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Research and application of the heat transfer model of Coalfield fire

Dong Weiguo, Cai Zhongyong, and Xu Chunxia
(austdwg@tom.com)

Coalfield fire is a common disaster of human. The status of coalfield fire in the world, the ways and character of coalfield fire heat transfer, were introduced in this paper on the purpose of quantifying the coal burnt in the Coalfield fire, the greenhouse gas released and the exploitation of CDM methodology. The heat of coalfield fire was released into the atmosphere by four ways: radiation, convection, carried by concentrated emission gas and dispersing emission gas. Based on the conservative principle, the heat transfer model of Coalfield fire was established. Based on the energy conservation law and the element conservation principle, the quantity of coal burned and CO2 released of the Coalfield fire can be calculated through the quantity of heat transferred. Applying this model into the practical calculation of the south fire zone of Shuixi Gou Coalfield Fire, Jimsar County, Xinjiang, P.R. China, the result show that the burnt coal of this fire zone is about 41.6 kiloton per year; the quantity of CO2 released is about 106.3 kiloton per year. The establishment of the heat transfer model of Coalfield fire has very important signification for quantifying the evaluation of the influence of coalfield fire to environment and resource, also for exploiting coalfield fire extinguishing CDM methodology.