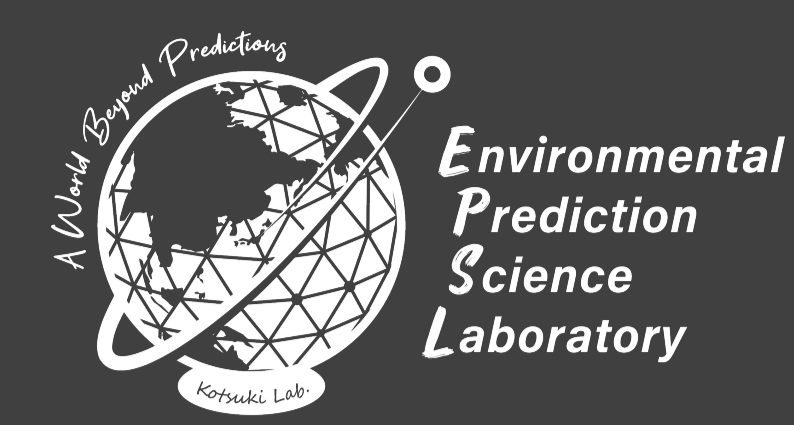
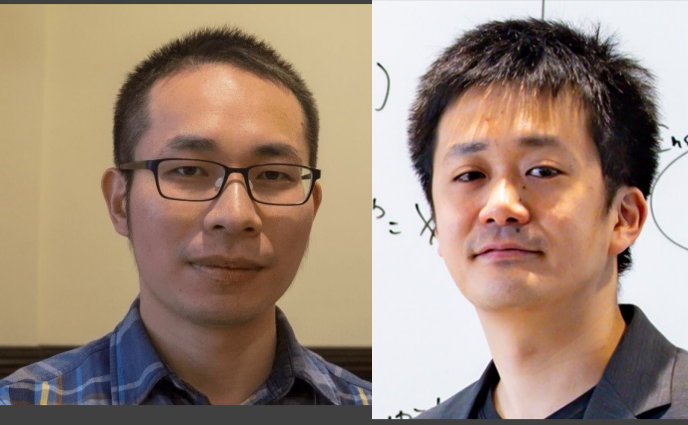


Producing balanced analysis ensemble in local particle filter using a differential resampling method

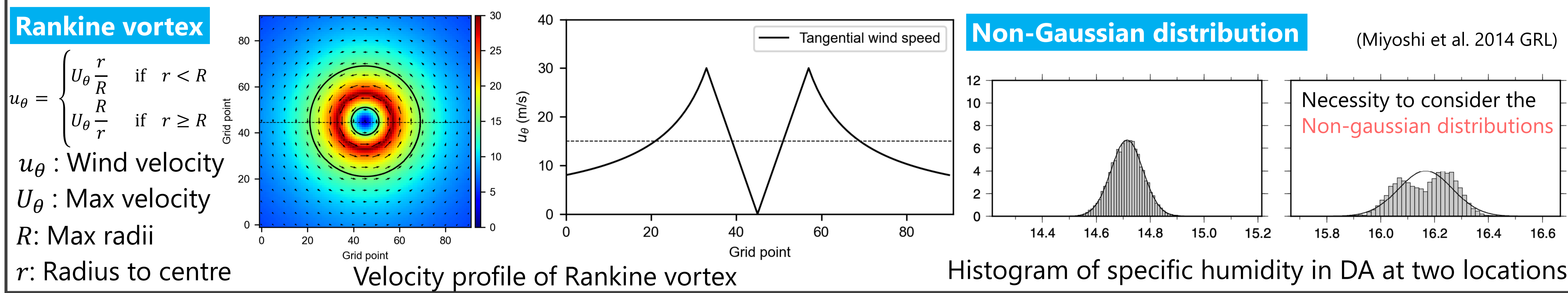
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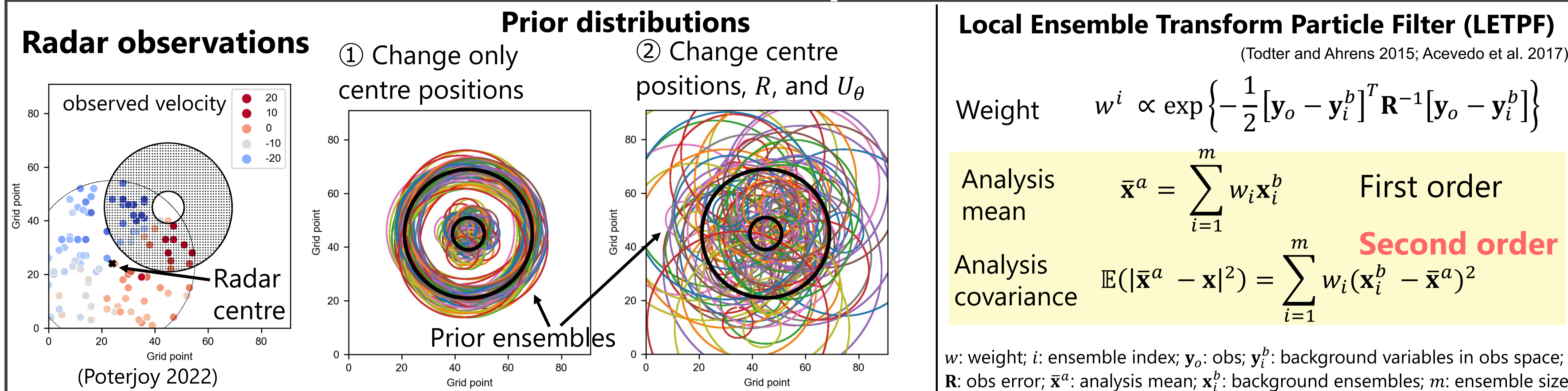


Introduction

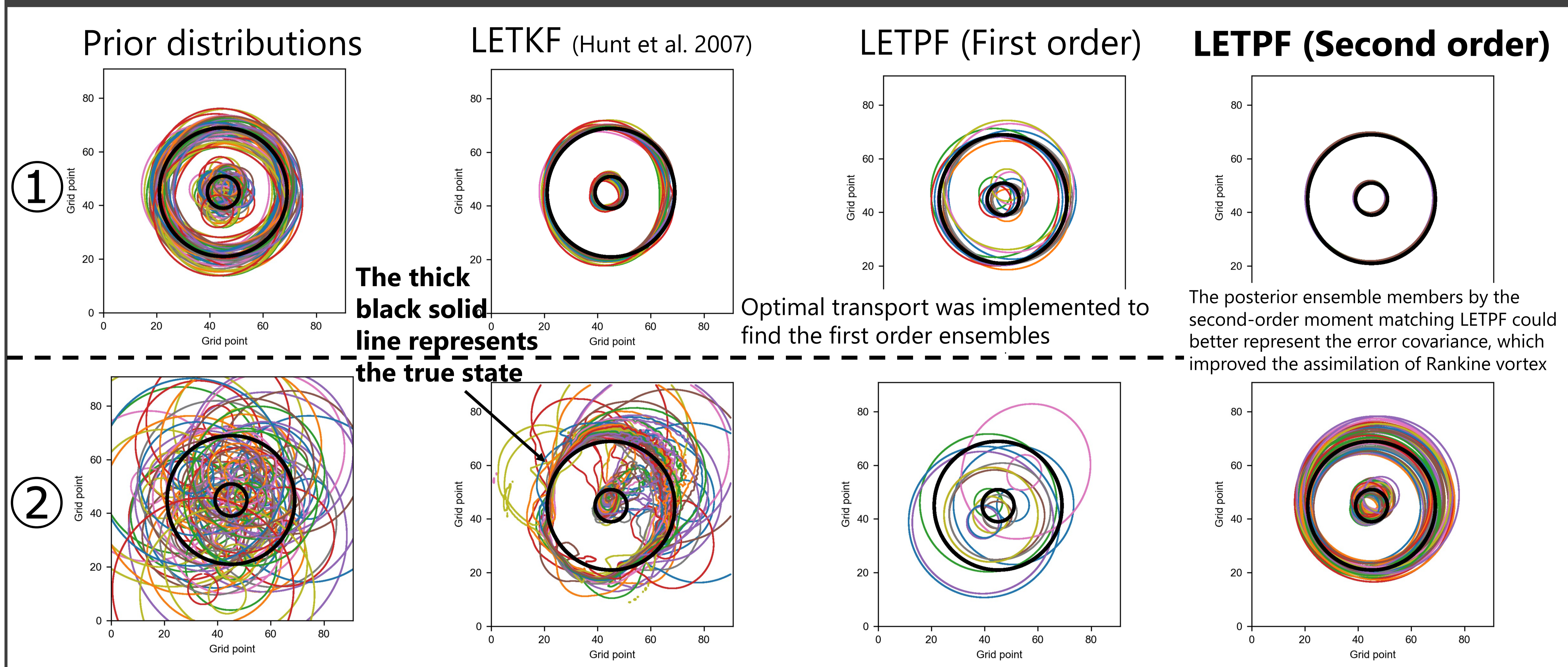
Objective: To improve vortex assimilation by second-order moment matching local ensemble transform particle filter



Method and Experiments



Results



Summary

- **Particle filter**, rather than the Kalman filter, **could reasonably assimilate the non-Gaussian distributions** in geophysical models
- **Second-order moment matching local ensemble transform particle filter showed improved results** than the first-order LETPF in assimilating the Rankine vortex
- The ensemble-based particle filter could be implemented in the high-performance computer for **parallel computing** than serial particle filter. More studies will be conducted in implementing sinkhorn approximation in PF (Reich S. 2013)