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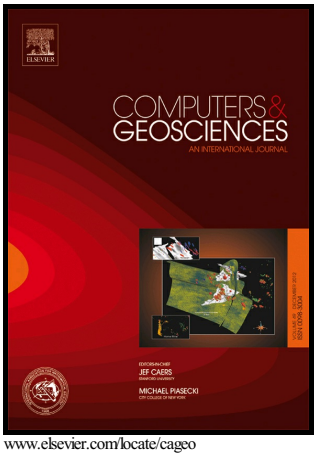

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Title

Expeditious Illustration of Layer-Cake Models On and Above a Tactile Surface

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Abstract

Too often illustrating and visualizing 3D geological concepts are performed by sketching in 2D mediums, which may limit drawing performance of initial concepts. Here, the potential of expeditious geological modeling brought by hand gestures is explored. A spatial interaction system was developed to enable rapid modeling, editing, and exploration of 3D layer-cake objects. User interactions are acquired with motion capture and touch screen technologies. Virtual immersion is guaranteed by using stereoscopic technology. The novelty consists of performing expeditious modeling of coarse geological features with only a limited set of hand gestures. Results from usability-studies show that the proposed system is more efficient when compared to a windows-icon-menu-pointer modeling application.

Keywords

Layer-cake models, illustrative geology, sketch-based modeling, spatial interaction, stereoscopic visualization

1. Introduction

Three dimensional visualizations of geological constructs are common in many geo-related fields since these communicate spatial relationships and possible structural configurations of geological objects effectively [Lidal, 2013; Turner, 2006]. Currently these visualizations are conveyed by 3D illustrations drawn on 2D media using conventional computer input such as mouse and keyboard. Recently-developed approaches propose 2D sketch-based systems to enable rapid geological modeling of terrains and stratigraphic elements [Lidal, 2013]. However, advanced stereoscopic visualization systems and new gesture-based spatial