## Viscosity model for predicting the power output from Ocean Salinity and Temperature Energy Conversion System (OSTEC) Part 1: theoretical formulation

## Abstract

The mixture between two fluids of different salinity has been proven to capable of producing electricity in an ocean salinity energy conversion system known as hydrocratic generator. The system relies on the difference between the salinity of the incoming fresh water and the surrounding sea water in the generator. In this investigation, additional parameter is introduced which is the temperature difference between the two fluids; hence the system is known as Ocean Salinity and Temperature Energy Conversion System (OSTEC). The investigation is divided into two papers. This first paper of Part 1 presents the theoretical formulation by considering the effect of fluid dynamic viscosity known as Viscosity Model and later compares with the conventional formulation which is Density Model. The dynamic viscosity model is used to predict the dynamic of the fluids in the system which in turns gives the analytical formulation of the potential power output that can be harvested.