

[1]肖宏彬,肖果,贺聪,等.高塹方路基膨胀土非线性剪切蠕变模型研究[J].自然灾害学报,2013,03:259-264.

XIAO Hongbin,XIAO Guo,HE Cong,et al.Experimental study on non-linear shear creep model of expansive soils in high cutting roadbed[J].,2013,03:259-264.

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高塹方路基膨胀土非线性剪切蠕变模型研究(PDF)

《自然灾害学报》[ISSN:/CN:23-1324/X] 期数: 2013年03期 页码: 259-264 栏目: 出版日期: 2013-07-30

Title: Experimental study on non-linear shear creep model of expansive soils in high cutting roadbed

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关键词: 膨胀土; 非线性流变; 剪切蠕变; 经验模型

Keywords: expansive soils; nonlinear rheological; shear creep; empirical model

分类号: TU443

DOI: -

文献标识码: -

摘要: 通过对南宁市环线路基塹方膨胀土进行的大量室内直剪蠕变试验,研究了各种竖向应力条件下不同剪应力水平对膨胀土蠕变特性的影响.试验结果表明,膨胀土的蠕变不但与加载时间有关,更与应力水平有关.当竖向应力较大时,蠕变曲线呈衰减蠕变特征;随着水平剪应力的增大和竖向应力的减小,蠕变形式从衰减变为非衰减,即土的蠕变为非线性蠕变.对南宁膨胀土的试验曲线进行了数值分析,得到了剪切蠕变的非线性经验模型,该模型能较好地描述南宁膨胀土的剪切蠕变特性,为膨胀土非线性流变问题的研究提供了参考.

Abstract: In this paper, a series of indoor direct shear creep test on Nanning expansive soils was conducted For the study of the effects of different factors, such as shear stress level, various vertical stress conditions, on the creep properties of expansive soils. The tested results show that, the creep properties of expansive soils are not only dependent on loading time, but also dependent on stress level. The creep curve presents attenuation characteristics when the vertical stress is large. While with the decrease of vertical stress or the increase horizontal of shear stress, the creep form is changed gradually from attenuation creep to non-attenuation creep. That is to say, the soil creep shows a kind of nonlinear creep property. An empirical nonlinear model used to describe shear creep of this soil is obtained by the shear creep curve fitting. This model described the shear creep properties of Nanning expansive soil well, and gave a reference to non-linear rheological studies of expansive soils.

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备注/Memo: 收稿日期:2013-1-5;改回日期:2013-3-20。

基金项目:国家自然科学基金资助项目(509780897);湖南省自然科学基金资助项目(12JJ5015);湖南省科技厅项目(2010SK3047)

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