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## INTEGRIRANI PRISTUP KOD ANALIZA RIZIKA OD ODRONA

### **Sažetak:**

*U radu su prikazani neki elementi intergiriranog pristupa u analizama rizika od odrona pripremljenim za zonu makedonskog sela Staro selo u oblasti Polog. Širu zonu Pologa karakteriše izražena opasnost od odrona, klizišta i poplava uopšte, gde postoji nekoliko kritičnih lokacija. Prikazani su rezultati analiza simulacije odrona savremenih i inovativnih tehnika snimanja terena, primenom LIDAR i INSAR metodama, koje se koriste u otkrivanju opasnih zona i definisanje hazarda i rizika. Analize su potvrdile mogućnost odvajanja odrona, što je uočeno u stvarnosti, i to ne samo u zoni sela. Povezujući nalaze iz simulacija odrona sa troškovima i koristima za mere zaštite, predstavljene su neke preporuke sa aspekta toleratnog nivoa rizika uključujući moguće trendove predložene u novoj generaciji Evrokoda 7. Glavni nalazi navode na zaključak da je u procesu upravljanja rizikom od odrona neophodna interakcija i integracija tehničkih, ekonomskih i društvenih aspekata i uključivanje različitih perspektiva.*

### **Ključne riječi:**

*Analiza rizika od odrona, Simulacije odronavanja, Troškovi- Koristi, Mere zaštite, Tolerantno nivo rizika, Evrokod 7, Ekonomski i društveni aspekti*

## INTEGRATED APPROACH IN ROCKFALL RISK ANALYSES

### **Summary:**

*The paper presents some elements of intergated approach in rockfall risk analyses prepared for zone of Macedonian village Staro selo in Polog area. The wider zone of Polog is characterized with pronounced rockfall, landslide and flood hazards in general terms, where several critical locations exists. The results from rockfall simulation analyses, contemporary and innovative terrain surveying techniques used in detection of hazardous zones with LIDAR and INSAR methods and other data are presented. Analyses confirmed the possibility for detachment of rockfalls, which is observed in reality, and not only in the exact zone of the village. Integrating findings from rockfall simulations with benefit and cost analysis of suggested protection mesasures, some recomendations from the aspect of tolerable level of risks including possible trends suggested in new Eurocode 7 generation are presented. The main findings leads to the conclusion, that interaction and integration of technical, economic and social aspects and involving different perspectives is necessary in process of rockfall risk management.*

### **Key words:**

*Rockfall risk analysis, Rockfall simulations, Benefit-Cost analysis, Protection measures, Tolerable level of risks, Eurocode 7, Economic and social aspects*

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