We contribute to the literature on air pollution and health by assessing an additional channel, the effect of El Niño Southern Oscillation (ENSO) on health. Currently, there is a vast literature on the effects of urban pollution on health. Our research, unlike other studies, jointly investigates the effects of pollution, ENSO and local weather on health. On the one hand, ENSO manifests itself as an extreme climatic shock that follows certain seasonality and influences weather. It may also have an impact on floods, droughts and agriculture inducing changes in food markets or a loss of household income, which also affect health. On the other hand, health outcomes are affected by other factors which follow separate mechanisms to the previous ones. Therefore, pollutant impacts on health may be interpreted as separate effects from other shocks mediated through ENSO. Using a database from 1998 to 2015 on air quality and vital statistics for Bogotá, and ENSO information, we find that across several specifications, ENSO affects birth weight and the probability of low birth weight after separating pollution and classical local weather impacts. Interestingly, the effect on birth weight of ENSO are several times larger than the impacts of pollution. Being exposed to ENSO may decrease birth weight up to 1.3%, while an increase of 1 ppb of SO2 or 1 µg/m3 of PM25 might reduce birth weight up to 0.3% or 0.14%, respectively. From a policy point of view, these results are relevant because regardless of the measure of pollution that we employ, the amount of the impacts exhibited by climatic shocks via ENSO events dominate.