Assessing Effectiveness of the Tsunami Alert Messages Issued by NEAMTWS-TSPs: a case study from May 2nd, 2020 South Crete Earthquake Tsunami alert for Egypt

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A tsunami induced by a shallow offshore earthquake of magnitude Mw=6.7 occurred south of the island of Crete (Greece) on May 2nd, 2020. The initial tsunami alert message (TAMs) received by the Egyptian National Tsunami Warning Focal Point for Egypt (i.e. Egyptian National Research Institute of Astronomy and Geophysics-NRIAG) was issued by the Geodynamic Institute of the National Observatory of Athens (NOA-HLNTWC), and was based on preliminary, rather inaccurate hypocenter and magnitude estimates. About 36 minutes after the earthquake, a follow-up message with an increased tsunami warning level was issued; the updated warning was motivated by a significant revision of earthquake source parameters estimates. The later message, however, was issued without taking into account the available observations from sea-level data.

In this study we investigate the effectiveness and usefulness of the TAM messages received by NRIAG for the coastal areas of Egypt (including the issue time and the source parameters on which the messages are based), by cross-checking them against observed and modelled seismological and sea level data. Based on results from the critical review of the tsunami warning messages, disseminated by NOA-HLNTWC and other TSPs in the Eastern Mediterranean Sea and received by NRIAG (which is a TWFP for Egypt), a comprehensive revision of the tsunami early warning system tools and procedures seems urgently needed in the region. The active involvement of countries along the southern coast of the Mediterranean turns out to be crucial, as the analysis shows that tsunami warning can only be efficient with international cooperation on data (seismic and sea level) and procedures.