

## **D5.2 Intro to the demonstrator: Online access service to help industry and society anticipate threats to workers' health and to disseminate adaptation guidelines**



Marco Morabito<sup>1,2</sup>, Alessandro Messeri<sup>2,3</sup>, Pascal Noti<sup>4</sup>, Ana Casanueva<sup>4,5</sup>, Alfonso Crisci<sup>1</sup>, Sven Kotlarski<sup>4</sup>, Simone Orlandini<sup>2,3</sup>, Cornelia Schwierz<sup>4</sup>, Christoph Spirig<sup>4</sup>, Andreas D. Flouris<sup>6</sup>, Tord Kjellstrom<sup>7</sup>, Nathan Bradley Morris<sup>8</sup>, Lars Nybo<sup>8</sup>

<sup>1</sup> *Institute of BioEconomy—National Research Council, 50019 Florence, Italy*

<sup>2</sup> *Centre of Bioclimatology—University of Florence, 50144 Florence, Italy*

<sup>3</sup> *Department of Agricultural, Food, Environmental and Forestry Sciences and Technologies, University of Florence, 50144 Florence, Italy*

<sup>4</sup> *Federal Office of Meteorology and Climatology, MeteoSwiss, Zurich Airport, 8058 Zurich, Switzerland*

<sup>5</sup> *Meteorology Group, Dept. Applied Mathematics and Computer Sciences, University of Cantabria, 39005 Santander, Spain*

<sup>6</sup> *FAME Laboratory, Department of Exercise Science, University of Thessaly, 42100 Karies, Greece*

<sup>7</sup> *Centre for technology research and innovation (CETRI Ltd), Lemesos, Cyprus*

<sup>8</sup> *Department of Nutrition, Exercise and Sports, University of Copenhagen, 2100 Copenhagen, Denmark*

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## Overview – executive summary

The present report (D5.2 demonstrator of the Heat-Shield Online web-platform) provides a brief overview/introduction – a part A with a short step-by-step user guidance to the English version of “HEAT-SHIELD occupational warning system” (available versions in different languages via <https://heatshield.zonalab.it/>) – and a Part B (peer-reviewed paper) describing the scientific and technical background for the platform.

It is becoming very clear that elevated environmental heat-stress is a current health concern and that the impact is aggravated by climate change. This is a general societal challenge, but particularly a problem for workers as they are exposed for prolonged periods and in occupational settings, the combined physical and environmental stress provokes a significant heat-load on the workers. In addition, future climatological scenarios report that we should expect far worse situations even in the most optimistic projections. Existing heat–health warning systems focus on warning vulnerable groups in order to reduce mortality. However, human health and performance are affected at much lower environmental heat strain levels than those directly associated with higher mortality. In addition, workers are at elevated health risks when exposed to prolonged heat. The part A (demonstrator introduction) and part B (published paper with technical information) provides overview of the features of the multilingual “HEAT-SHIELD occupational warning system” platform (<https://heatshield.zonalab.it/>) operating for Europe and developed within the framework of the HEAT-SHIELD project. The system is based on probabilistic medium-range forecasts calibrated for ~1,800 meteorological stations in Europe and provides the ensemble forecast of the daily maximum heat stress. The platform provides a non-customized output represented by a map showing the weekly maximum probability of exceeding a specific heat stress condition, for each of the four upcoming weeks. In addition, customized output allows the forecast of the personalized local heat-stress-risk based on workers’ physical characteristics, metabolic heat production, clothing, other behavioural characteristics and the work environment (outdoors in the sun or shade), as well as accounting for heat acclimatization. Personal daily heat stress risk levels and behavioural suggestions (hydration and work breaks recommended) to be taken into consideration in the short term (5 days) are provided together with long-term heat risk forecasts (up to 46 days), all which are useful for planning work activities.

On the customized forecast page, the worker will also find a link containing infographics for specific occupational sectors declared by users during the registration process. Currently, this information is available in English (with different language version to be incorporated). The aim of D5.2 part A is to graphically illustrate the main features of the “HEAT-SHIELD platform”, in particular, the steps necessary for the registration procedure of a generic worker on the web-platform are shown. Examples of forecasts are also provided for three different workers in terms of personal/customized characteristics. In part B (below manuscript reference) the technical and scientific basis for the platform is described in details and we refer to that for detailed information on the modelling combining meteorological data and worker’s individual characteristics into personalized warnings and advising.

*Morabito M, Messeri A, Noti P, Casanueva A, Crisci A, Kotlarski S, Orlandini S, Schwierz C, Spirig C, Kingma BRM, Flouris AD, Nybo L., 2019. An Occupational Heat-Health Warning System for Europe: The HEAT-SHIELD Platform. Int J Environ Res Public Health. 2019 Aug 13;16(16). pii: E2890. doi: 10.3390/ijerph16162890*