

INTRODUCTION

Ground Penetrating Radar (GPR) profiles are extensively used for stratigraphic studies of depositional environments. Detection of internal stratification within layers and thin bed characterization are important aspects of stratigraphic interpretation.

But GPR resolution is limited and identification of the presence of thin beds is difficult in the time domain. Thin bed detection from GPR data is better done in frequency domain.

In order to better understand the frequency variations temporally or spatially, as well as to relate these changes to bed geometry, timefrequency decomposition or spectral decomposition is required. Seismic resolution studies have shown that thin beds can be studied through frequency domain analysis (e.g. Partyka et al. 1999, Matos et al, 2005) by generating spectral decomposition maps. Here we have applied this technique to GPR profiles over depositional sequences of thin beds.

MOTIVATION

I. Image small-scale features in depositional environments that are beyond GPR resolution (for generally used frequency range 100-500 MHz).

II. Generate a display method that provides information about bed geometry.

I. Examine the usefulness of spectral decomposition (used mostly for seismic reservoir characterization) for interpreting GPR data.







CHARACTERIZATION OF THIN BEDS BY SPECTRAL DECOMPOSITION OF GROUND PENETRATING RADAR PROFILES SWAGATA GUHA AND SARAH KRUSE DEPT. OF GEOLOGY, UNIVERSITY OF SOUTH FLORIDA, TAMPA, FLORIDA

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