Einladung zum

Mathematischen Kolloquium

Julius-Maximilians-Universität Würzburg • Fakultät für Mathematik und Informatik

Prof. Dr. Randall J. LeVeque

Applied Mathematics Department, University of Washington, Seattle, USA

Modeling tsunamis and simulating real events

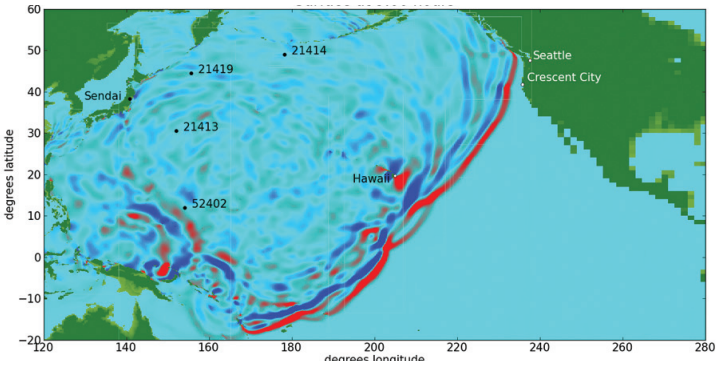
Mittwoch, den 6. Juni 2012 • 16:15 Uhr
Hörsaal 2 des Zentralen Hörsaal- und Seminargebäudes am Hubland

Inhaltsangabe

Many geophysical flows over topography can be modeled by two-dimensional depth-averaged fluid dynamics equations. The shallow water equations are the simplest example of this type, and are often sufficiently accurate for simulating tsunamis and other large-scale flows.

These partial differential equations are hyperbolic and can be modeled using high-resolution finite volume methods. However, several features of these flows lead to new algorithmic challenges, such as the fact that the depth goes to zero at the edge of the flow and that vastly differing spatial scales must often be modeled, making adaptive mesh refinement essential. I will discuss some of these algorithms and the GeoClaw software, a specialized version of Clawpack that is aimed at solving real-world geophysical flow problems over topography.

Results of some recent benchmarking studies will be shown. We will also see results from efforts to compare proposed earthquake mechanisms for the 11 March 2011 Great Tohoku Tsunami (see the picture).



www.mathematik.uni-wuerzburg.de/kolloquium.html

Zu diesem Vortrag laden wir Sie herzlich ein.

Die Dozentinnen und Dozenten der Mathematik