Numerical simulation of LNG temperature distribution on an Ambient Air Vaporizer by using open FOAM

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Ambient Air Vaporizer (AAV) is one of technology which is applied to regasify LNG at LNG terminals. Because heat source on AAV is ambient air, AAV is eco-friendly and cost-effective, and shows high operating efficiency as well. However, water-vapor contained in the air is solidified on AAV surface with time, so created frost which hinders heat transfer decreases efficiency.
Heat transfer between air and LNG is a complex form of various mechanisms. The objective of this study is modeling heat transfer and analyze LNG outlet temperature and LNG temperature distribution with operation time.