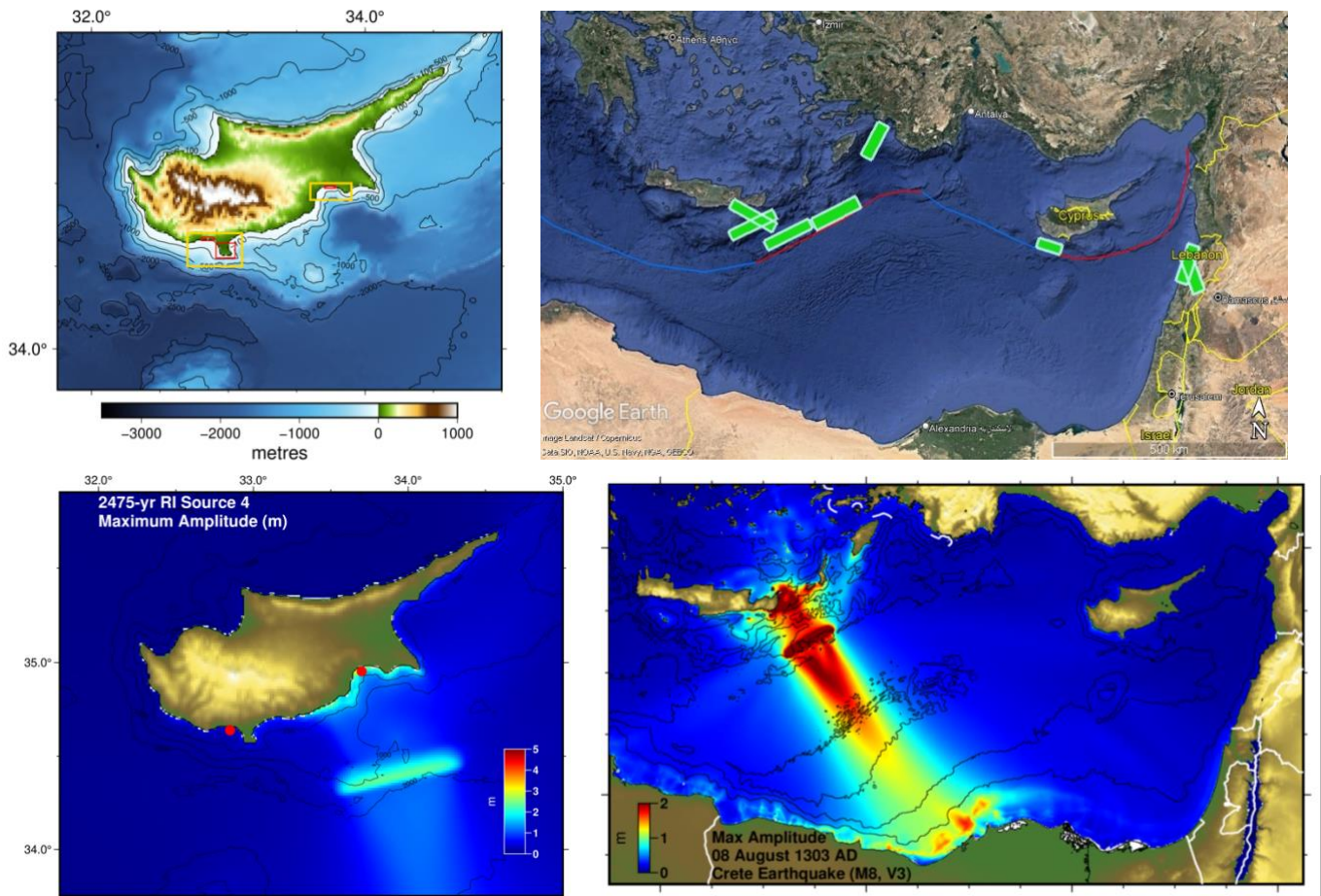


# TSUNAMI HAZARDS FOR BRITISH SOVEREIGN MILITARY BASES IN CYPRUS



## CYPRUS



(clockwise from top left) The bathymetry of Cyprus. Locations of tsunami sources for historical scenarios considered in the study. Tsunami propagation across the Mediterranean for the 1303 Crete earthquake. Near shore tsunami amplitudes for a hypothetical 2475-year RI event on the Cyprus Arc.

### PROJECT INFORMATION:

**Location:** Cyprus, Mediterranean Sea  
**Client:** Arup Consultants, UK Ministry of Defence  
**Project Date:** 2023

### SCOPE OF WORK:

- Review of historical tsunami events
- Tsunami source characterization
- High resolution numerical modelling of tsunami inundation and currents

### PROJECT DESCRIPTION:

We conducted a tsunami hazard assessment for the British Sovereign Military bases on the island of Cyprus. While there are historical reports of tsunamis affecting Cyprus in historical times, most have been for small to moderate events with no historical accounts of extreme tsunami related destruction. Nevertheless, the Mediterranean region is geologically active and damaging tsunami from a variety of source mechanisms have occurred in nearby areas. This study only considered tsunami hazards from tectonically (earthquake) generated sources and did not consider tsunami generated by submarine landslides or volcanic activity (explosions, flank or caldera collapse, pyroclastic density currents etc.). The source models used for tsunami generation were based on historical events and previous modelling studies. In addition, we derived a suite of tsunami sources based on a probabilistic seismic hazard model conducted by Arup. The results suggest that in general, the greatest tsunami hazard for Cyprus is from near source events along the Cyprus Arc. Such an event occurred in 1222 AD and is one of Cyprus' most well documented tsunami events. Other hazardous source regions include the coast of Lebanon, however, since the faults in this area are mostly on land, it is unclear if tectonic events from this region are able to produce tsunami directly or whether a secondary source such as a submarine landslide is necessary. While tsunami have been generated along the Hellenic Arc in the past (i.e., 1303 AD), they have not been responsible for damaging tsunami in Cyprus. This is due primarily to the geometry of the Hellenic Arc which orients the sources such that the bulk of the tsunami energy is radiated towards the southeast.