

Center for Wave Phenomena

TUTORIAL BY Kees Wapenaar, PhD

Green's theorem in seismic imaging across the scales

Dr. Kees Wapenaar, from the Delft University of Technology, will present this two lecture tutorial. The first session will cover a variety of imaging methods in a systematic way, using a specific form of Green's theorem (the homogeneous Green's function representation) as the common starting point. Classical approaches and recent developments that fully account for multiple scattering, based on the Marchenko method will be discussed. He will illustrate the theory with examples and discuss applications in reflection imaging and in monitoring and forecasting of responses to induced seismic sources.

Based on feedback from the first session, the second session will cover a selection of specific issues in more detail. Potential subjects to be discussed are: Marchenko primary estimation with projected focusing functions, extension for elastodynamic wave fields, extension for non-reciprocal media and metamaterials, modification for irregularly sampled data, efficient plane-wave Marchenko imaging, integration with coda-wave interferometry, integration with FWI, etc.

Time: 1:00-5:00 p.m.
Dates: Friday, February 28
& Friday, March 6
Location: Brown Hall 125



Kees Wapenaar received a master's degree in Applied Physics in 1981 and a PhD degree in Applied Sciences in 1986, both at Delft University of Technology. He is chair of the Applied Geophysics group in Delft since 2001. From 2007 to 2009 he was the editor of Geophysics. Together with Roel Snieder he introduced the Marchenko method in the geophysics domain in 2011. In 2017 he received a grant from the European Research Council to extend his research on the Marchenko method. He enjoys listening to jazz music.