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Earthquake nowcasting: Retrospective testing in Greece 2019 - 2021

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Earthquake nowcasting [1] (EN) is a modern method to estimate seismic risk by evaluating the progress of the earthquake cycle in fault systems [2]. EN employs natural time [3], which uniquely estimates seismic risk by means of the earthquake potential score (EPS) [1,4] and has found many useful applications both regionally and globally [1, 2, 4-10]. Among these applications, here we focus on those in Greece since 2019 [2], by using the earthquake catalogue of the Institute of Geodynamics of the National Observatory of Athens[11–13] (NOA) for the estimation of the EPS in various locations: For example, the ML(NOA)=6.0 off-shore Southern Crete earthquake on 2 May 2020, the ML(NOA)=6.7 Samos earthquake on 30 October 2020, the ML(NOA)=6.0 Tyrnavos earthquake on 3 March 2021, the ML(NOA)=5.8 Arkalohorion Crete earthquake on 27 September 2021, the ML(NOA)=6.3 Sitia Crete earthquake on 12 October 2021. The results are promising and reveal that earthquake nowcast scores provide useful information on impending seismicity.

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