditions are directly related to the field above the European Baric. Thus, knowledge of atmospheric circulation over the Black Sea basin requires knowledge of air traffic within Europe and therefore knowledge of determinants of pressure centers. In Europe, the atmospheric circulation (Fig. 1) is subject to five such centers: Arctic Anticyclone Azores Anticyclone, Asian Anticyclone, Mediterranean Depression and Iceland Depression.

¹ Assoc. Prof., PhD, Meteorology-Hydrology Dept., Faculty of Geography, University of Bucharest, Romania, (e-mail: geobandoc@yahoo.com)