



航空学报 » 2003, Vol. 24 » Issue (1) :94-96 DOI:

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基于累进传输的三维地形实时优化自适应网格算法研究

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Progressive Transmission-Based ROAM Algorithm for 3D Terrain

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摘要

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摘要 提出了三维地形的累进传输与动态多分辨率表示的完整算法。将小波分解技术用于实现高程域的多分辨率表示、小波重建技术用于高程域的累进重构、分形手段用于低分辨率高程域细节信息的补充、实时优化自适应网格改进算法用于数字高程模型的动态多分辨率表示。算法的实现表明取得了较好的效果。

关键词: 小波变换 累进传输 分形地形 层次细节 多分辨率

Abstract: In order to realize the dynamic multiresolution and progressive transmission for a 3D terrain, the wavelet technique was used to sample and rebuild the high field. The fractal technique was used to increase artificial details. ROAM (Real-time Optimally Adapting Meshes)-based improved algorithm was used to create the dynamic multiresolution DEM (Digital Elevation Model). The realizing of the whole algorithm indicates that a better effect has already been acquired.

Keywords: wavelet transform progressive transmission fractal terrain level of detail multiresolution

Received 2002-06-05; published 2003-02-25

引用本文:

吴勃;施法中. 基于累进传输的三维地形实时优化自适应网格算法研究[J]. 航空学报, 2003, 24(1): 94-96.

WU Bo; SHI Fa-zhong. Progressive Transmission-Based ROAM Algorithm for 3D Terrain[J]. Acta Aeronautica et Astronautica Sinica, 2003, 24(1): 94-96.

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