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CROSS CORRELATION FOR REAL-TIME DATA CONTROL, DATA REDUCTION, AND SOLUTION CONVERGENCE APPLIED TO REGIONAL MOMENT-TENSOR INVERSIONS.

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Timely seismic information taking advantage of the readily available regional seismic data is becoming increasingly achievable and relevant. Rapid and reliable solutions of many seismically derived products can nowadays be completed thanks to low latency and dependable regional data transmission, coupled with increased computing capabilities at local networks. Seismic deliverables such as regional moment-tensor solutions are now more than ever achievable and valuable for hazard mitigation entities. However, high-quality regional moment-tensor solutions rely on well-distributed data, which is not usually the case in coastal areas close to offshore seismic sources. Due to geographical constraints, these regions suffer from significant instrumental and data azimuthal gaps, a feature that cannot be solely alleviated by denser onshore instrumentation. This characteristic often has a negative impact on the confidence of results and the latency of rapid moment-tensor solutions at regional scales. As part of the adaptation of regional moment-tensor inversion of earthquakes offshore southwest of Iberia using the KIWI moment-tensor inversion tools, we examine the use of cross-correlation between neighbor stations as an automated tool for data reduction, quality control and as an advantageous tool for faster converging moment-tensor inversion solutions. We examine intermediate size earthquakes and use cross-correlations to produce an automated first-order data quality assessment aiming at avoiding problematic stations and reducing redundant information. Additionally, we use synthetic distributions of cross-correlations to obtain guidelines and benchmarks for the classification of data, thus benefitting subsequent regional moment-tensor calculations. This approach aims to help in our assessment of the impact of this method on the convergence and reliability of solutions.We apply the developed method to earthquakes offshore Southwest Europe, Chile and the Pacific Northwest. For these areas, we review the different outcomes of the moment-tensor inversions and assess the possible benefits in reliability and fast result convergence.

PALAVRAS CHAVE: *REAL-TIME SEISMOLOGY, MOMENT-TENSOR INVERSION. EARTHQUAKE EARLY WARNING*.