Project: **1266**

Project title: **Interne Variabilität in Randmeeren**

Principal investigator: **Hans von Storch**

Report period: **2022-05-01 to 2023-04-30**

The internal variability (“noise”) in the marginal sea project aims to analyze the characteristics and intensities of internal variability from hydrodynamic and morphodynamics aspects with ensemble ocean and ocean-morphodynamics coupled simulations. During the last DKRZ allocation period, we focussed on the Bohai and the Yellow Sea and used computer resources to expand the size of ensembles and extend the integration time from 1 year to multi-year (3 and 4 years) with the achievement of gaining more accurate separation of signal and noise. Furthermore, we attempted to expand the sea area from the regional model domain to the global model domain to analyze if the internal variability of the open ocean spread to the regional ocean, the Bohai and Yellow Sea.

During previous DKRZ allocation period (2 years), we have analysed and summarized the model results in two published or accepted papers, “The effect of tides on internal variability in the Bohai and Yellow Sea” (Lin et al., 2022) and “Seeding noise in ensembles of marginal sea simulations – the case of Bo Hai and Yellow See” (Lin et al. 2023a). One article has been submitted (Lin et al. 2023b) to Communication Earth & Environment and one more is in preparation. The requested extension of access to Levante in the following 12 months, is thus based on an encouraging prior phase. LinLin, the main responsible scholar of this project, has applied HIDA project successfully and looking forward to realize the idea by using DKRZ resources. She will do the suggested analysis jointly with Hans von Storch, the principal investigator of the project and Wenyan Zhang, the cooperation supervisor of HIDA project. Thus, the project “internal variability in marginal seas” was extended for next year, and the Levante supercomputer resources will be of significance in the following research.

References

Lin et al., 2022 Lin, L.; von Storch, H.; Guo, D.; Tang, S.; Zheng, P. & Chen, X. The effect of tides on internal variability in the Bohai and Yellow Sea *Dynamics of Atmospheres and Oceans,* **2022***, 98*, 101301

Lin et al., 2023a Lin L., H. von Storch and X Chen. "Seeding noise in ensembles of marginal sea simulations – the case of Bo Hai and Yellow Sea" accepted for publication in Advances in Computer and Communication

Lin et al., 2023b Lin L., H. von Storch and X Chen: "Understanding a numerical experiment guided by the Stochastic Climate Model", Communication Earth & Environment, in review.