

Fire whirls experiments for disaster education

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On September 1st in 1923, the Great Kanto Earthquake struck Tokyo metropolitan area and about 90 % of victims were killed by urban mass fires. It is well known that fire whirls appeared after the Earthquake, which resulted in the death of 38,000 evacuated people in Hifukusho-ato area. Prof. Torahiko Terada reported the occurrence of the fire whirls and considered their behaviors. In this presentation, as disaster education, we will demonstrate a desktop experiment on fire whirls using transparent halfpipes. We also show a simple experiment of moisture whirl (its buoyancy is opposite to the fire whirl). Because the moisture is generated by dry ice in humid air, it is much safer than the fire whirl experiment in a class room. The 3D flow structure in the whirl is visualized by a commercial projector, which provides better understanding on the flow in the whirl.

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