

**Hüsler, Jürg; Piterbarg, Vladimir I.**

**On shape of high massive excursions of trajectories of Gaussian homogeneous fields.** (English)

Zbl 1387.60065

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**Summary:** We consider the asymptotic behavior of the probability of “physical extremes” of a Gaussian field which means the probability of excursions above a high level with diameters of their bases exceeding a fixed positive number. Also we deal with the path behaviour of such excursions in case they occur.

**MSC:**

- 60G15 Gaussian processes  
60G70 Extreme value theory; extremal stochastic processes  
60G05 Foundations of stochastic processes

Cited in 4 Documents

**Keywords:**

Gaussian fields; extremes; massive excursions; shape of excursions

**Full Text: DOI**

**References:**

- [1] Anderson, T.W.: An Introduction to Multivariate Statistical Analysis, Wiley (2003) · Zbl 1039.62044
- [2] Fedele, F; Alvise, B; Guillermo, G; Ping-Chang, S; Yezzi, A; Barbariol, F; Ardhuin, F, Space-time measurements of oceanic sea states, Ocean Model., 70, 103-115, (2013) · doi:10.1016/j.ocemod.2013.01.001
- [3] Hüsler, J; Ladneva, A; Piterbarg, V, On clusters of high extremes of Gaussian stationary processes with  $\varepsilon$ -separation, Electron. J. Probab., 15, 1825-1862, (2010) · Zbl 1226.60082 · doi:10.1214/EJP.v15-828
- [4] Hüsler, J; Kremena, EV; Piterbarg, V, On the shape of trajectories of Gaussian processes having large massive excursions, Theory Probab. Appl., 58, 582-600, (2014) · Zbl 1312.60038 · doi:10.1137/S0040585X9798676X
- [5] Hüsler, J; Kremena, EV; Piterbarg, V, On the shape of trajectories of Gaussian processes having large massive excursions II, Theory Probab Appl., 60, 613-621, (2016) · Zbl 1370.60065 · doi:10.1137/S0040585X97T98782X
- [6] Socquet-Juglard, H; Dysthe, KB; Trulsen, K; Krogstad, HE; Liu, J, Probability distributions of surface gravity waves during spectral changes, J. Fluid Mech., 542, 195-216, (2005) · Zbl 1165.76317 · doi:10.1017/S0022112005006312
- [7] Krogstad, H.E., Liu, J., Socquet-Juglard, H., Dysthe, K.B., Trulsen, K.: Spatial Extreme Value Analysis of Nonlinear Simulations of Random Surface Waves. OMAE2004-51336 paper. In: Proceedings of ASME 23th Inter. Conf. Off. Mech. Arc. Eng., Vancouver (2004)
- [8] Leadbetter, M.R., Lindgren, G., Rootzén, H.: Extremes and Related Properties of Random Sequences and Processes Springer (1983) · Zbl 0433.60030
- [9] Lindgren, G, Some properties of a normal process near a local maximum, Ann. of Math. Stat., 41, 1870-1883, (1971) · Zbl 0222.60027 · doi:10.1214/aoms/1177696688
- [10] Nosko, VP, Local structure of a homogeneous Gaussian random field in the neighbourhood of high-level points, Theory Probab. Appl., 30, 767-782, (1985) · Zbl 0604.60048 · doi:10.1137/1130096
- [11] Piterbarg, VI; Prisyazhnyuk, VP, Asymptotics of the probability of large excursions for a non stationary Gaussian process, Theory Probab Math. Statist., 18, 131-144, (1979) · Zbl 0433.60030
- [12] Piterbarg, V.I.: Asymptotic Methods in the Theory of Gaussian Processes and Fields. AMS, MMONO, Vol. 148 (1996) · Zbl 0841.60024

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