# The Self-Organizing Seismic Early Warning Information Network: Network Software

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A Self-Organizing Seismic Early Warning Information Network (SOSEWIN) is being developed as part of the SAFER (Seismic eArly warning For EuRope) and EDIM (Earthquake Disaster Information systems for the Marmara Sea region, Turkey) projects. Although single stations, made up of low-cost components, within the network have a lower accuracy than usual seismic stations, the high number of densely arranged sensor nodes (SN) offers new possibilities for decentralized high-resolution data acquisition.

In contrast to existing early warning systems, which are planned and centralized, we propose the use of a self-organizing ad-hoc wireless mesh network to overcome the problems of planning such a large network and administrating thousands of SNs. The advantages of such a network include: robustness, independence of infrastructure, spontaneous extensibility as needed, and a self-healing character in the event of failing SNs. However, these networks still pose a great research challenge, particularly regarding a routing-strategy to accomplish scalability requirements and time constraints.

In our presentation, we explain the idea and motivation behind the use of self-organizing mesh networks and show the advantages and problems in handling these, in general and specifically with respect to earthquake early warning. We introduce the hardware which we use within the context of the SAFER and EDIM projects as

well as the current version of network software. Furthermore, we present first results and future ideas for time critical alarm distribution and scalable data retrieval after an earthquake.