**Natural Hazards
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Discussions

Interactive comment on "Application of GA-SVM method with parameter optimization for landslide development prediction" *by* X. Z. Li and J. M. Kong

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We thank the referee for the evaluation and useful comments. Below we provide corresponding replies to the comments.

COMMENT: However, the applying condition of GA-SVM method should be further explained, for example, the required amounts of sample data.

REPLY: GA-SVM method is a novel algorithm with parameter optimization, based on statistical learning theory and structural risk minimization principle. It has excellent learning performance and unique advantages in solving small-sample, non-linear and high-dimensional problems. The method is different from traditional statistics theory and artificial neural network methods which are suitable for big sample (the sample size

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approaches infinity). Small sample is not absolute small sample size, but the sample size is relatively small comparing to the complexity of the solved problem. For any algorithm, the quantity and quality of samples have an important impact on prediction accuracy of the method. In our study, the number of the sample size for the single-factor model is 62. The related content has been added in the Sect.5 of the manuscript.

COMMENT: In order to improve the scientific quality of the manuscript, more content should be discussed in section 5. For example, the deformation features, influencing factors and monitoring data of the complicated landslide should be discussed except for the features and prediction effect of the GA-SVM method.

REPLY: We have added and improved the discussion content in Sect.5. according to the advice of the referee. The added content can be seen in the Sect.5 of the manuscript.

COMMENT: In addition, in terms of the manuscript writing, there are some misspelled words and grammar errors that should be checked carefully and revised accordingly. For instance, in line 21 of page 5303, the word "focus" should be corrected into "focuses", and in line 13 of page 5304, the word "showed" should be expressed as "shows".

REPLY: We have carefully checked the writing of the manuscript. We corrected the "focus" into "focuses" in line 21 of page 5303, corrected "showed" into "shows" in line 13 of page 5304. Moreover, we respectively added a comma in line 6 and 8 of page 5299 and in line 12 of page 5300.

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