



Receiver function imaging of crustal and upper mantle structure

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For nearly 40 years, the receiver function method has allowed seismologists to identify and characterise discontinuities in material properties in the Earth. In this presentation, I address various aspects of teleseismic receiver function imaging, from the preprocessing of data to the application of the imaging algorithms. Different flavours of receiver function imaging adopt different levels of complexity in treating the conversion and scattering problems. They range from simple stacking of normalized P-to-S or S-to-P conversion records to inversion/backprojection of the scattered teleseismic wavefield. The strengths and limitations of the various approaches are illustrated through applications to subduction zone and cratonic environments. I also discuss the new challenges associated with the processing of large regional and global datasets, as well as the need to combine receiver functions with complementary geophysical methods to make meaningful inferences about geological processes.