论文

海底隧道涌水量影响因素的数值模拟研究

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摘要：

针对某海底隧道,从数值模拟分析的角度,研究涌水量计算的影响因素.建立大量的海底隧道计算模型,采用不同模型尺寸和边界条件,计算其涌水量从而寻找规律.结果表明:边界范围至少为隧道尺寸的7倍时,才能保证涌水量计算结果的准确性;固定孔隙水压力边界引起涌水量被高估,自由孔隙水压力边界与此相反;侧压力系数对海底隧道涌水量的影响基本可以忽略.

关键词： 涌水量;海底隧道;数值模拟

Numerical simulation study on influence factors of the seepage volume of submarine tunnels

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Abstract:

The influence factors of the seepage volume in submarine tunnels were studied by means of numerical simulation. A large number of models with different model scales and boundary conditions were built for the numerical simulation. The computed results showed that when the distance from the boundary to the tunnel profile was at least 7 times the tunnel diameter, an accurate seepage volume could obtained, and the fixed boundary makes the seepage volume be overestimated, while the free pore pressure boundary was underestimated.

Keywords: seepage volume; submarine tunnel; numerical simulation

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