

عنوان مقاله:

Attenuation of spatial aliasing in CMP domain by non-linear interpolation of seismic data along local slopes

محل انتشار:

مجله فیزیک زمین و فضا، دوره 44، شماره 4 (سال: 1397)

تعداد صفحات اصل مقاله: 13

نویسندگان:

Mohammad Javad Khoshnavaz - *Post-Doc, Department of Earth Physics, Institute of Geophysics, University of Tehran, Iran*

Hamid Reza Siahkoochi - *Professor, Department of Earth Physics, Institute of Geophysics, University of Tehran, Iran*

Andrej Bóna - *Professor, Department of Exploration Geophysics, Curtin University of Technology, Perth, Western Australia*

خلاصه مقاله:

Spatial aliasing is an unwanted side effect that produces artifacts during seismic data processing, imaging and interpolation. It is often caused by insufficient spatial sampling of seismic data and often happens in CMP (Common Mid-Point) gather. To tackle this artifact, several techniques have been developed in time-space domain as well as frequency domain such as frequency-wavenumber, frequency-space, and frequency-time. The main advantages of seismic interpolation in time-space domain over frequency domain are: a) frequency components of the initial signals are preserved, and b) the prior knowledge that a seismic event consists of many plane wave segments, can be used. Using the later advantage, a seismic event can be predicted by pursuing the continuity of seismic events in a trace-by-trace manner. This process, which has become popular in seismic data reconstruction and imaging within the past few years, is known as predictive painting. We use predictive painting to predict the wavefronts and two-way-travel time curves in regularly sampled CMP gathers followed by increasing the number of traces by cubic interpolation. Then, the amplitude of the interpolated trace is obtained by averaging the amplitudes of the neighbouring traces. Performance of the proposed method is demonstrated on several synthetic seismic data examples as well as a field .data set

کلمات کلیدی:

Spatial aliasing, interpolation, time-space, local slope, predictive painting

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