CHAPTER 5

DISCUSSION AND CONCLUSIONS

5.1 Discussion

The SVD filter was coded in the Mathematica® Software. But due to input and output SEG-Y format problems occurred, the Matlab® Software was brought to assist in this solution of the read and write the SEG-Y format by using its Seislab version 3.01 package. The Matlab® Software helps in read SEG-Y format and sends ASCII codes output to compile the SVD filter in the Mathematica® Software. This ASCII codes were done in the Mathematica® Software by SVD filter and will be converted into SEG-Y format in the Matlab® Software (see the code in Appendix A).

The f-x prediction filter is depended on number traces of filter length and number traces of design windows to estimate the filter. Each filter was used in the experiment which the real data are not successfully to noise suppression but it can help to reduce or attenuate random noises.

The 2-D median filter can lead to a better suppression of noises. The window length increasing by fix of the samples was attenuated the ground roll. The samples increasing by fix of the window length was attenuated the random noise. But this filter produced more signal distortion.

The SVD filter is suitable for noise suppression. The results were obtained the parameters using the p=10 to q=31 in shot gather, p=3 to q=20 in CDP gather, p=7 to q=30 NMO corrected CDP supergather, p=1 to q=15 in stack section and p=1 to q=18 in GPR common offset gather.

The results of seismic section correlation with borehole logging shown the all sequence of seismic section of CDP at 1072 and 1691were matched with geophysical log. The selection sequences depends on the shape and trend of density, neutron and gamma values However, this research is not possible to do correctly correlating of final stack section using generation of synthetic seismogram method with the geophysical logging, because the sonic log has not been measured.

5.2 Advantage and disadvantage of each filtering

The SVD filter is effective in removing the random noise. The 2-D median filter can cause the distortion of signal. The reflector was distort to the square wave for a large window. The f-x prediction filter was not perfect to attenuate linear noise event. On the other hand, it can reduces the random noise in GPR section.

5.3 Conclusions

The SVD can simultaneously boost reflector signals and suppress noises in seismic and GPR data. It is easy to implement and convenient to use because its performance depends on few parameters. The SVD filter is better than f-x prediction and 2-D median filters in removal random noise.

Combining between SVD filter with f-k filter are excellent in reducing the ground roll, air waves and random noise in seismic data Mae Sot Basin but also may

lead to successfully smoothed the final stack section with residual static correction. The CDP gather was accomplished to remove the ground roll better than shot gather. The NMO corrected CDP supergather was succeeded to remove the random noise better than stack section, CDP gather and shot gather, respectively.

The GPR results show the hyperbolic event partially removal. The random noise on the section was remained by using the SVD filter, 2-D median and f-k filters. The f-x prediction filter is successfully in noise reduction and the hyperbolic events were still appeared.