



Regional surface wave propagation and seismic moment tensor inversion

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Inversion of long period surface waves has shown to be a practical, efficient, stable and reliable tool for calculation of seismic moment tensors for intermediate magnitude events. For the past 7 years, we have applied a modification of the Harvard CMT scheme – primarily based on inversion of intermediate and long period, fundamental mode, Rayleigh and Love waves recorded at regional distance, and propagated by means of laterally-varying phase velocity maps – to the Euro-Mediterranean region. Our effort so far produced a catalog of almost 500 solutions, highly compatible with global Harvard-CMT solutions. A reliable propagation model for surface waves is essential. High accuracy and definition is needed when we target smaller-magnitude events, that are characterized by shorter periods, more strongly affected by smaller scale upper mantle and crustal structure. We present results of tests showing current limitations and possible perspectives for improvement of seismic moment tensor determination in the European and Mediterranean region.