Sea level rise estimation near the Korean peninsula using CEEMDAN

Young Jin Kim [1] , Harksoo Song [1] , Jongho Kim [1] and Hyuk Kang [1]

1) *Public Problem Research Team, NIMS, Daejeon 34047, Korea*

Lead Author : Young Jin Kim, kimyoungjin06@nims.re.kr

Corresponding Author : Hyuk Kang, kh9395@nims.re.kr

ABSTRACT

The sea level rise due to global warming is an issue at a global level and its causes already have been studied clearly in early times. IPCC creates scenarios for greenhouse gas emissions and predicts global average sea level rise accordingly. Ice Sheet System Model is a numerical model of ice sheet dynamics process caused by the loss of ice sheets in polar regions. In particular, the global sea level rise prediction through the Glacial Isostatic Adjustment provides seawater flows from the ice sheet at a macroscopic scale. However, this global scale modeling has limitations in insufficient mesh size due to computation speed and makes it difficult to predict local differences in sea level rise in microscopic scale and complex terrain. In particular, in the Korean Peninsula, high sea level rise rate differences between tidal stations have been reported in microscopic areas ($\sim$ 100 km). In this study, we study regression and empirical mode decomposition for sea level rise prediction using tidal data near Korean Peninsula. And we also analyze correlation, causality, and volatility to understand the difference between tidal stations.