From ramp to platform: Building a 3D model of depositional geometries in transitional carbonates in the Miocene, Northern Sardinia


1. Introduction

The study area is situated in Northern Sardinia, where floodplaine shallow water sediments, up to 60 m in thickness, are found in fault bounded horst highs. The carbonate reservoirs exhibit two depositional environments represented by a belt of reworked calcarenites (Webbia et al., 2006) and a progradational unit (e.g., Brevi et al., 2003). The lower sequence (1a) consists of a heterolithic carbonate-reek with breccias, longshore bars and fine-grained siliciclastic sediments. The upper sequence (2a) displays a planar, wavy-reef of the systems on a stratigraphically controlled platform. Lower, higher frequency reeves were also recognized in sequence (1b) and (2b) respectively (Bettelli et al., 2006). To build the dataset, we measured the sequence architecture with a SPM and combined the obtained data with stratigraphic sections. A selection of structural and facies data and the near surface system (parameters) for the large bodies in sequence 1a were used in this study. Finally, the data were merged with a GRIDS.

2. Methodology

We collected 3D seismic data sets using the SPT (Sirta Maritima, 2003). The data were processed using GeoForschung and SPV (Sirta Maritima) for trend removal, dip correction, and noise reduction. After we removed all the information from the field, we removed outliers from the best data set and from this the basic data set was used. The final data set was processed using the areal seismic body to create the final set.

3. Data interpretation

The model was built using PETREL. The corrected and edited data were then used to build a complete and vertical section of the area. As a result, the model was used to fill the areas in the model that were not visible in the field. Because of the high data density, the areas that were not visible in the field were filled in the model. The final model was verified by the field data, and the model was adjusted to fit the field data. This process was repeated until the model was verified by the field data.

4. Conclusions

Applications of PETREL

- Description of the flow geometries framework from integrated data
- Visualization of geometries, connates from integrated data
- Calculation of stratigraphic fluids in the reservoir

Limitations

-setDefault and geostats (loss of data due to但不限ing)