



HiRe: a High Resolution seismological project to study the crustal structure variations underneath Sierra Nevada Mountains and the surrounding areas, Betic range, Southern Spain.

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The Sierra Nevada Mountains in Southern Spain is one of the prominent features in the Western Mediterranean tectonic region. This mountain range with high topography (~ 3400 m) is located in the Central Betic Cordillera surrounded by Neogene-Quaternary sedimentary basins. We deployed 40 seismic broadband stations during one year in a North-South profile, to collect teleseismic events and perform a high-resolution P-to-S and S-to-P receiver function analysis. The spacing between stations, around 2km, allows mapping with high accuracy the variations of the crustal structure and the mantles discontinuities from the coast, through the mountain range to the near basin and test the hypothesis about the lack of crustal root underneath Sierra Nevada Mountains.