ABSTRACT

MULTIPLE ATTENUATION USING COMBINATION OF SURFACE RELATED MULTIPLE ELIMINATION (SRME) AND RADON TRANSFORM METHOD

By

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Has conducted research for the attenuation types of multiple noise on marine seismic data on the track KM86-139 using software "Vista". This research is used to implement a method of surface related multiple elimination (SRME) and radon transform to reduce the presence of multiple in seismic and only leaving the primary wave. Before applying the method of surface related multiple elimination (SRME) and radon transform, conducted pre-conditioning phase as direct removal arrival, and linear noise attenuation. SRME method in this research method can suppress multiple on near offset because SRME does not rely on move out, but SRME is done by modeling a multiple noise and separation so that it is only obtained the primary data. Radon transform method is effective in eliminating the multiple in far offset because by having a sufficient offset then the difference move out between a primary with multiple reflections will be more clearly seen. The results of research in seismic data processing using SRME and Radon Transform has eliminated surface multiple on seismic data which follows velocity of its water bottom in the range of 1480 m/s and it can be obtained from velocity analysis. Radon Transform process is done in the gather that has been affected by the effects of Normal Move Out (NMO) with hyperbolic cutoff is -900 and parabolic cutoff is 150 at the maximum offset 2000. Surface Related Multiple Elimination (SRME) and Radon Transform process has eliminated the surface multiple on seismic data, but still leave another type of multiple like internal multiple.

Key Word: Primary wave, multiple, direct arrival, surface related multiple elimination, radon transform.

ABSTRAK

ATENUASI *MULTIPLE* MENGGUNAKAN KOMBINASI METODE *SURFACE RELATED MULTIPLE ELIMINATION* (SRME) DAN *RADON TRANSFORM*

Oleh

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Telah dilakukan penelitian untuk mengatenuasi jenis *noise multiple* pada data seismik *marine* pada lintasan KM86-139 dengan menggunakan *software* "Vista". Penelitian ini digunakan untuk menerapkan metode *surface related multiple elimination* (SRME) dan *radon transform* untuk mereduksi keberadaan *multiple* di dalam data seismik dan menyisakan gelombang primer nya saja. Sebelum menerapkan metode *surface related multiple elimination* (SRME) dan *radon transform* dilakukan tahap *pre-conditioning* seperti *direct arrival removal*, dan *linear noise attenuation*. Metode SRME pada metode penelitian ini dapat menekan *multiple* pada *offset* dekat karena SRME tidak bergantung *move out*, namun SRME dilakukan dengan cara memodelkan *noise multiple* dan dilakukan pemisahan sehingga yang didapatkan hanya data primer nya saja. Metode *radon transform* efektif dalam menghilangkan *multiple* yang berada di *offset* jauh karena dengan *offset* yang cukup maka perbedaan *move out* antara refleksi primer dengan *multiple* akan lebih jelas terlihat. Hasil penelitian dalam pengolahan data seismik menggunakan SRME dan *Radon Transform* telah menghilangkan *surface multiple* yang berada pada data seismik yang mana mengikuti *velocity water bottom* nya yang berada pada kisaran 1480 m/s yang di dapat dari hasil *velocity analysis*. Proses *Radon Transform* nya dilakukan pada *gather* yang telah terkena efek *Normal Move Out* (NMO) dengan *cut off* hiperbolik -900 dan *cut off* parabolik 150 pada *maximum offset* 2000. Proses *Surface Related Multiple Elimination* (SRME) dan *Radon Transform* telah menghilangkan *surface multiple* yang berada pada data seismik. Namun masih tersisa jenis *multiple* seperti *internal multiple*.

Kata Kunci: Gelombang primer, *multiple, direct arrival, surface related multiple elimination, radon transform.*