

# Navid C. Constantinou

Scripps Institution of Oceanography  
University of California San Diego, U.S.A.

✉ [navid@ucsd.edu](mailto:navid@ucsd.edu)  
w [www.navidconstantinou.com](http://www.navidconstantinou.com)  
📀 [navidcy](#) 📀 [navidcy](#)  
📞 0000-0002-8149-4094

Birthdate : 23 February 1984  
Nationality : Cypriot (cy)

## Interests

Atmospheric dynamics, physical oceanography, climate dynamics, geophysical fluid dynamics, nonlinear dynamical systems, fluid dynamics, turbulence.

## Education

- Oct. 2010 – Feb. 2015 **Ph.D. in Physics**  
*National & Kapodistrian University of Athens*  
SUPERVISOR : Petros J. Ioannou  
THESIS : Formation of large-scale structures by turbulence in rotating planets [\[arXiv\]](#) [↓](#)
- Sep. 2008 – Jun. 2010 **M.Sc. in Physics (summa cum laude)**  
Astrophysics, Astronomy and Mechanics  
*National & Kapodistrian University of Athens*  
SUPERVISOR : Petros J. Ioannou  
THESIS : Transient energy growth in Holmboe instabilities [↓](#)
- Sep. 2003 – Jun. 2008 **B.Sc. in Physics (summa cum laude, 9.16/10)**  
*National & Kapodistrian University of Athens*  
Exchange through Socrates-Erasmus program during spring semester 2006 at  
*Rheinische Friedrich-Wilhelms Universität, Bonn, Germany*
- Jul. 2001 – Aug. 2003 **Cyprus National Guard**  
Military service as Second Lieutenant in Armored Forces, Cyprus

## Experience

- Sep. 2015 – present **Postdoctoral Researcher (NOAA Climate & Global Change Postdoctoral Fellow)**  
*Scripps Institution of Oceanography, University of California San Diego*  
SUPERVISOR : William R. Young  
PROJECT : Statistical state dynamics of the Antarctic Circumpolar Current
- Jun. 2015 – Aug. 2015 **Visiting Researcher**  
*Cyprus Oceanography Center, University of Cyprus*

## Publications

### Peer-reviewed journals

Constantinou, N. C. and W. R. Young (2016). Beta-plane turbulence above monoscale topography. *J. Fluid Mech.* (in progress).

Farrell, B. F., P. J. Ioannou, J. Jiménez, N. C. Constantinou, A. Lozano-Duran and M.-A. Nikolaidis (2016). A statistical state dynamics based study of the structure and mechanism of large-scale motions in plane Poiseuille flow. *J. Fluid Mech.* (to appear). [\[arXiv\]](#) [↓](#)

Constantinou, N. C., B. F. Farrell and P. J. Ioannou (2016). Statistical state dynamics of jet-wave coexistence in barotropic beta-plane turbulence. *J. Atmos. Sci.*, 73 (5), 2229-2253. [doi](#) [↓](#)

Bakas, N. A., N. C. Constantinou and P. J. Ioannou (2015). S3T stability of the homogeneous state of barotropic beta-plane turbulence. *J. Atmos. Sci.*, **72** (5), 1689-1712. [doi](#) [↓](#)

Constantinou, N. C., A. Lozano-Duran, M.-A. Nikolaidis, B. F. Farrell, P. J. Ioannou and J. Jiménez (2014). Turbulence in the highly restricted dynamics of a closure at second order: comparison with DNS. *J. Phys.: Conf. Ser.*, **506**, 012004. [doi](#) [↓](#)

Constantinou, N. C., B. F. Farrell and P. J. Ioannou (2014). Emergence and equilibration of jets in beta-plane turbulence: applications of Stochastic Structural Stability Theory. *J. Atmos. Sci.*, **71** (5), 1818-1842. [doi](#) [↓](#)

Constantinou, N. C. and P. J. Ioannou (2011). Optimal excitation of two dimensional Holmboe instabilities. *Phys. Fluids*, **23**, 074102. [doi](#) [↓](#)

## Conference Proceedings

Constantinou, N. C., P. J. Ioannou and N.A. Bakas (2016). Structure and stability of low amplitude jet equilibria in barotropic turbulence. In Karacostas, T., Bais, A. and Nastos, T. P. (eds.) *Perspectives on Atmospheric Sciences*, 369-375, Springer International Publishing. [doi](#) [↓](#)

Constantinou, N. C., P. J. Ioannou and N.A. Bakas (2016). On the dynamics underlying the emergence of coherent structures in barotropic turbulence. In Karacostas, T., Bais, A. and Nastos, T. P. (eds.) *Perspectives on Atmospheric Sciences*, 361-367, Springer International Publishing. [doi](#) [↓](#)

Ioannou, P. J., M.-A. Nikolaidis and N. C. Constantinou: Simplified turbulence in wall-bounded flows. *9th Panhellenic Meeting "Fluid Flow Phenomena" (ROH 2014)*, Athens, 12-13 Dec., 2014 (in greek). [↓](#)

Bakas, N. A., P. J. Ioannou and N. C. Constantinou: Emergence of non-zonal coherent structures in barotropic turbulence. In Kanakidou, M., Mihalopoulos, N. and Nastos, P. (eds.) *Proceedings of the 12th International Conference on Meteorology, Climatology & Atmospheric Physics (COMECAP)*, Heraklion, Crete, 28-31 May, Vol. 1, 107-111, ISBN: 978-960-524-430-9. [↓](#)

Constantinou, N. C. and P. J. Ioannou: Emergence and equilibration of zonal winds in turbulent planetary atmospheres. In Kanakidou, M., Mihalopoulos, N. and Nastos, P. (eds.) *Proceedings of the 12th International Conference on Meteorology, Climatology & Atmospheric Physics (COMECAP)*, Heraklion, Crete, 28-31 May, Vol. 1, 210-214, ISBN: 978-960-524-430-9. [↓](#)

## Conferences

Topographic beta-plane turbulence and form stress. *AGU Fall Meeting*, San Francisco, 12-16 Dec. 2016. (poster)

Structure and mechanism of turbulence under dynamical restriction in plane Poiseuille flow. *69th APS Division of Fluid Dynamics Meeting*, Portland, 20-22 Nov. 2016. (talk)

Statistical state dynamics of jet/wave coexistence in beta-plane turbulence. *APS March Meeting 2016*, Baltimore, 14-18 Mar., 2016. (talk) [↓](#)

Emergence and equilibration of zonal winds in turbulent planetary atmospheres. 12th International Conference on Meteorology, Climatology and Atmospheric Physics, COMECAP 2014 [\[HTML\]](#), Heraklion, Crete, 28-31 May 2014. (poster) [↓](#)

Emergence and equilibration of jets in planetary turbulence. EGU 2013 General Assembly [\[HTML\]](#), Vienna, 8-12 Apr. 2013. (talk) [↓](#)

Emergence and equilibration of jets in planetary turbulence. 8th Panhellenic Meeting "Fluid Flow Phenomena" (ROI 2012) [\[HTML\]](#), Volos, 16-17 November 2012. (talk) [↓](#)

## Invited talks

Topographic beta-plane turbulence and form stress. Geophysical Fluid Dynamics Summer Program, WHOI [\[HTML\]](#), Woods Hole, 19 Jul. 2016.

Topographic beta-plane turbulence and form stress. Mathematics of Turbulence Reunion Conference, IPAM, UCLA [\[HTML\]](#), Lake Arrowhead, 7 Jun. 2016.

Statistical state dynamics of planetary turbulence. CEA FM Seminar [\[HTML\]](#), Whiting School of Engineering, The Johns Hopkins University, Baltimore, 18 Mar. 2016.

A theory for large-scale structure formation in atmospheric/oceanic turbulence: Is jet formation a phase transition phenomenon? CASPO Seminar, Scripps Institution of Oceanography, UC San Diego [\[HTML\]](#), La Jolla, 10 Feb. 2016. [↓](#)

Formation of large-scale structures by turbulence in planetary atmospheres. Physics Department, University of Cyprus [\[HTML\]](#), Nicosia, 5 May 2015. [↓](#)

Emergence of large-scale structure in planetary turbulence as an instability of the homogeneous turbulent state. IPAM, UCLA [\[HTML\]](#), Los Angeles, 21 Oct. 2014. [↓](#)

Emergence and equilibration of zonal winds in turbulent planetary atmospheres. Cyprus Oceanography Center, University of Cyprus [\[HTML\]](#), Nicosia, 7 Jan. 2014. [↓](#)

Verification of the predictions of SSST in nonlinear simulations. 2nd Meeting of “Zonal Jets and Eddies” team, International Space Science Institute (ISSI) [\[HTML\]](#), Bern 2-5 Apr. 2013. [↓](#)

## Grants & Awards

2015-2017	<i>NOAA Climate &amp; Global Change Postdoctoral Fellowship</i>
2009-2014	<i>Alexander S. Onassis Foundation</i> Scholarship for the 2 <sup>nd</sup> year of M.Sc. and for 4 years of Ph.D. studies
2009-2012	<i>A. G. Leventis Foundation</i> Scholarship for the 2 <sup>nd</sup> year of M.Sc. and the first 2 years of Ph.D. studies
2005-2006	<i>Department of Physics, National &amp; Kapodistrian University of Athens</i> Honorary Scholarship for the academic year 2005-06
2003-2005	<i>Department of Physics, National &amp; Kapodistrian University of Athens</i> 1 <sup>st</sup> student for the academic years 2003-04 and 2004-05
2001	<i>International Physics Olympiad, June 2001</i> Participation with the National team of Cyprus

## Workshops

2014	<b>Mathematics of Turbulence</b> Institute of Pure & Applied Mathematics, UCLA September 8 - December 12 2014, Los Angeles, USA <a href="#">[HTML]</a>
2013	<b>Geoturb: Numerical modeling and theoretical challenges in atmosphere and ocean turbulence</b> Ecole normale supérieure de Lyon 2-4 October 2013, Lyon, France. <a href="#">[HTML]</a>
2013	<b>First Multiflow Summer Workshop</b> Universidad Politécnica de Madrid 10 June - 12 July 2013, Madrid, Spain. <a href="#">[HTML]</a>
2011	<b>International Graduate School on Stability, Transition to Turbulence and Flow Control</b> organized by Advanced Instability Methods (AIM) Network 22-27 August 2011, Cambridge, UK. <a href="#">[HTML]</a>
2009	<b>Climate Variability &amp; Climate Change: Estimating and reducing uncertainties</b> 8-17 June 2009, Visegrád, Hungary. <a href="#">[HTML]</a>

## Other scientific activities

Reviewer : Journal of Fluid Mechanics, Physics of Plasma.  
Member : American Geophysical Union, American Physical Society (also member of Topical Group on the Physics of Climate).

## References

**Petros J. Ioannou** (Ph.D. advisor)  
Department of Physics  
National & Kapodistrian University of Athens  
Zografos, 157 84, Greece  
☎ +30 210 7276910  
✉ [pjioannou@phys.uoa.gr](mailto:pjioannou@phys.uoa.gr)  
w <http://users.uoa.gr/~pjioannou>

**Brian F. Farrell**  
Department of Earth and Planetary Sciences  
Harvard University  
Cambridge, MA 02138, USA  
☎ +1 (617) 495-2998  
✉ [farrell@seas.harvard.edu](mailto:farrell@seas.harvard.edu)  
w <http://brian-f-farrell.fas.harvard.edu>

**Theocharis A. Apostolatos**  
Department of Physics  
National & Kapodistrian University of Athens  
Zografos, 157 84, Greece  
☎ +30 210 7276902  
✉ [thapostol@phys.uoa.gr](mailto:thapostol@phys.uoa.gr)  
w <http://users.uoa.gr/~thapostol>

**William R. Young** (postdoc supervisor)  
Scripps Institution of Oceanography  
University of California San Diego  
La Jolla, CA 92037-0213, USA  
☎ +1 (858) 534-1380  
✉ [wryoung@ucsd.edu](mailto:wryoung@ucsd.edu)  
w <http://pordlabs.ucsd.edu/wryoung/>

**Nikolaos A. Bakas**  
Department of Physics  
University of Ioannina  
Ioannina, 452 21, Greece  
☎ +30 26510 08599  
✉ [nbakas@uoi.gr](mailto:nbakas@uoi.gr)