

2nd International Conference on **Oceanography**

July 21-23, 2014 Hampton Inn Tropicana, Las Vegas, USA

Basic designing of mechanical vapor compressor in multi-effect distillation for fresh water production

Hanshik Chung¹, Hyomin Jeong¹, Kwangsung Lee¹, Sinil Lee¹ and Neo Christofer Chung²

¹Gyeongsang National University, Korea

²Princeton University, USA

This paper describes a numerical model for the simulation of steady viscous and compressible flows for turbo machinery. A mechanical compressor that will be implemented in an MED-MVC desalination system was numerically investigated. This model was analyzed using a Reynolds-Averaged Navier Stokes equation with an SST turbulence model using a frozen rotor interface. Three-dimensional fluid flows were simplified using a periodic model to reduce the computational cost and time required. This study focused on the influence of the operating conditions especially for the operating pressure. The primary goal of this research was to find the optimum operating point of a mechanical vapor compressor for the distillation process. The performance and characteristics of a multistage centrifugal compressor were obtained numerically, and the simulation results showed good agreement, allowing the optimum operating conditions to be obtained.