1023-86-295 **Bogdan G. Nita*** (nitab@mail.montclair.edu), Montclair State University, Department of Mathematical Sciences, 1 Normal Avenue, Montclair, NJ 07405. *Imaging conditions in geophysical depth migration algorithms.*

Seismic migration/inversion is presently the most used method for determining the structure and properties of the subsurface in seismic exploration for hydrocarbons. Determining the location of abrupt changes in medium's parameters involves, in one form or another, an imaging principle which can simply be stated by equating a component, or the full value of the travel-time $t$, with zero. Depending on the domain of definition of the imaged data, i.e. space-frequency or wavenumber-frequency, the imaging step has different implications, capabilities and produces different results. We analyze this principle for the depth migration procedures and point out that the space-frequency algorithms imply a total travel-time condition $t = 0$ while the wavenumber-frequency algorithms imply vertical intercept time condition $\tau = 0$. We present two analytic examples of the most common migration algorithms for both domains, i.e. $f - k$ migration for the wavenumber-frequency and Kirchhoff for the space-frequency algorithms. In addition, we discuss the implications of the different imaging principle that these algorithms use. (Received September 04, 2006)