



Impact of heat waves on labour productivity – case study for industry

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It is beyond any doubt that climate change is the biggest global health threat of the 21st century with enormous consequences for humanity. Rising temperatures have been observed in Europe considerably more than in other areas and have become a growing challenge for our community. Problems are already experienced by millions of Europeans during the summertime and aggravated during heat waves, particularly in occupational settings. In Slovenia we are now experiencing a greater number of heat waves, which start in early June and finish late August, sometimes early September. The purpose of this study was to document the history of heat waves in Slovenia, and to correlate the heat wave-induced heat stress in a manufacturing plant during the summer of 2016 with workers well-being and productivity. We have analysed the heat waves for the period 1961-2015 using various heat indices, such as HWMI_d, at several meteorological stations in Slovenia, representative for the whole country. The results demonstrate that the duration, intensity and frequency of heat waves is increasing significantly. The impact of high temperatures, such as those experienced during the heat waves, on health and productivity of workers, is well documented. However, there is a paucity of data regarding the effect on European workers. The European Union H2020 Heat-Shield project is an inter- and multidisciplinary project, the aim of which is to develop solutions and recommendations for workers in five industrial sectors (agriculture, manufacturing, construction, transportation, tourism). We are currently establishing a protocol for continuous assessment of the meteorological conditions (weather station), and the manner in which they impact on the conditions in a manufacturing plant. Air temperature and relative humidity are measured at critical workplaces (N=30) inside the plant, and below the ceiling. Workers are requested to provide daily ratings of perceived thermal comfort and well-being. In addition, interviews and/or comprehensive questionnaires will be conducted at the beginning and end of summer to determine common knowledge of heat waves, workers' daily habits, awareness of existing regulations and any special actions taken during heat episodes of heat stress. In addition, objective assessments of daily productivity will allow correlation with heat stress experience by the workers during heat waves. The study is on-going, and the final results will be presented at the meeting.

The work was supported, in part, by the European Union Horizon 2020 Research and Innovation action (Project number 668786: Heat Shield). We are indebted to Profs. Lars Nybo, Andreas Flouris and Tord Kjellstrom for their assistance.