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Challenges for deconvolution imaging conditions

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Deconvolution imaging conditions offer a number of attractive properties when compared to standard cross-correlation imaging. These include superior resolution, amplitudes more directly related to reflection coefficients, and the prospect of eliminating surface reflected multiples from the image when the full up- and down-going fields are used. While the resolution and amplitude properties are easily achieved, the multiple-elimination property is difficult to obtain. This is due to a number of factors, including an assumption of horizontally stratified reflectors, finite recording apertures, and numerical instability. Advances must be made on these issues if multiple-suppression property of multi-dimensional deconvolution is to be realized.