# Incorporating stochastic sensitivity as an uncertainty measure for data assimilation and parcel trajectories in geophysical flows

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School of Mathematical Sciences



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# ${\bf Acknowledgements}$

## Dedication

## Abstract

Chapter ?? introduces

xvi Abstract

#### Chapter 1

### Background

#### 1.1 Lagrangian Dynamics

#### 1.2 Probability Theory

(Brémaud 2020)

#### 1.3 Stochastic Differential Equations

(Kallianpur & Sundar 2014)

#### 1.4 Stochastic Sensitivity

Balasuriya (2020) introduces stochastic sensitivity as a new tool for quantifying the impact of Eulerian uncertainty on Lagrangian trajectories.

### **Bibliography**

- Balasuriya, S. (2020), 'Stochastic Sensitivity: A Computable Lagrangian Uncertainty Measure for Unsteady Flows', SIAM Review 62, 781–816.
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- Kallianpur, G. & Sundar, P. (2014), Stochastic Analysis and Diffusion Processes, number 24 in 'Oxford Graduate Texts in Mathematics', first edition edn, Oxford University Press, Oxford, United Kingdom.