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Introduction: Prolonged and intensified periods with heat waves in the summer and cold spells in the winter are some of the challenges that apparently will aggravate with future climate change. The impact of such events on human health and productivity can be profound and it is important for individuals and the society to improve the preparedness to face these thermal extremes. Current climate services provide forecasts on environmental factors, but thermal stress also depend on individual physiology and parameters such as acclimatization to heat, physical work intensity and clothing. It is therefore important to develop alert systems that integrate climate service data with human heat balance models to develop personalized thermal stress evaluation tools.

Method: The present talk will provide overview on models and factors of importance for developing such optimized, personalized weather alerts and associated advice system (exemplified with an ongoing ClimAPP project – European Research Area for Climate Service). The project aims to integrate climate service data with individual data (heat acclimatization, physical work intensity, clothing, etc.) as input to human thermal models and via a mobile app provide personalized recommendations for adaptation strategies. Existing and improved human thermal models and heat stress

index (Wet Bulb Globe Temperature, Predicted Heat Strain, Predicted Mean Vote and Required Clothing Insulation) are incorporated to cover a wide range of thermal conditions.

Expected results and conclusions: Combining climate service data and inputs from users may allow for more specific and timely advice to end-users of weather forecasts and combined with feedback following high heat or cold periods, it may allow for improved identification of vulnerable individuals. This may form basis for better coping strategies of importance for facing thermal climate challenges and improving individual thermoregulatory behaviour such as making work-rest scheme, hydration, personal cooling and clothing choice decisions.