



Lower mantle scattering observations at temporary arrays

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The large number of temporary seismic arrays deployed in the recent past allows investigations of seismic structures in the Earth on a more global scale than previously possible. Here we use recordings of seismic core phases (PKP_{df}) from earthquakes in distance ranges of 130 to 140 degrees from several seismic arrays in order to look for evidence of scattering of PKP. This scattering is thought to occur at small-scale heterogeneities in the Earth's lower mantle. In most source-receiver combinations we find evidence for scattering. The strength of those scattered waves, which arrive as precursors to PKP_{df}, varies strongly between the different regions. Most scattering seems to originate from the source side (entrance into the core). In only very few source-receiver combinations no evidence for scattering can be detected. The amplitudes of the diffracted waves around the core (PKP_{bdf}) that arrive in the precursor window ahead of PKP also vary strongly. We try to find possible structures that could be responsible for the observed PKP precursors and amplitude variation of both, precursors and PKP_{bdf} waves. From our dataset, we believe that scattering in the lower mantle (i.e. precursors to PKP_{df}) is widely spread and cases of no evidence for scattering are an exception.