

## Effects of Climate Change on Hydraulic Design Methods of Railway Infrastructures

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**Abstract :** The effects of climate change are increasingly evident: increases in temperature (i.e. global warming), greater frequency of extreme weather events, i.e. storms, floods, which often affect transport infrastructures. Large-scale climatological models with long-term horizons (up to 2100) show the possibility of significant increases in precipitation in the future, according to the greenhouse gas emissions scenarios from IPCC. Consequently, the insufficiency of existing hydraulic works (i.e. bridges, culverts, drainage systems) may be more frequent, or those currently being designed may become insufficient in the future. Thus, the hydraulic design methods of transport infrastructure must begin to take into account the influence of climate change. To this purpose, criteria for applying to the hydraulic design of a railway infrastructure some of the approaches currently available for determining design rainfall intensity and/or peak discharge flow on the basis of possible climate change scenarios are defined and proposed in the paper. Some application cases are also described.

**Keywords :** climate change, hydraulic design, precipitation, railway

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