Investigation of flow characteristics of a single and two-adjacent
natural draft dry cooling towers under cross wind condition
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cooling towers has a very complex physics. The fluid flow and temperature distribu-
tion around and in a single and two adjacent (tandem and side by side) dry-cooling
towers under cross wind are studied numerically in the present work. Cross-wind
can significantly reduce cooling efficiency of natural-draft dry-cooling towers, and
the adjacent towers can affect the cooling efficiency of both. In this paper we will
present a complex computational model involving more than 750,000 finite volume
cells under precisely defined boundary condition. Since the flow is turbulent, the
standard k-ε turbulence model is used. The numerical results are used to estimate
the heat transfer between radiators of the tower and air surrounding it. The nu-
merical simulation explained the main reason for decline of the thermo-dynamical
performance of dry-cooling tower under cross wind. In this paper, the incompressible
fluid flow is simulated, and the flow is assumed steady and three-dimensional.