



## **Social implications from heatwave events at different levels of global warming**

Jana Sillmann (1) and Simone Russo (2)

(1) Center for International Climate and Environmental Research - Oslo, Oslo, Norway (jana.sillmann@cicero.oslo.no), (2) European Commission, Joint Research Centre, Ispra, Italy

In recent decades, many poor and highly populated regions have experienced extreme heat waves with strong impact on human mortality and agriculture. By applying the Heat Wave Magnitude Index daily (HWMId) to temperature reanalysis data, we quantify the magnitude and the spatial extent of the most extreme heatwave events experienced in the world between 1979 and 2016. Results show that in the recent years many continents experienced hotter, longer and more extended heatwaves than in the last two decades of the 20th century. According to the latest multi-model climate simulations, the globally averaged near surface temperature will increase by 1.5 or 2 degree Celsius by 2030 and 2040, respectively, compared to preindustrial (1861-1880) conditions. We present a method where aspects of hazard, exposure and vulnerability can be combined to illustrate regions under risk of severe impacts due to heatwave events. We show that even at modest warming levels of 2 degrees versus 1.5 degrees Celsius the impacts of heatwaves can differ, particularly across region with high population density and low Gross Domestic Product (GDP).