

# The necessity of sufficient perturbation rank for adequately conducting ensemble simulations

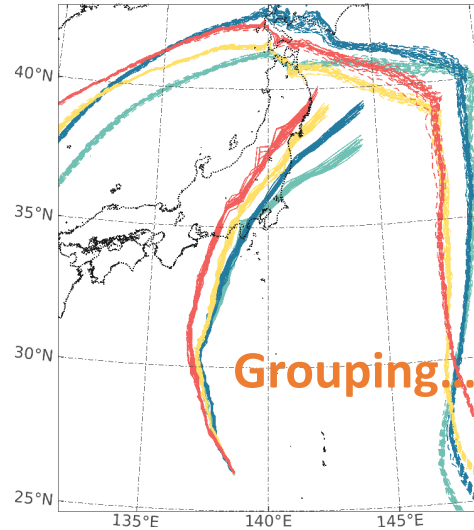
\*Pin-Ying Wu (Postdoctoral fellow of JSPS at MRI, Japan), Takuya Kawabata (MRI, Japan), Le Duc (Univ. of Tokyo, Japan)

10.5

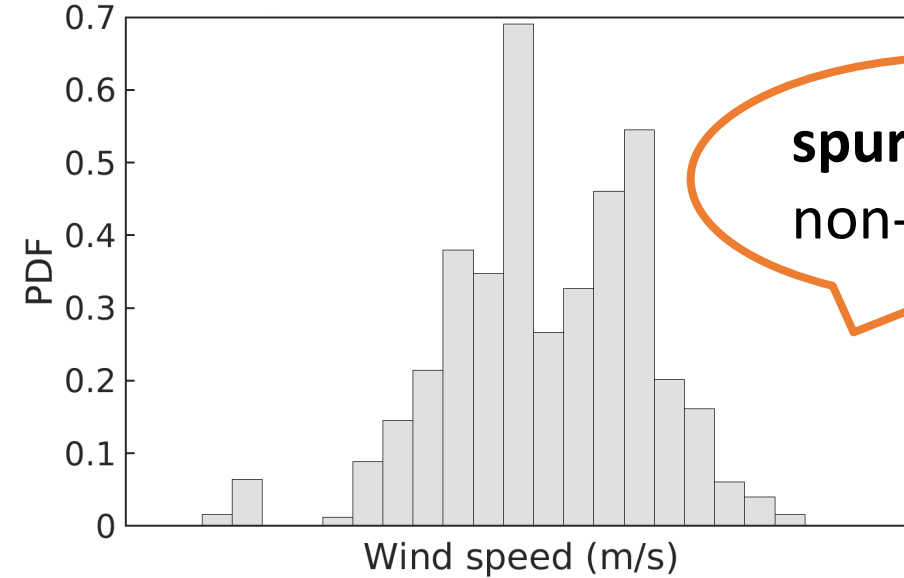
1000 members!

Only **50**  
perturbations of  
lateral boundary  
conditions

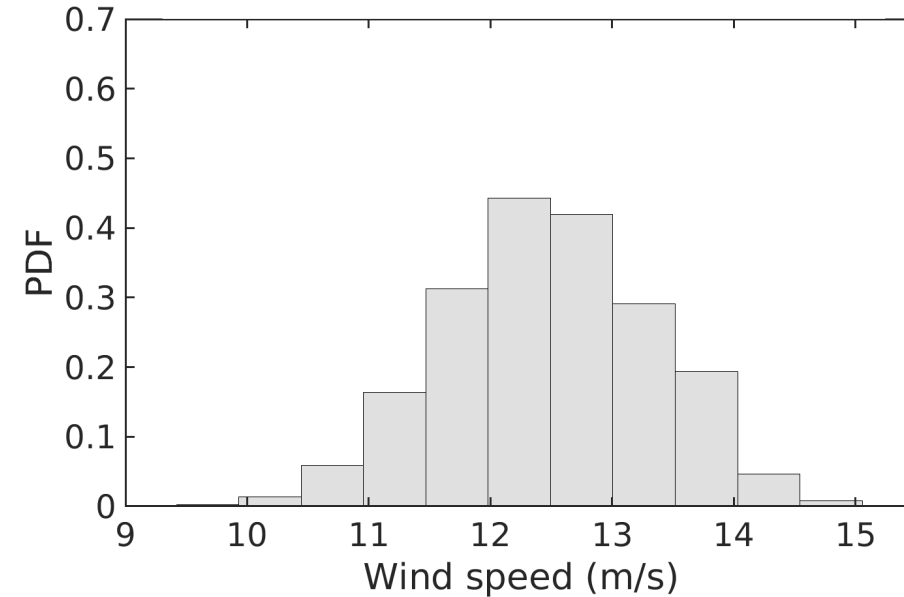
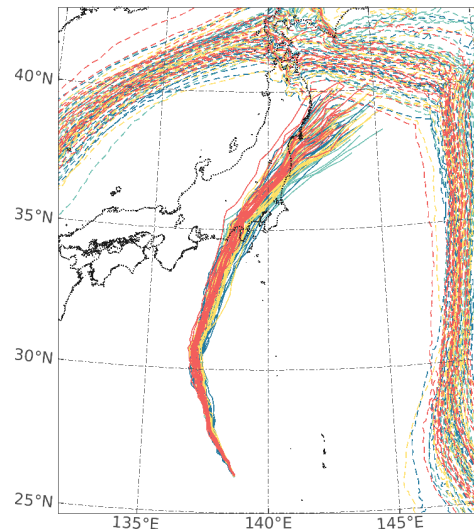
typhoon tracks and SLP



surface wind probability distributions



1000  
perturbations of  
lateral boundary  
conditions



Wu et al.  
(2024; MRW,  
in revision)