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Heatwave-related monthly mean mortality and air quality in the Mediterranean since the 1960s

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A statistical analysis is presented relating the variance explained in premature mortality at Mediterranean countries with summer month mean air temperatures and monthly mean ozone anomalies in the Mediterranean. During a period exceeding 50 years in the past there is evidence that significant heatwaves can provide additional variance to premature mortality in the presence of high ozone episodes. Not only climatological monthly mean correlations, but also correlations obtained from daily air temperature and ozone values show the importance in the day-to-day increase in premature mortality in the Mediterranean over Greece during a period exceeding 2 decades. Control runs with CAMS (Copernicus Atmospheric Monitoring Services) model estimates show that the prediction of ozone increases associated with the evolution of a heatwave can provide a tool for warning the population to reduce exposure and the risk of health deterioration during such events. The examples include comparisons with the daily mortality in Paris and Athens during 2 distinct extreme months in July-August 2003 and July-August 2007 in Paris and Athens respectively.