

## **Real-time synergy between seismological institutions to confirm and locate earthquakes: from EMSC's flashsourced detections to the exploitation of GFZ's network of seismic networks thanks to HMB messaging service**

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One current challenge of EMSC is to modernize data exchange with its members. The goal is to have a faster and always more robust communication tools. Emails exchange will be progressively removed in favor of new technologies such as bus messaging services. The European project EPOS provides the framework to consider this challenge. We test here the possibility of implementing the latest developments of the Geofon team regarding the httpmgsbus messaging protocol (HMB). In particular, we show how the coupling of this new technology to those already operational at EMSC offers new scientific perspectives. The traffic activity of EMSC website is continuously monitored. Flashsourced detections are automatically pushed to RabbitMQ messaging service as Flinn-Engdahl region and occurrence time. These two parameters are used as input into the HMB secondary real-time messaging service. Httpmgsbus allows user to query P-phases from a global set of seismic stations. If they exist, P-phases confirmed that a seismic event occurs. Then, if a minimum of three phases are reached, a Bayesian approach is launched to locate the event (preliminary solution). This procedure is refined as long as new phases are added (which leads to increase the accuracy of the location). The process is stopped when the first seismological agency solution is published on EMSC website. Because the propagation of the information on the internet network is faster than the propagation of the seismic waves, this approach leads to compare both solutions: the earliest one and that obtained from geophysical conventional procedures. This development illustrates also the potential of the synergies between European seismological institutions thanks to a European project like EPOS which make it feasible and should be amplified in a next future.