

Idea for a new COST activity

Universal Thermal Climate Index UTCI

A Background

The assessment of the thermophysiological effects of the atmospheric environment is one of the key issues in human biometeorology. In the past, more than 100 different procedures of various degrees of sophistication have been developed. However, only in the last 30 years significant progress has been made with the development of comprehensive heat budget models which take all significant heat exchange mechanisms into account. Based on current advances in science and with increased international travel and easy access to information, there is a need for global harmonisation of the development and dissemination of a universally valid climate index. Example is the successful international introduction of the UV-Index with the help of COST-713

B Objectives and benefits

The main objective of the Actions is the availability of an Universal Thermal Climate Index UTCI for human health and well-being related thermophysiological relevant assessments of the atmospheric environment for the human biometeorological core applications, such as daily forecasts, warnings, bioclimate mapping, urban and regional planning, environmental epidemiology, climate impact research.

In principle relative simple though complete heat budget models (i.e. such that can be applied on a routine basis) are available. The reliability of such models must be tested by comparison with the few most advanced multi-node models of human thermoregulation and of existing knowledge in thermophysiology, partially described in ISO- or ASHREA-Standards. This requires simulations of about 10^4 combinations of the meteorological input-parameters air temperature, mean radiant temperature, water vapour pressure, wind velocity, and a range of clothing values (behavioural adaptation). The operational UTCI model finally to be defined must represent the state-of-knowledge, however, must not be more complex as existing two node-models.

G Dissemination

The target audiences are national weather services; environment protection agencies; public health agencies, researchers, working in the field, regional and urban planners; the general public. Besides the standard means as website, reports, workshops, scientific publications the basic intention is to provide a guideline on the "Assessment of the Thermal Environment" that covers also the complete software necessary to run the procedure.

Additional Information

History: Due to the fact that the thermophysiological assessment of the atmospheric environment plays a key role in human biometeorology the Int. Soc. Biomet. decided in 2000 to establish a Commission 6 on the development of UTCI (chair: G. Jendritzky). Meanwhile also WMO became interested and asked to provide a guideline on UTCI in the framework of the activities of an expert team (head: G. Jendritzky) on the development of health related climate indices.

Areas of research: Environment, medicine and healths, meteorology.

The European participants in the discussions on UTCI till now are

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Recent publication

Jendritzky, G., Maarouf, A., Fiala, D., Staiger, H., 2002. An Update on the Development of a Universal Thermal Climate Index. 15th Conf. Biomet. Aerobiol. and 16th ICB02, 27 Oct – 1 Nov 2002, Kansas City, AMS, 129-133

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