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SYNTHETIC LOG TIE GENERATION OF KAILASTILA WELL 1 AND 2 IN SURMA BASIN FOR SEISMIC INTERPRETATION

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ABSTRACT

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The aim of the research work was to generate synthetic log tie. The application of the implemented log tie is provided better subsurface geology of the Kailastila area. The Kailastila well is located in Kailastila structure of eastern part of the Surma basin in the Bengal foredeep. In this paper synthetic log ties have been generated using different types of mathematical seismic source functions and layers velocities. Velocities are obtained from the well log parameters. Mathematical Gauspuls and dynamite source have been used as source function. Interval velocities and reflection coefficients are computed to implement the tie. Among the synthetic log ties, the tie developed with Gauspuls source and without interpolation is appeared suitable for the correlation and correction for interpretation. Interpreted sections are shown in this paper as well. Three prominent reflection bands are observed on seismic sections. The gas producing sands of the Kailastila structure belong to the Bokabil to Bhuban formations of Micene age. The generated log ties are also shown with seismic sections. Bared on the analysis of seismic sections and correlation with the well data, eight prominent reflecting horizons and five prospective sands layer are identified. This theoretical work has been performed at Geophysics lab in University of Rajshahi, Bangladesh.

Keywords: Synthetic Log Tie and Seismic Interpretation

INTRODUCTION

Geophysical well logging is a general term used to describe a variety of techniques, which allows geologist to measure various physical parameters of the rocks beneath the surface. A probe or tool with sensors is lowered into the borehole of a well and a cable transmits the information collected by the sensors to the surface, where they are processed using a computer and recorded as a well log.

Geological methods have been applied to investigation of drill holes for some forty-five years, using initially the same electrode techniques as in surface exploration.

Since 1928, when the Schlumbergers brothers first made electrical well measurements in the Pechelborn oil field in France, geophysical well logging has become a standard operation in petroleum exploration. Correlation and evaluation of the productive capabilities of reservoir formations are usually the principal objective (Telford W. M, et. al, 1988).

Well logging has not, however, been used extensively in the search for metallic minerals for several reasons. The smaller size holes obtained with diamond drill, generally less than one-third the diameter of oil wells imposes some limitation on equipment, but this is not a major problem. The complex geologic structure encountered in mineral areas, compared to the relativity uniform sedimentary formations associated with oil, makes identification and correlation more difficult. Finally, it is argued that the complete recovery of core in diamond drilling eliminates the necessity for logging holes, since the information is available laid out in the core box. It is unfortunate that this attitude prevails in mineral exploration. Well logging is cheap compared to drilling. A variety of geophysical logging techniques would be valuable aids to correlation and identification of mineral-associated anomalies, particularly when core is lost or difficult to identify.

Geophysical methods which have been applied in well logging include resistivity, self-potential, induction, induced polarization and occasionally other electrical methods, detection of gamma-rays and neutrons in radioactivity methods, acoustic logging and measurement of magnetic and thermal properties. The emphasis in what follows of necessity will be on logging for petroleum. There are many different types of well logs such as Density logs, Sonic logs, Neutron logs, Gamma ray logs, Spontaneous potential logs, Resistivity logs, Nuclear magnetic resonance logs, Dipmeter logs, Caliper logs, Microseismogram logs etc.

For seismic interpretations, the surface it has only the seismic section. Many processing steps encounter seismic processing. At the final processed section might provide improper subsurface geology. Therefore, most of all cases it is important to make true bridge between seismic section and subsurface geology.

Log tie is a way of making bridge. Well log provides true geologic features. Therefore using the Physical properties of the geology synthetic trace can be made. This synthetic trace is later placed at the total section and can give fruitful geology.

The Kailastila well 1 and 2 of Kailastila structure is located in estern part of the Surma basin in the Bengal foredeep. The shell oil Company Discovered the Kailastila Gas field in 1962 by an exploratory well Kailastila 1 (Islam, 1996). The Kailastila gas field is the largest recoverable field of Bangladesh. Synthetic log ties have been implemented using Kailastila well parameters. Application of these ties to the real seismic data is provided the horizons.

MATERIALS AND METHODS

To generate synthetic log tie a source function is required. Real seismic sources use an energy impulse or a vibration source to generate waves in the earth. Impulse sources include dynamite, a drop weight, a sledge hammer, a short gun, a rifle or gauspuls. The actual source used is dependent on the desired signal to noise ratio, the human environment, the target depth desired and the geological environment. The vast majority of land seismic data are generated by two methods, dynamite placed in shot holes drilled into the earth or truck mounted vibrating mass which shakes the earth in a vertical or horizontal direction. The methods in this work would be used in the situation of seismic exploration were the impulsive dynamite and Gauspuls source.The dynamite source is finite in duration. This requires a time varying function. The following exponential equation is suitable, where α and β determine the maximum value and the length of time, t_{max}. The required frequency content for the model is f_{max}; a typical value is 30Hertz (Phil Bording, 1993).

$$d(t) = \frac{\exp(-\alpha t^2)}{\beta} \quad .... (1)$$

Now the source needs an oscillatory function and the symmetric Sine will do nicely

$$s(t) = Sine\,(2\pi f_{\max} t) \quad .... (2)$$

Our simple seismic source is the product of d (t) and s (t)

$\alpha = 2\pi f_{\max}$, $\beta = 9$ then

$$src(t) = Sine\,(2\pi f_{\max} t)\frac{\exp(-\alpha t^2)}{\beta} \quad .... (3)$$

Gauspuls Source: The Gauspuls generates Gaussian-modulated sinusoidal pulses. The function of the Gaussian-modulated sinusoidal pulses is

$$f(x) = a\exp(-(x-b)^2/c^2)$$

For real constants a >0, b & c.

An important step in the interpretation of reflection records is the conversion of reflection times to death. This step requires the velocity of seismic waves to be none in the material through which the waves travel.

The present work paper concern here is the measurement of the actual velocities at the specific locations where the reflection shooting is to be carried out. Such velocities can be measured directly in boreholes, or they can be obtained indirectly by analysis of time-distance relationships on the reflection records themselves. The spreads now used in recording by common-depth-point techniques are generally so long that analytical methods are considerably more accurate than they were when the shorter spreads used for single-coverage shooting were common.

A relatively recent use of analytical determined seismic velocity data is the identification of lithology for discrete formations within the geological section. The precision obtainable in such determinations make it possible to obtain useful information of this kind from most modern reflection shooting.

At this point it is desirable to define the different kinds of velocities that enter into seismic interpretation. The following types are referred to most frequently in the geological literature.

Average Velocity: This is simply the depth z of a reflecting surface below a datum divided by the observation one-way reflection time t from the datum to the surface so that (Milton B. Dorbin, 1974).

$$V_{av} = \frac{z}{t} \quad .... (4)$$

If a represents the sum of the thickness of layers z_1, z_2, z_3,....,z_n, the average velocity is defined as(Milton B. Dorbin, 1974).

$$V_{av} = \frac{z_1 + z_2 + z_3 + \cdots + z_n}{t_1 + t_2 + t_3 + \cdots + t_n} = \frac{\sum_1^n z_k}{\sum_1^n t_k} \quad .... (5)$$

Interval Velocity: If the reflectors at depths z_1 & z_2 give reflection having respective one-way times of t_1 & t_2, the interval velocity V_{int} between z_1 & z_2 is defined simply as $(z_2-z_1)/(t_2-t_1)$.

$$V_{rms}^2 = \frac{v_1^2 t_1 + v_2^2 t_2 + v_3^2 t_3 + \cdots + v_n^2 t_n}{t_1 + t_2 + t_3 + \cdots + t_n} = \frac{\sum_1^n v_k^2 t_k}{\sum_1^n t_k} \quad \text{.............} \quad (6)$$

The velocity can be obtained by taking the scope of the curve for t^2 versus x^2 at x=0.

Interpolated Velocity: Interpolation is a process for estimating values that lie between known data points. It has important applications in areas such as signal and image processing.
Reflection Coefficient: The ratio of the amplitude of the reflected wave to incident wave, or how much energy is reflected is called reflection coefficient (Reimann, 1993). If the wave has normal incidence, Reflection coefficient is term of velocity can be simplified as

$$R = (V_2 - V_1)/(V_2 + V_1) \quad \text{.............} \ (7)$$

Where R = reflection coefficient, V_1 = velocity of medium 1,V_2 = velocity of medium 2.

Typical values of R are approximately -1 from water to air, meaning that nearly 100% of the energy is reflected and none is transmitted; ~ 0.5 from water to rock; and ~ 0.2 for shale to sand. At non-normal incidence, the reflection coefficient defined as a ratio of amplitudes depends on other parameters, such as the shear velocities, and is described as a function of incident angle by the Zoeppritz equations.

The data has been used in this research of the Kailastila structure in the Surma basin, Sylhet, Bangladesh (Kazi Ariful Islam and D. Hossain, 2002). The survey was made by Bangladesh Oil, Gas and Mineral Corporation (Petrobangla). These data were jointly incorporated to obtain information on the structure and stratigraphy of the area. There are thirty-one (31) 2-D seismic reflection sections of the study area. Only two seismic sections (KT-08 & KT-11) have been analysed here. Of these, six were strike lines and the rest were dip lines (figure 1). In order to interpret seismic marker horizons were selected and reflection times were picked up to make structure map. Times at the intersection points have been cheeked to avoid any mistie in correlation.
The marker horizons were tied with exploration wells available in the area. Seismostratigrapic analyses were carried out. Seismic reflecting horizons representing the main layers encountered in Kailastila wells 1 and 2 were chosen for mapping the areal extent of the structure (two-way-time maps) (Figure 1). Four wells (Kailastila wells 1, 2, 3 and 4) were drilled in the kailastila structure. The lithology of the Kailastila well 1 has been correlated with other wells to construct the lithostratigraphy of the area. Finally, geophysical logs were tied with the seismic sections.

Table 1 shows the correlation between reflectors and data of wells 1and 2 (*Kazi Ariful Islam and D. Hossain, 2002*).Three prominent reflection bands are observed in the seismic sections. The shallow one is located between 1.0 sec and 1.30 sec (TWT). This band is continuous and parallel bedded, and shows more or less uniform thickness. The middle reflection band between 1.70 sec and 1.80 sec (TWT) is continuous and shows variable thickness. The lower reflection band is observed between 2.0 sec and 2.4 sec (TWT), and is more or less continuous and parallel bedded. All the dip and strike seismic section show these three reflection bands is shown in figure 2.

Table 1. Correlation of reflectors with well data

Reflector	Stratigraphic boundary	Kailastila well 01		Kailastila well 02	
		Depth from MSL (km)	Two way Time (sec)	Depth from MSL (km)	Two way Time (sec)
R-01	Top of Girujan Clay	1.100	0.94	1.100	0.94
R-02	Top of Tipam Sandstone	1.480	1.20	1.492	1.22
R-03	Top of Upper Marine Shale	2.130	1.62	2.130	1.62
R-04	Top of Upper Gas Sand	2.262	1.70	2.215	1.67
R-05	Top of Lower Gas Sand-A	2.926	2.06	2.895	2.06
R-06	Top of Lower Gas Sand-B	2.971	2.10	2.990	2.10
R-07	Top of Lower Sand-A	3.084	2.16	3.070	2.15
R-08	Top of Lower Sand-B	3.191	2.21	3.195	2.21

Table 2. Root-mean square (RMS) velocities and Interval velocities of Kailastila well 01 and 02

Kailastila well 01				**Kailastila well 02**			
Depth from MSL(km)	Two way time(sec)	RMS velocity (km/sec)	Interval velocity (km/sec)	Depth from MSL(km)	Two way time(sec)	RMS velocity (km/sec)	Interval velocity (km/sec)
1.100	0.94	2.34	2.34	1.100	0.94	2.34	2.34
1.480	1.20	2.47	2.56	1.492	1.22	2.45	2.52
2.130	1.62	2.63	2.83	2.130	1.62	2.63	2.86
2.262	1.70	2.66	2.73	2.215	1.67	2.65	2.70
2.926	2.06	2.84	3.27	2.895	2.06	2.81	3.19
2.971	2.10	2.83	2.79	2.990	2.10	2.85	2.98
3.084	2.16	2.86	2.97	3.070	2.15	2.86	2.89
3.191	2.21	2.89	3.05	3.195	2.21	2.89	3.07

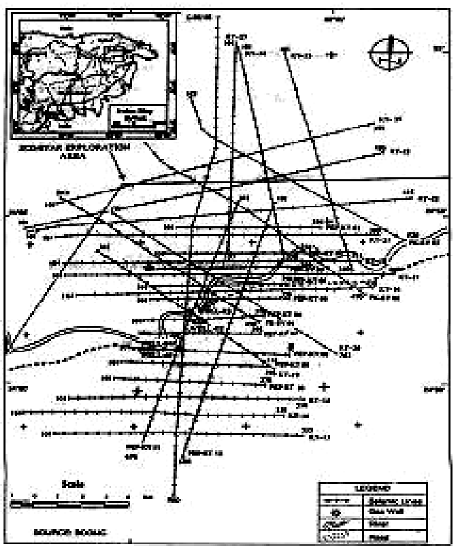

Figure 1. Location of the study area and the layout of 31 seismic lines

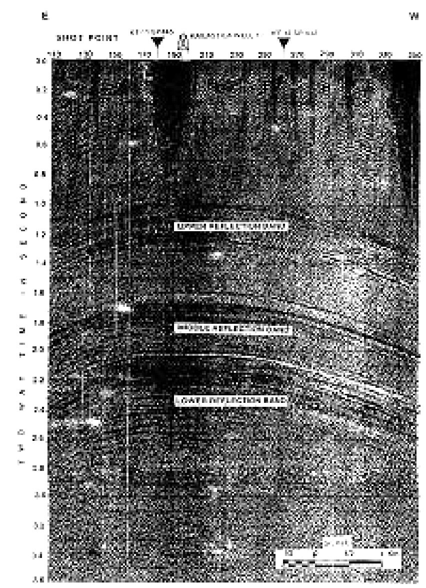

Figure 2. A seismic section of the study area along the line PEP KT 08(*Kazi Ariful Islam and D. Hossain, 2002*).

From table 1 get depth from MSL in kilometre and two way time in second. To calculate interval velocities, RMS velocities from divided depth from MSL by one way time are found first. Then using equation 6 here got interval velocities. Table 2 shows the calculated RMS velocities and interval velocities of Kailastila well 01and 02.

Finally reflection coefficients have been calculated using these interval velocities and equation 7. And then with the help of these reflection coefficients as well as seismic source function have been generated log ties.

RESULT AND DISCUSSIONS

The generated log ties are shown in figure 3 and 4. Figure 3 shows reflection coefficients, velocity, source function and log tie for Kailastila well 01 using dynamite source and Gauspuls source respectively figure (a) and (b). Figure 4 shows reflection coefficients, velocity, source function and log tie for Kailastila well 02 using dynamite source and Gauspuls source respectively figure (a) and (b).

Using various types of interpolations here generated various types of synthetic log ties. These log ties are shown in figure 5 to 36.

Above theses log ties only two log ties have been chosen for this research. For Kailastila well 01 and seismic section KT -11, practical log tie is shown in figure 37. Using Gauspuls source and data table 1 has generated it. For Kailastila well 02 and seismic section KT -11, practical log tie is shown in figure 38. Using Gauspuls source and data table 1 has also generated it. For Kailastila well 01 and seismic section KT -08, practical log tie is shown in figure 39. Using Gauspuls source and data table 1 has also generated it.

For interpretation the practical well log ties are sown on fig 37,38,38 respectively, have been accommodated with two seismic sections, KT- 11 and KT- 08 (Kazi Ariful Islam and D. Hossain – 2002). First, log ties of figure 37 and 38 accommodated with seismic section KT -11 and this shown in figure 40. Next log tie of figure 39 accommodated with seismic section KT – 08 and this shown in figure 41.

Next step of the interpretation is to select the horizons. A number of horizons have been selected from seismic section KT – 11 and KT – 08. The horizons peaked of section KT – 11 are shown in figure 42 and for section KT – 08 are shown in figure 43.

Then pecked horizons have been mean corrected and individually corrected. The horizons of seismic section KT – 11 after mean and individual corrections using the implemented log trace of Kailastila well 1 is shown in figure 44 and 45 respectively. The horizons of seismic section KT – 11 after mean and individual corrections using the implemented log trace of Kailastila well 2 is shown in figure 46 and 47 respectively. The horizons of seismic section KT – 08 after mean and individual corrections using the implemented log trace of Kailastila well 1 is shown in figure 48 and 49 respectively.

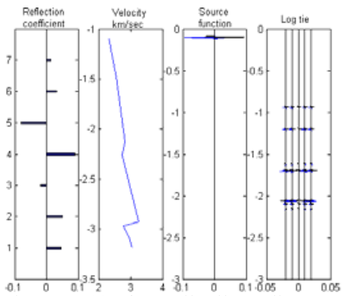

Figure 3 (a). for Kailastila well 01 using Dyanamite source.

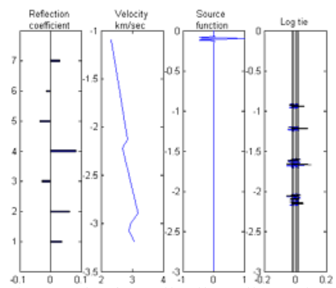

Figure 4 (b). for Kailastila well 02 using Gauspuls source.

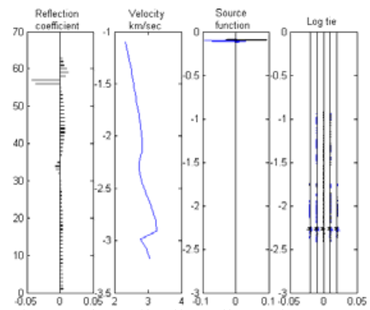

Figure 7. for Kailastila well 01 using dynamite source and cubic interpolation technique (velocity obtained 64 from 8).

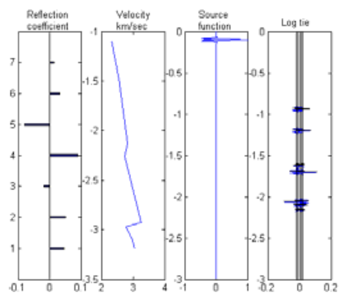

Figure 3 (b). for Kailastila well 01 using Gauspuls source.

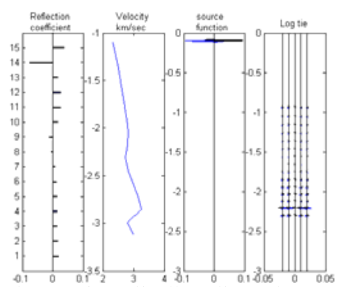

Figure 5. for Kailastila well 01 using dynamite source and cubic interpolation technique (velocity obtained 16 from 8).

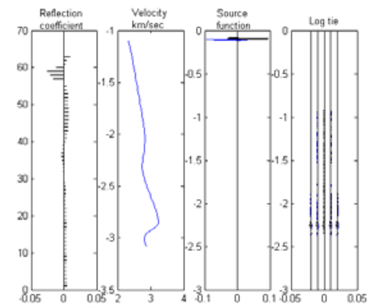

Figure 8. for KT well 01 using dynamite source and cubic interpolation technique (velocity obtained 64 from 32from16 from 8).

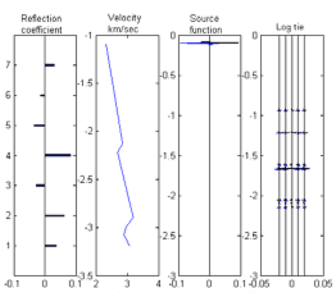

Figure 4 (a). for Kailastila well 02 using Dynamite source.

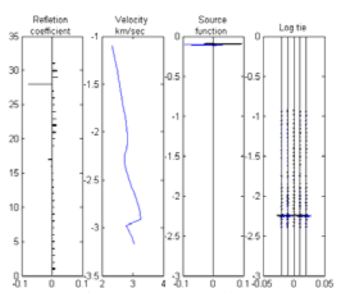

Figure 6. for Kailastila well 01 using dynamite source and cubic interpolation technique (velocity obtained 32 from 8).

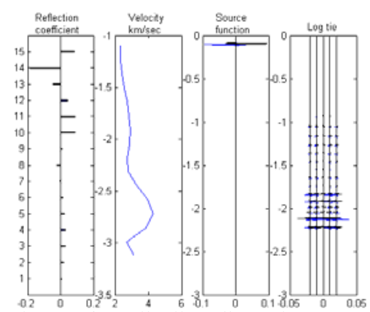

Figure 9. for Kailastila well 01 using dynamite source and spline interpolation technique (velocity obtained 16 from 8)

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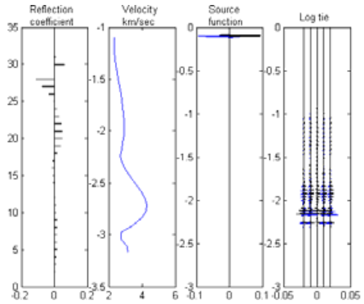

Figure 10. for Kailastila well 01 using dynamite source and spline interpolation technique (velocity obtained 32 from 8).

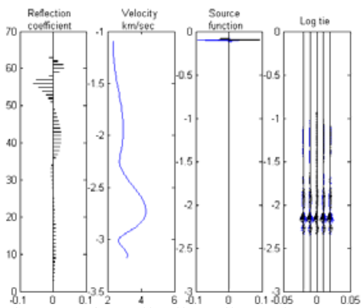

Figure 11. for Kailastila well 01 using dynamite source and spline interpolation technique (velocity obtained 64 from 8).

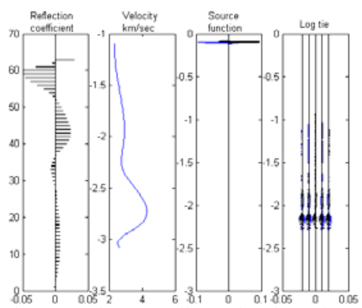

Figure 12. for KT well 01 using dynamite source and spline interpolation technique (velocity obtained 64 from 32 from 16 from 8).

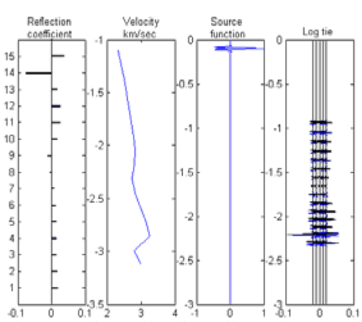

Figure13. for Kailastila well 01 using Gauspuls source and cubic interpolation technique (velocity obtained 16 from 8).

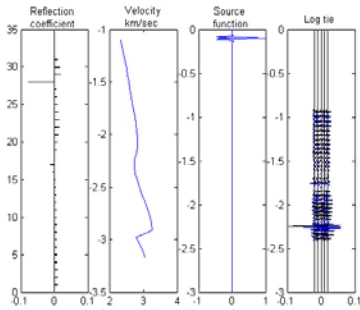

Figure 14. for Kailastila well 01 using Gauspuls source and cubic interpolation technique (velocity obtained 32 from 8).

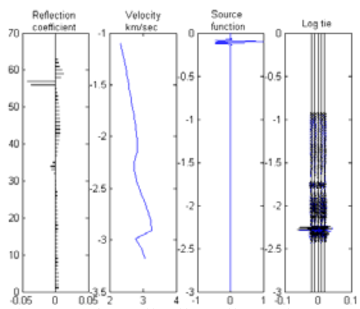

Figure 15. for Kailastila well 01 using Gauspuls source and cubic interpolation technique (velocity obtained 64 from 8).

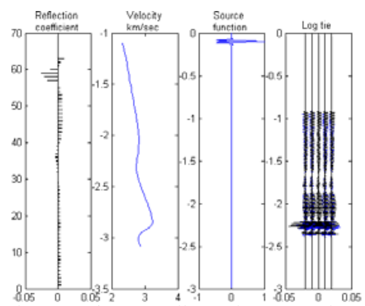

Figure 16. for KT well 01 using Gauspuls source and cubic interpolation technique (velocity obtained 64 from32 from16 from 8)

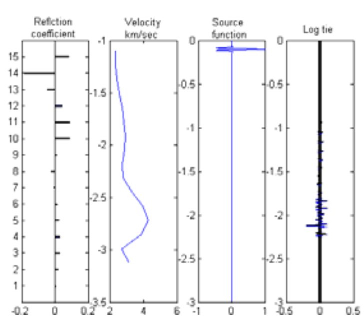

Figure 17. for Kailastila well 01 using Gauspuls source and spline interpolation technique (velocity obtained16 from 8).

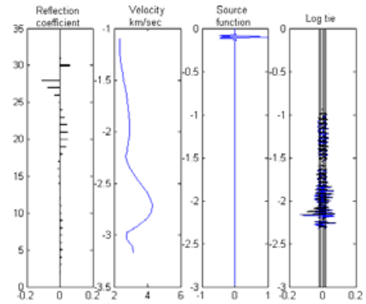

Figure 18. for Kailastila well 01 using Gauspuls source and spline interpolation technique (velocity obtained 32 from 8).

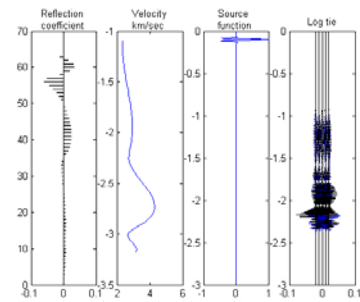

Figure 19. for Kailastila well 01 using Gauspuls source and spline interpolation technique (velocity obtained 64 from 8).

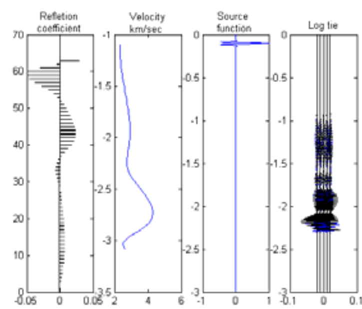

Figure20. for KT well 01 using Gauspuls source and spline interpolation technique (velocity obtained 64 from 32from16 from 8).

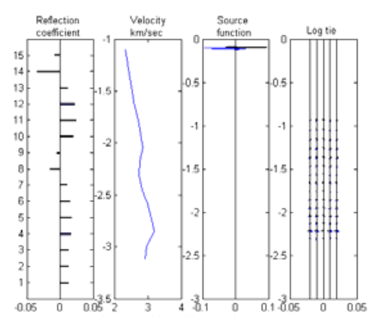

Figure 21. for Kailastila well 02 using dynamite source and cubic interpolation technique (velocity obtained 16 from 8).

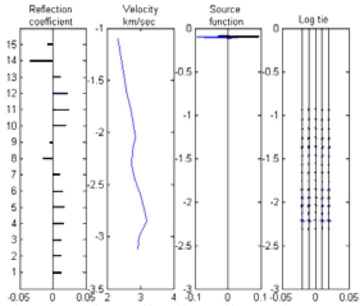

Figure 22. for Kailastila well 02 using dynamite source and cubic interpolation technique (velocity obtained 32 from 8).

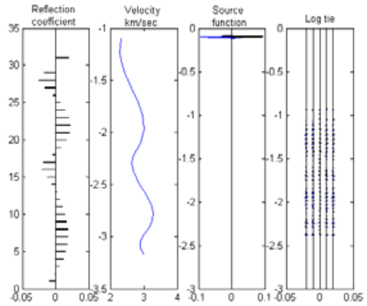

Figure 26. for Kailastila well 02 using dynamite source and spline interpolation technique (velocity obtained 32 from 8).

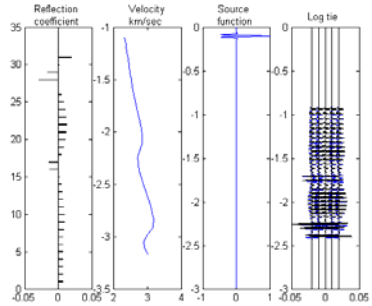

Figure 30. for Kailastila well 02 using Gauspuls source and cubic interpolation technique (velocity obtained 32 from 8).

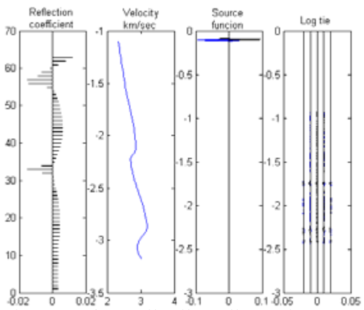

Figure 23. for Kailastila well 02 using dynamite source and cubic interpolation technique (velocity obtained 64 from 8).

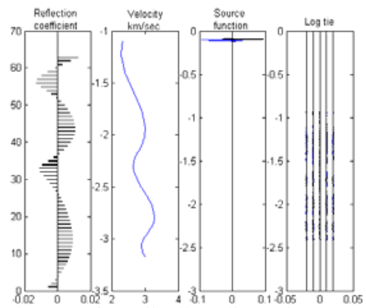

Figure 27. for Kailastila well 02 using dynamite source and spline interpolation technique (velocity obtained 64 from 8).

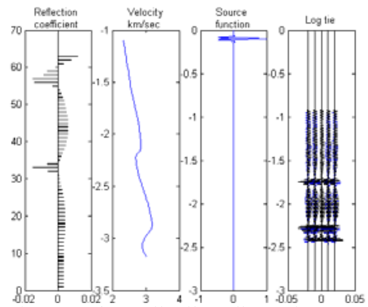

Figure 31. for Kailastila well 02 using Gauspuls source and cubic interpolation technique (velocity obtained 64 from 8).

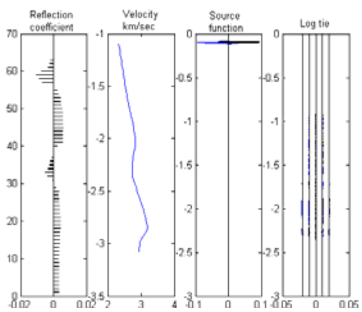

Figure 24. for KT well 02 using dynamite source and cubic interpolation technique (velocity obtained 64 from 32 from 16 from 8).

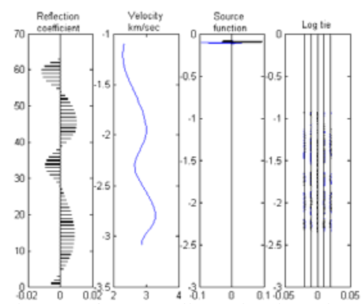

Figure 28. for KT well 02 using dynamite source and spline interpolation technique (velocity obtained 64 from 32 from 16 from 8).

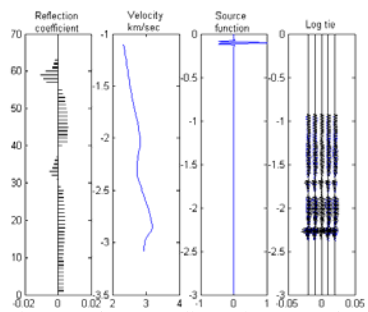

Figure 32. for KT well 02 using Gauspuls source and cubic interpolation technique (velocity obtained 64 from 32 from 16 from 8)

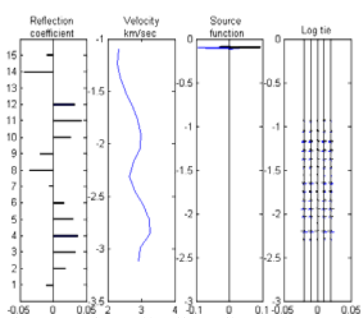

Figure 25. for Kailastila well 02 using dynamite source and spline interpolation technique (velocity obtained 16 from 8).

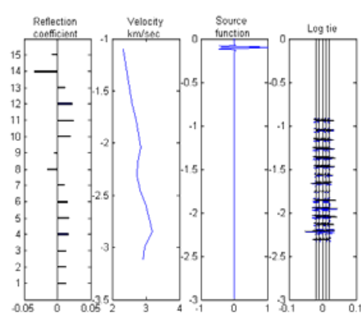

Figure 29. for Kailastila well 02 using Gauspuls source and cubic interpolation technique (velocity obtained 16 from 8).

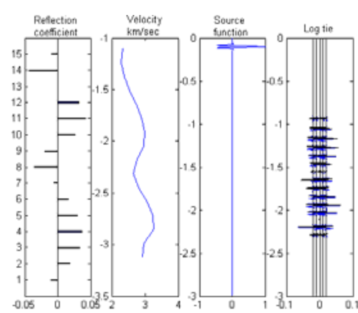

Figure 33. for Kailastila well 02 using Gauspuls source and spline interpolation technique (velocity obtained 16 from 8).

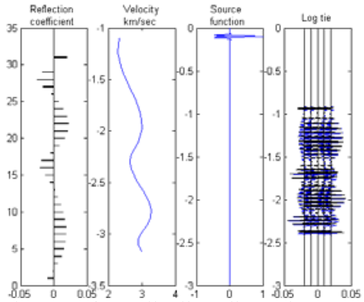

Figure 34. for Kailastila well 02 using Gauspuls source and spline interpolation technique (velocity obtained 32 from 8).

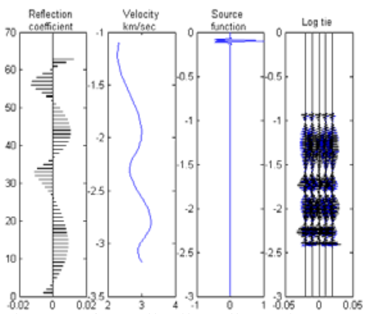

Figure 35. for Kailastila well 02 using Gauspuls source and spline interpolation technique (velocity obtained 64 from 8).

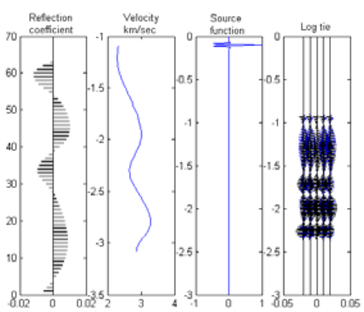

Figure 36. for KT well 02 using Gauspuls source and spline interpolation technique (velocity obtained 64 from 32 from 16 from 8).

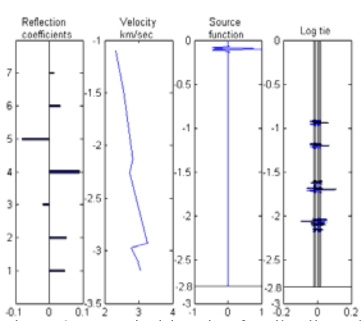

Figure 37. Practical log tie of Kailastila well 01 for seismic section (KT – 11).

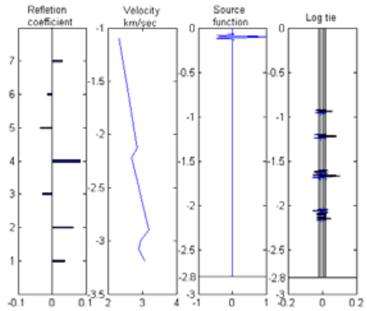

Figure 38 Practical log tie of Kailastila well 02 for seismic section (KT – 11).

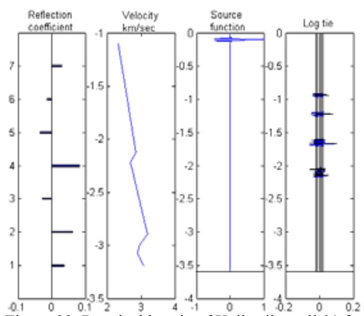

Figure 39. Practical log tie of Kailastila well 01 for seismic section (KT – 08).

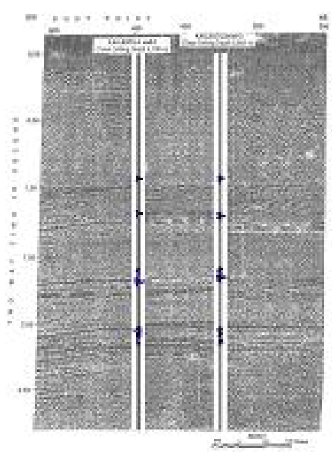

Figure 40. Correlation between seismic section (KT-08) and Kailastila well 1 and 2.

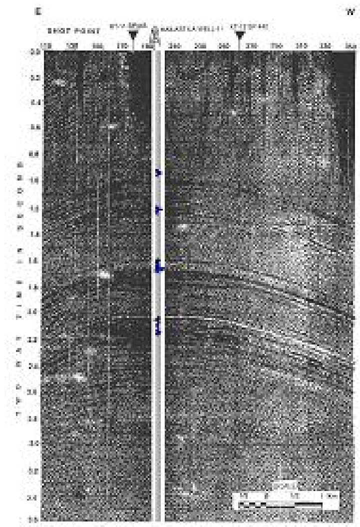

Figure 41. Correlation between seismic section (KT-08) and Kailastila well 1

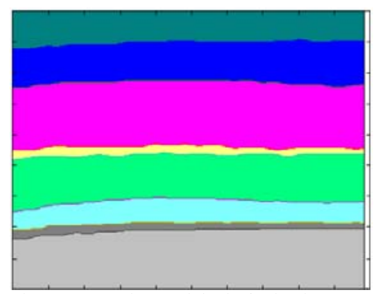

Figure 42. Horizons picked of seismic section KT-11

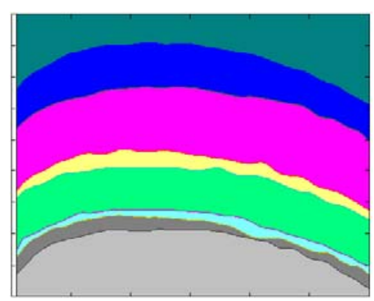

Figure 43. Horizons picked of seismic section KT-08

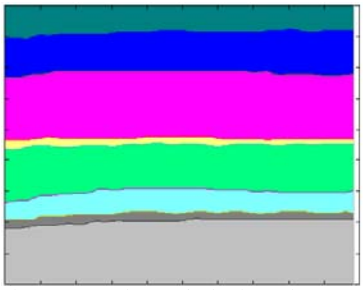

Figure 44. Horizons of seismic section KT-11 after mean corrections using implemented log trace of well 1.

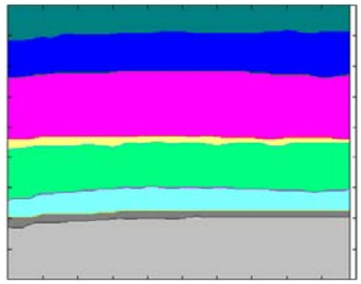

Figure 46 Horizons of seismic section KT-11 after mean corrections using implemented log trace of well 2.

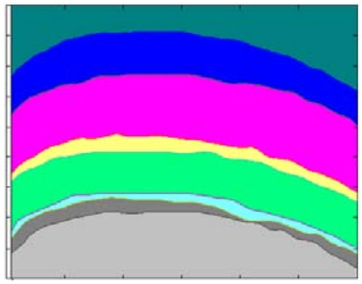

Figure 48. Horizons of seismic section KT-08 after mean corrections using implemented log trace of well 1.

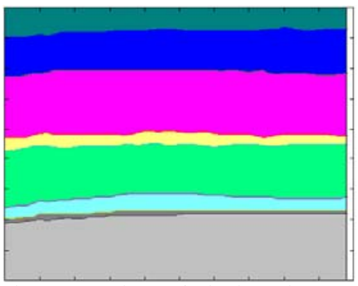

Figure 45. Horizons of seismic section KT-11 after individual corrections using implemented log trace of well 1.

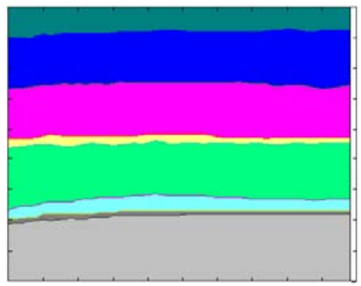

Figure 47. Horizons of seismic section KT-11 after individual corrections using implemented log trace of well 2.

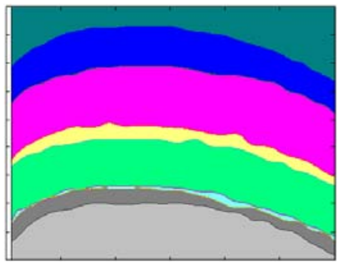

Figure 49. Horizons of seismic section KT-08 after individual corrections using implemented log trace of well 1.

Geophysical well logging is a general term used to describe a variety of techniques, which allows geologist to measure various physical parameters of the rocks benth the surface. The main physical parameters needed to evaluate a reservoir are porosity, hydrocarbon saturation, permeable bed thickness, and permeability. These parameters can be estimated from electrical, nuclear and acoustic logs. Several different logs may be used to determine porosity. Sonic, Formation Density and Neutron logs having responses that they depend primarily on formation porosity. They are also affected by rock properties, each in a different way, so combinations of two three of these logs yield better knowledge of porosity, lithology and pore geometry. They can distinguish between oil and gas as well. Permeability, at the present time, can only be considered as having only order of magnitude accuracy. It is important to make true bridge between seismic section and subsurface geology. Log tie is an way of making bridge.

To generate synthetic log tie a source function is used. Real seismic sources use an energy impulse or a variation source to generate waves in the earth. Impulse sources include dynamite, a drop weight, a sledgehammer, a short gum, a rifle or Gausuls. The actual source used is dependent on the human environment, the target depth desired and the geological environment. An important step in the interpretation of reflection records is the conversion of reflection times to deaths. This step requires the velocity of seismic waves through which it travels. In this work, velocities are used for the well 1 and well 2 of Kailastila (given in table 1). Velocity analyses are made in this thesis. Average velocity, interval velocity, root mean square velocity are studied of the well. The interval velocity is obtained by taking the distance between successive detector positions in the well and dividing it by the difference in arrival times at the two depths after the arrival time has been corrected for angularity of the wave depth. The average velocity is either the actual distance from source to receiver divided by the observed time or the vertical component of distance divided by the appropriately corrected time. Reflection coefficients extracted from the velocities used in this work.

In this thesis using different type of seismic source function has generated synthetic log tie and also using interpolated of velocities. But the synthetic log tie, which generated by using Gauspuls source without any interpolation is found suitable for the correlation. So these log ties have been utilized here as practical log tie. These practical log ties have been correlated with real seismic sections of seismic data. Eight reflecting horizons and five prospective sand layers have been identified by the study. To provide better subsurface geology eight reflecting horizons have been selected. Selected horizons have been corrected with the generated synthetic log ties. This paper presents the results of interpretation of seismic and well data for the structure. Three prominent reflection bands are observed on seismic sections. The gas-producing sands of the Kailastila structure are located in the Bokabil to Bhumban formations of Miocene age. On the basis of all the present findings, it is reasonable to conclude that the studies can be considered as prospective for hydrocarbon exploration.

REFERENCES

ISLAM, K. A. 2000. Structural and stratigraphic interpretation of geophysical data from the Kailastila structure in the Surma basin, Bangladesh. Unpublished M. Sc. Thesis, Department of Geological Sciences, Jahangirnagar University, Savar, Dhaka, Bangladesh.

Kazi Ariful Islam and D. Hossain 2002. J. Geol. Soc. India, volume 60.

Milton B. Dorbin. 1974. Introduction to Geophysical Prospecting, third edition, McGraw-hill international book company.

Phil Bording. 1994. Computer Based Learning Unit, University of Leed, UK. Version 0.6.2.

Reimann, K. U. 1993. Geology of Bangladesh. Gebruder-Brontraeger, Berli.

Teleford W. M., L. P. Geldart, R. E. Sheriff, D. A. Kes. 1988. First Indian edition, Applied Geophysics, Oxford and IBH Publishing Co. Pvt. Ltd.