CURRICULUM VITÆ

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born on the 5th of April 1973
British and French citizenships

Current position

Senior lecturer in Applied Mathematics, University of St Andrews.

Education

1991	Baccalauréat Série C (Maths & Physics) (Lycée Beaussier, La Seyne sur Mer)
1991/93	Advanced Classes in Mathematics to prepare entrance to the French 'Grandes Ecoles'
	— Mathématiques Supérieures, lycée Dumont d'Urville, Toulon, France.
	— Mathématiques Spéciales P', lycée Dumont d'Urville, Toulon, France.

1996   Engineering degree (M.Eng) in Aeronautics, 'Ecole Nationale Supérieure d'Ingénieurs de Constructions Aéronautiques' (ENSICA, now ISAE), Toulouse, France.

DEA (M.Sc) in Fluid Mechanics, Toulouse, distinction *très bien*.
— Dissertation: *Résolution lagrangienne des équations d'Euler bidimensionnelles par méthode vortex*. Supervisor : Dr L. Joly

2000   Ph.D in Fluid Dynamics, Institut National Polytechnique de Toulouse, distinction *très honorable*. Thesis awarded the *prix Léopold Escande*.
— Dissertation: *Analyse physique par simulations numériques lagrangiennes de couches de mélange à densité variable*. Supervisors : Prof P. Chassaing & Dr L. Joly.

Positions held

1996/97	National service. Centre d'Essais de la Méditérannée, Ile du Levant. *Engineer*.
1 Oct 2000 / 31 Aug 03	University of St Andrews, Vortex Dynamics research group. *Research Fellow* funded by the UK EPSRC.
1 Sep 2003 / 31 July 2018	University of St Andrews, School of Mathematics and Statistics. *Lecturer in Applied Mathematics*.
1 Aug 2018 /	University of St Andrews, School of Mathematics and Statistics. *Senior lecturer in Applied Mathematics*.

Postgraduate/Postdoctoral supervision

Mr Amit Kiran, MSc student "Interactions between two atmospheric Quasi-Geostrophic Vortices" (graduated in 2004, PhD student at the University of Warwick).

Dr Ross Bambrey, PhD student "Strong Vortex interactions in Quasi-Geostrophic Flows" (co-supervisor: D.G. Dritschel), October 2003 – May 2007.

Dr Ersin Ozugurlu, Postdoctoral research fellow "A comprehensive exploration of vortex interactions in geophysical flows.", September 2004 – June 2006, now assistant professor in Turkey.

Dr David Devlin, PhD student "An investigation into the use of balance in operational numerical weather prediction" (co-supervisor: M. Cullen, Met Office) 2005/2011.

Dr William McKiver, Postdoctoral research fellow "The structure, stability and interaction of geophysical vortices " (co-workers: D. Dritschel, R. Scott), January 2010 - January 2011.

Dr Yue-Kin Tsang, Postdoctoral research fellow "The structure, stability and interaction of geophysical vortices " (co-workers: D. Dritschel, R. Scott), September 2011 - July 2013.

External PhD examination

External examiner for the PhD of Alan Hinds (University of London), 2007 and Bin Bin Xue (Univerity of London), 2017.

Internal PhD examination

Internal examiner for the PhD of Jemma Shipton (2010), Louise Smy (2011), Daniel Lucas (2012).

Award

2001	*Léopold Escande* Ph.D thesis prize from the scientific council of the Institut National Polytechnique de Toulouse.

Grants

2004/2006	*A comprehensive exploration of vortex interactions in geophysical flows.* UK Engineering and Physical Sciences Research Council, £96, 683.
2005/2008	*Numerical Study of Atmospheric and Oceanic Models.* UK Engineering and Physical Sciences Research Council, £52, 892 Met Office £16, 950
2009/2012	*The structure, stability and interaction of geophysical vortices.* UK Engineering and Physical Sciences Research Council (PI, with Co-Inv Dr Richard Scott & Prof. David Dritschel), £382, 762

Refereeing: Journal of Fluid Mechanics, Journal of Atmospheric Sciences, Canadian Journal of Physics, Fluid Dynamics Research, Physics of Fluids, Geophysical and Astrophysical Fluid Dynamics, Non Linear Processes in Geophysics, European Journal of Applied Mathematics, Ocean Modelling, Ocean Dynamics, Journal of Engineering Mathematics, Deep-Sea Research Part I, Geophysical Research Letters, Fluids, Chaos, Journal of Geophysical Research - Atmospheres, Revista Mexicana de Física, Journal of Geophysical Research - Oceans, Regular and Chaotic Dynamics. Also reviewer for EPSRC and NSF and ERC Alliance grants.

Reviewing: Mathematical Reviews (AMS).

Memberships:

- 2006 - Elected member of the Edinburgh Mathematical Society.

- 2016/17 - Member of the EPSRC Peer Review Associate College.

- 2017 - Member of the EPSRC College

Publications:

- Reinaud, J.N., Joly, L.: Numerical Simulation of a Variable-Density Mixing Layer. *ESAIM Proc* **7**, 359–368, (1999)

- Reinaud, J.N., Joly, L., Chassaing, P.: The baroclinic secondary instability of the two-dimensional shear layer. *Phys Fluids* **12(10)**, 2489–2505, (2000)

- Reinaud, J.N., Dritschel, D.G.: The merger of vertically offset quasi-geostrophic vortices. *J. Fluid Mech.* **469**, 287–315 (2002)

- Reinaud, J.N., Dritschel, D.G., Koudella, C.R.: The shape of vortices in quasi-geostrophic turbulence. *J. Fluid Mech.* **474**, 175–191 (2003)

- Dritschel, D.G., Reinaud, J.N., McKiver, W.J.: The quasi-geostrophic ellipsoidal model *J. Fluid Mech.* **505**, 201–223 (2004)

- Reinaud, J.N. , Dritschel, D.G.: The critical merger distance between two co-rotating quasi-geostrophic vortices, *J. Fluid Mech.* **522**, 357–381 (2005)

- Dritschel, D.G., Scott, R.K., Reinaud, J.N.: The stability of quasi-heostrophic ellipsoidal vortices *J. Fluid Mech.* **536**, 401–421 (2005)

- Joly, L., Reinaud, J.N.: The merger of two-dimensional radially stratified high-Froude number vortices *J. Fluid Mech.* **582**, 133–151 (2007)

- Bambrey, R.R., Reinaud, J,N,, Dritschel, D.G.: Strong interactions between two co-rotating quasi-geostrophic vortices. *J. Fluid Mech.* **592**, 117–133 (2007)

- Ozugurlu, E. , Reinaud, J.N., Dritschel, D.G.: Interaction between two quasi-geostrophic vortices of unequal potential vorticity. *J. Fluid Mech.* **597**, 395–414 (2008)

- Fontane, J., Joly, L. , Reinaud, J.N.: Fractal Kelvin-Hemlholtz breakups. *Phys. Fluids* **20**, 091109-1 (2008)

- Reinaud, J.N., Carton, X.: The stability and the nonlinear evolution of quasi-geostrophic hetons. *J. Fluid Mech.* **636**, 195-211 (2009)

- Reinaud, J.N., Dritschel, D.G.: Destructive interactions between two counter-rotating quasi-geostoprhic vortices. *J Fluid Mech.* **639**, 109-135 (2009)

- Perrot, X., Reinaud, J.N., Carton, X. and Dritschel, D.G.: Homostrophic vortex interaction under external strain in a coupled QG-SQG model. *Regul. Chaotic Dyn.* **15(1)**, 66–83 (2010)

- Reinaud, J.N.: On the stability of continusoualy stratified quasi-geostrophic hetons *Fluid Dyn. Res.* **47(3)**, 035510 (2015)

- Reinaud, J.N. , Carton, X.: Head on collisions between two quasi-geostoiphic hetons in a continuously stratified fluid. *J. Fluid Mech* **779**, 144-180 (2015)

- Reinaud, J.N., Carton, X.: Existence, stability and formation of baroclinic tripoles in quasi-geostrophic flows *J. Fluid Mech.* **785**, 1-30 (2015)

- Carton, X., Ciani, D. Verron, J., Reinaud, J., Sokolovskiy, M.: Vortex merger in surface quasi-geotrophic flows. *Geophys. Astrophys. Fluid Dyn.* **110(1)**, 1-22 (2016)

- Reinaud, J.N., Carton, X.: The interaction between two oppositely travelling, horizontally offset, antisymmetric quasi-geostrophic hetons. *J. Fluid Mech*, **794**, 409-443 (2016)

- Reinaud, J.N., Dritschel, D.G., Carton, X.: Interaction between a surface quasi-geostrophic buoyancy filament and an internal vortex. *Geophys. Astrophys. Fluid Dyn.* **110(6)**, 461-490 (2016)

- Reinaud, J.N.: Piecewise uniform potential vorticity pancake shielded vortices. *Geophys. Astrophys. Fluid Dyn.* **111(1)**, 32-64 (2017)

- Reinaud, J.N., Sokolovskiy, M.A., Carton, X.: Geostrophic tripolar vortices in a two-layer fluid: Linear stability and nonlinear evolution of equilibria. *Phys. Fluids*, **29(3)**, 036601, (2017)

- Reinaud, J.N., Carton, X., Dritschel, D.G.: Interaction between a quasi-geostrophic buyoancy filament and a heton. *Fluids*, **2**(3), 37, (2017)

- Reinaud, J.N., Dritschel, D.G., X. Carton: Interaction between a surface quasi-geostrophic buoyancy anomaly jet and internal vortices. *Phys. Fluids*, **29(8)**, 086603, (2017)

- Carton, X., Morvan, M., Reinaud, J.N., Sokolovskiy, M.A., L'Hégaret, P. and Vic, C.: Vortex merger near a topographic slope in a homogeneous rotating fluid. *Regul. Chaotic Dyn.*, **22**(5), 455-478 (2017)

- de Marez, C., Carton, X., Morvan, M. and Reinaud, J.N.: The interaction of two vortices near a topographic slope in a stratified ocean. *Fluids*, **2**(4), 57 (2017)

- Reinaud, J.N.: The interaction of two co-rotating quasi-geostrophic vortices in the vicinity of a surface buoyancy filament. *Geophys. Astrophys. Fluid Dyn.* **112**(2), 130-155, (2018)

- Reinaud, J.N., Dritschel, D.G.: The merger of geophysical vortices at finite Rossby and Froude number *J. Fluid Mech.* **848**, 388-410 (2018)

- Reinaud, J.N., Sokolovskiy, M.A. and Carton, X. Hetonic quartets in a two-layer quasi-geostrophic flow: V-states and stability *Phys. Fluids* **30(5)**, 056602 (2018)

- Koshel, K.V., Reinaud, J.N., Riccardi, G., Ryzhov, E.A. Entrapping of a vortex pair interacting with a fixed point vortex revisited. Part I: Point vortices *Phys. Fluids* **30(9)**, 096603 (2018)

- Reinaud, J.N., Koshel, K.V., Ryzhov, E.A. Entrapping of a vortex pair interacting with a fixed point vortex revisited. Part II: Finite size vortices and the effect of deformation *Phys. Fluids* **30(9)**, 096604 (2018)