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 Faculty of Exact Sciences/ Department of Geophysics
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 D.O.B: April 26th, 1980
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A. Education

- Tel Aviv University 2004 - 2007
B.S. - Geophysics and Biology.
- Scripps Institution of Oceanography, UCSD 2011
M.S. - Oceanography.
- Scripps Institution of Oceanography, UCSD 2010 - 2015
Ph.D.- Physical Oceanography. Thesis title: "From Forcing to Dissipation: Kinetic and Available Potential Energy Pathways in Idealize Models of Ocean Circulation". **Advisors: Kraig B. Winters and Stefan G. Llewellyn-Smith.**

B. Academic and Professional Experience

- Department of Atmospheric & Oceanic Sciences, UCLA. 2015 - 2018
Postdoc Employee - Studying oil dispersion in the Gulf of Mexico and the interaction between submesoscale currents and internal waves. **Supervisor: James C. McWilliams.**
- Department of Atmospheric & Oceanic Sciences, UCLA. 2018 - 2022
Assistant Researcher in Physical Oceanography.
- Department of Atmospheric & Oceanic Sciences, UCLA. 2022 - present
Associate Researcher in Physical Oceanography.
- Porter School of Environment and Earth Sciences, Tel Aviv University 2018 - present
Assistant Professor in Physical Oceanography.

C. Active Participations in Scientific Meetings

- *Zvuloni, A., Artzy, Y., Stone, L., Kramarsky, E., Barkan, R., Kushmaro, A., Loya, Y.* The 11th International Coral Reef symposium: Spatio-Temporal Transmission Patterns of Black Band Disease in a Coral Community (poster presentation). Fort Lauderdale, Florida, 2008.
- *Barkan, R., ten Brink, U., and Lin, J.* American Geophysical Union, fall meeting: Trans-Atlantic tsunamis: Simulations of the 1755 Lisbon and of hypothetical Puerto Rico trench earthquake tsunamis (poster presentation). San Francisco, California, 2008.
- *ten Brink, U., Barkan, R., Andrews, B.D., and Chaytor, J.D.* American Geophysical Union, fall meeting: Inverse Power Law distribution and failure initiation of subaerial landslides, 2009.
- *Barkan, R., Winters, K.B. and Llewellyn-Smith, S.G.* American Geophysical Union, Ocean Sciences meeting: Rotating Horizontal Convection (poster presentation). Salt Lake City, Utah, 2012.
- *Barkan, R., Winters, K.B. and Llewellyn-Smith, S.G.* International Meeting of Students in Physical Oceanography: Rotating Horizontal Convection: Implications to the overturning circulation, thermocline and deep stratification in the oceans (oral presentation). La Jolla, California, 2012.

- *Barkan, R., Winters, K.B. and Lewellyn-Smith, S.G.* Tel Aviv University Department of Geophysics and Planetary Sciences Invited Seminar: Rotating Horizontal Convection: Implications to the overturning circulation, thermocline and deep stratification in the oceans. Tel Aviv, Israel, 2012.
- *Barkan, R., Winters, K.B. and Lewellyn-Smith, S.G.* Cal Tech Environmental Science and Engineering Invited Seminar: Rotating Horizontal Convection: Implications to the overturning circulation, thermocline and deep stratification in the oceans. Pasadena, California, 2013.
- *Barkan, R., Winters, K.B. and Lewellyn-Smith, S.G.* Ocean Turbulence meeting: Rotating Horizontal Convection: Implications to the overturning circulation, thermocline and deep stratification of the oceans (poster presentation). Santa Fe, New Mexico, 2013.
- *Barkan, R., Winters, K.B. and Lewellyn-Smith, S.G.* Ocean Sciences meeting: Energy Pathways and Loss of Balance in an Idealized Ocean Basin Forced by Wind Stress and Buoyancy Fluxes (poster presentation). Honolulu, Hawaii, 2014.
- *Barkan, R., Winters, K.B. and Lewellyn-Smith, S.G.* UCLA Department of Atmospheric and Oceanic Sciences Invited Seminar: Energy Pathways and Loss of Balance in an Idealized Ocean Basin Forced by Wind Stress and Buoyancy Fluxes. Los Angeles, California, 2014.
- *Barkan, R., Winters, K.B. and Lewellyn-Smith, S.G.* Weizmann Institute of Sciences Department of Earth and Planetary Sciences Invited Seminar: An Energetic Perspective of Ocean Circulation: The Role of the Submesoscales. Rehovot, Israel, 2015.
- *Barkan, R and J. C. McWilliams, and A. F. Shchepetkin, and M. J. Molemaker, and L. Renault, and A. Bracco, and J. Choi.* University of Miami, Rosenstiel School of Marine and Atmospheric Science, CARTHE meeting: Submesoscale Dynamics in the Northern Gulf of Mexico: Regional and Seasonal Characterization, and the Role of River Outflow. (Oral Presentation). Miami, Florida, 2015.
- *Barkan, R and K. B. Winters, and J. C. McWilliams.* Hebrew University Institute of Earth Sciences Invited Seminar: An Energetic Perspective of Ocean Circulation: The Role of Submesoscale Dynamics and Internal Waves. Jerusalem, Israel, 2015.
- *Barkan, R and K. B. Winters, and J. C. McWilliams.* Ocean Sciences meeting: The Enhancement of Eddy Kinetic Energy Dissipation by Internal Waves (poster presentation). New Orleans, Louisiana, 2016.
- *Barkan, R and K. B. Winters, and J. C. McWilliams.* Liège Colloquium meeting: Stimulated Imbalance and the Enhancement of Eddy Kinetic Energy Dissipation by Internal Waves (oral presentation). Liège, Belgium, 2016.
- *Barkan, R and K. B. Winters, and J. C. McWilliams.* Jet Propulsion Laboratory, Oceanography Division Invited Seminar: Stimulated Imbalance and the Enhancement of Eddy Kinetic Energy Dissipation by Internal Waves. Pasadena, California, 2016.
- *Barkan, R and J. C. McWilliams, and A. F. Shchepetkin, and M. J. Molemaker, and K. Srinivasan, and A. Bracco, and J. Choi.* University of Miami, Rosenstiel School of Marine and Atmospheric Science, CARTHE meeting: Submesoscale Dynamics in the Northern Gulf of Mexico: Frontogenetic Rates, Temperature-Salinity Compensation, and Cross Shelf Transport Processes (Oral Presentation). Miami, Florida, 2016.
- *Barkan, R and J. C. McWilliams, and A. F. Shchepetkin, and M. J. Molemaker, and K. Srinivasan, and A. Bracco, and J. Choi.* Gulf of Mexico Oil Spill & Ecosystem Conference: Submesoscale Dynamics in the Northern Gulf of Mexico: Frontogenetic Rates, Temperature-Salinity Compensation, and Cross Shelf Transport Processes (Oral Presentation). New Orleans, Louisiana, 2017

- Barkan, R and J. C. McWilliams, and K. Srinivasan, and M. J. Molemaker. Atmospheric and Oceanic Fluid Dynamics Conference: The Role of Horizontal Divergence in Submesoscale Frontogenesis (Oral Presentation). Portland, Oregon, 2017.
 - Barkan, R and K. B. Winters, and J. C. McWilliams. Atmospheric and Oceanic Fluid Dynamics Conference: Stimulated Imbalance and the Enhancement of Eddy Kinetic Energy Dissipation by Internal Waves (Poster Presentation). Portland, Oregon, 2017.
 - Barkan, R and J. C. McWilliams, and K. Srinivasan, and M. J. Molemaker. University of Miami, Rosenstiel School of Marine and Atmospheric Science, CARTHE meeting - The Role of Horizontal Divergence in Submesoscale Frontogenesis (Oral Presentation). Miami, Florida, 2017.
 - Barkan, R and J. C. McWilliams, and K. Srinivasan, and M. J. Molemaker. Gulf of Mexico Oil Spill & Ecosystem Conference: The Dynamical Role of Horizontal Divergence in Submesoscale Frontogenesis (Oral Presentation). New Orleans, Louisiana, 2018.
 - Barkan, R and K. B. Winters, and J. C. McWilliams. Workshop on internal wave eddy interactions: Stimulated Imbalance and the Enhancement of Eddy Kinetic Energy Dissipation by Internal Waves (Oral Presentation). Portland, Oregon, 2018.
 - Barkan, R and J. Gula, and J. C. McWilliams, and M. J. Molemaker. Ocean Sciences meeting: How much of the ageostrophic energy in the ocean is associated with linear internal waves ? (Oral Presentation). Portland, Oregon, 2018.
 - Barkan, R and J. C. McWilliams, and A. Solodoch, and M. J. Molemaker. University of Miami, Rosenstiel School of Marine and Atmospheric Science, CARTHE meeting: River plume dynamics during SPLASH (Oral Presentation). Miami, Florida, 2018.
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- Barkan, R. University of Ben Gurion in the Negev. GFD-days meeting: Ageostrophic Turbulence and Ageostrophic Frontogenesis (Oral Presentation). Sde Boker, Israel, 2019.
 - Barkan, R. University of Potsdam. Workshop on Conservation Principles, Data, and Uncertainty in Atmosphere-Ocean Modelling: Stimulated Imbalance and the Enhancement of Eddy Kinetic Energy by Internal Waves (Oral Presentation). Potsdam, Germany, 2019.
 - Barkan, R and J. C. McWilliams, and K. Srinivasan, and M. J. Molemaker, and Eric A D’Asaro. 2020 Ocean Sciences meeting: Submesoscale Frontogenesis (Oral Presentation). San Diego, USA, 2020.
 - K. Srinivasan and Barkan, R and J. C. McWilliams, and J. Gula. 2020 Ocean Sciences meeting: Near-Inertial Wave-Eddy Interactions in Realistic High Resolution Simulations of the North Atlantic Subpolar Gyre (Oral Presentation). San Diego, USA, 2020.
 - Siyanbola O. and Buisjman M. C, and Barkan, R, and B. K. Arbic. and J. C. McWilliams. 2020 Ocean Sciences meeting: The Effects of Remotely Generated Internal Tides in Regional Model Simulations of the California Current System (Poster Oresentation). San Diego, USA, 2020.
 - Barkan, R. Hebrew University of Jerusalem invited seminar: What determines the distribution of contaminants in the ocean? Insights from observations, numerical modeling, and theory. Jerusalem, Israel, 2020.
 - J Thomas Farrar, Eric D’Asaro, Ernesto Rodriguez, Andrey Shcherbina, Erin Czech, Paul Matthias, Sommer Nicholas, Frederick Bingham, Amala Mahedevan, Melissa Omand, Luc Rainville, Craig Lee, Dudley Chelton, Roger Samelson, Larry O’Neill, Luc Lenain, Dimitris Menemenlis, Dragana Perkovic-Martin, Pantazis Mouroulis, Michelle Gierach, David Thompson, Alexander Wineteer, Hector Torres, Patrice Klein, Andrew Thompson, James C McWilliams, Jeroen Molemaker, Roy Barkan, Jacob Wenegrat, Cesar Rocha, Gregg Jacobs, Joseph D’Addezio, Sebastien de Halleux,

- Richard Jenkins. IGARSS 2020-2020 IEEE International Geoscience and Remote Sensing Symposium: S-MODE: The Sub-Mesoscale Ocean Dynamics Experiment. HI, USA, 2020.
- Oladeji Siyanbola, Maarten C Buijsman, Roy Barkan, Brian K Arbic. AGU fall meeting: Impacts of Remotely Generated Internal Tides on the Energetics in Regional Simulations of the California Current System. Remote, 2020.
 - Roy Barkan, Kaushik Srinivasan, Luwei Yang, James C McWilliams, Jonathan Gula, Clement Vic. TRR - Eddies and Internal Waves conference: Oceanic cross-scale energy transfers under the influence of internal waves. Hamburg (remote), 2021.
 - Subhajit Kar and Roy Barkan. TRR - Eddies and Internal Waves conference: exchanges between a two-dimensional front and near-inertial waves. Hamburg (remote), 2021.
 - Oladeji Siyanbola, Maarten Buijsman, Roy Barkan, Brian Arbic. EGU: Finding appropriate boundary conditions for high frequency forcing of Regional Simulations-California Current System as a case study. Remote, 2021.
 - Roy Barkan, Kaushik Srinivasan, Luwei Yang, James C. McWilliams, Jonathan Gula, Clement Vic. Ocean Sciences meeting: Mesoscale eddy depletion catalyzed by internal waves. Remote, 2022.
 - Kaushik Srinivasan, Roy Barkan, James C. McWilliams. Ocean Sciences meeting: A forward energy flux at submesoscales driven by frontogenesis. Remote, 2022.
 - Subhajit Kar and Roy Barkan. Ocean Sciences meeting: Energy exchanges between a two-dimensional front and internal wave modes. Remote, 2022.
 - Subhajit Kar and Roy Barkan. EGU: Energy exchanges between a two-dimensional front and internal wave modes. Remote, 2022.
 - Michal Shaham and Roy Barkan. EGU: Eddy-Internal wave decomposition and kinetic energy transfers in high-resolution turbulent flow with near-inertial waves. Remote, 2022.
 - Vicky Verma and Roy Barkan. GFD-days: Submesoscale dynamics in the Eastern Mediterranean: a modeling study. Ben Gurion University, Israel, 2022.
 - Audrey Delpech, Roy Barkan, James C. McWilliams, Lionel Renault. Ocean Mixing Conference. Internal waves dynamics in the California Current System from high-resolution realistic numerical simulations. Mount Holyoke College, 2022.
 - Michal Shaham and Roy Barkan. Atmospheric and Oceanic Fluid Dynamics Conference: Eddy-Internal wave decomposition and kinetic energy transfers in high-resolution turbulent channel flow with near-inertial waves. Breckenridge, Colorado, 2022.
 - Luwei Yang, Roy Barkan, and Kaushik Srinivasan. Atmospheric and Oceanic Fluid Dynamics Conference: The energetics of wind-generated near-inertial waves. Breckenridge, Colorado, 2022.
 - Vicky Verma, Aviv Solodoch, and Roy Barkan. Atmospheric and Oceanic Fluid Dynamics Conference: On the Discovery of Submesoscale Dynamics in the Eastern Mediterranean Sea. Breckenridge, Colorado, 2022.
 - Subhajit Kar and Roy Barkan. Atmospheric and Oceanic Fluid Dynamics Conference: Energy exchanges between a two-dimensional front and internal wave modes. Breckenridge, Colorado, 2022.
 - Roy Barkan. Multiscale Interaction in Geophysical Fluids Oberwolfach Workshop. Eddy-wave interactions and turbulent cascades in oceanic numerical simulations of varying complexity. Oberwolfach, Germany 2022.

- Roy Barkan. The Sixth Xiamen Symposium on Marine Environmental Sciences. The Dual Energy Cascade in Oceanic Turbulence. Xiamen, China, 2023.
- Roy Barkan. Geophysical Flows: From the Field to the Lab. The Eastern Mediterranean Circulation: Boundary Current Dynamics, Spiral Formation, and Cross-shore Transport Processes. Chennai, India, 2024.
- Roy Barkan. Ocean Sciences Meeting. Eddy - Internal Wave Interactions: Stimulated Cascades in Cross-scale Kinetic Energy and Enstrophy Fluxes. New Orleans, USA, 2024.
- Luwei Yang, Roy Barkan, James C. McWilliams, Callum Shakespear, and Angus Gibson. Ocean Sciences Meeting. Oceanic eddies induce a rapid formation of an internal wave continuum. New Orleans, USA, 2024.
- Oladeji Siyanbola, Maarten Buijsman, Yulin Pan, Roy Barkan, Audrey Delpech, Brian Arbic. Ocean Sciences Meeting. Interactions between Internal Wave Modes and the Mesoscale Background Ocean in the California Current System. New Orleans, USA, 2024.
- Kaushik Srinivasan, Roy Barkan, Luwei Yang, Pierre Damien, Jeroen Molemaker, James C. McWilliams. Ocean Sciences meeting. Oceanic Eddy-Internal Wave Energy Fluxes Across Vertical Scales: Contrasting Dynamics in Storm-Forced and Tidally Forced Regions. New Orleans, USA, 2024.
- Maarten Buijsman, Miguel Solano, Jay Shriver, Jorge Magalhaes, Jose da Silva, Christofer Jackson, Brian Arbic, Roy Barkan. Ocean Sciences meeting. Supertidal energy transfers due to interference between semidiurnal mode 1 and 2 internal waves. New Orleans, USA, 2024.

D. Academic and Professional Awards

D.1.1 External Grants

- National Science Foundation - The Interactions Between Internal Waves, Mesoscale Eddies, and Submesoscale Currents in the California Current System, 2019-2022. PI: Roy Barkan, co-PIs Prof. Brian Arbic (University of Michigan), and Prof. Maarten Buijsman (University of South Mississippi). Barkan's portion of the grant: \$370,854.
- Office of Naval Research, USA - Near-Inertial Wave - Mesoscale - Submesoscale Interactions in the North Atlantic Supolar Gyre, 2018-2023. PI: Roy Barkan, total sum \$592,895.
- Israeli Science Foundation, Israel - Interactions Between Internal Waves, Mesoscale Eddies, and Submesoscale Currents in Tropical and Extra Tropical Ocean Basins, 2018-2023. PI: Roy Barkan, total sum 1M NIS.
- BIRD Foundation - U.S. - Israel Center of Excellence in Energy, Engineering and Water Technology, 2021-2025. PIs: Roy Barkan, Yaron Toledo (TAU), Hezi Gildor (HUJI). Barkan's portion of the grant: 426,616 NIS.
- Israel Ministry of Energy, 2022-2024. PIs: Hezi Gildor (HUJI), Roy Barkan, Yaron Toledo (TAU), Yoav Lehahn (Haifa University). Total sum: 577,000 NIS.
- Israeli Science Foundation, Israel - Oceanic Vertical Transport Processes through the Surface Mixed Layer, 2023-2026. PI: Roy Barkan, total sum 1,080,000 NIS.
- Israeli Science Foundation, Israel (together with the National Natural Science Foundation of China) - Cross-scale Energy Transfers in the South China Sea Western Boundary Current. PI: Roy Barkan, total sum 981,300 NIS.

E. Memberships in professional societies.

- American Geophysical Union, 2021 - present.
- European Geophysical Union, 2021 - present.

F.1 Doctoral Students Supervised

2020 - present. Subhajit Kar. Physical Oceanography. In progress.

2022 - present. Michal Shaham. Physical Oceanography. In progress.

F.2 Postdoctorate researchers Supervised

2020 - 2022. Dr. Aviv Solodoch. Physical Oceanography. Now Senior Lecturer at the Hebrew University.

2021 - present. Dr. Vicky Verma. Physical Oceanography. In progress.

2019 - 2022. Dr. Luwei Yang, Physical Oceanography. Now Assistant Researcher at the Australian National University.

2020 - 2022. Dr. Audrey Delpech. Physical Oceanography. Now a Postdoctorate Researcher at the Jet Propulsion Lab.

G. Honors and Awards

- Undergraduate honors scholarship award - Tel Aviv University, Geophysics department, 2005.
- B.S. Geophysics, graduated with honors - Tel Aviv University, Geophysics department, 2007.
- M.S. honors scholarship award - Tel Aviv University, Geophysics department, 2008.

H. Scientific Publications

Articles Published

1. Barkan, R. , ten Brink, U., and Lin, J. 2009. Far field tsunami simulations of the 1755 Lisbon earthquake: Implications for tsunami hazard to the U.S East Coast and the Caribbean. *J. Marine Geology*. **264**, 109-122. Q1, IF 2.364. Citations (Google scholar) - 127.
 2. ten Brink, U., Barkan, R., Andrews, B.D., and Chaytor, J.D. 2009. Size distribution and failure initiation of submarine landslides and subaerial landslides. *Earth and Planetary Science Letters* **287**, 31-42. Q1, IF 4.409. Citations (Google scholar) - 87.
 3. Zvuloni, A., Artzy, Y., Stone, L., Kramarsky, E., Barkan, R., Kushmaro, A., Loya, Y. 2009. Spatio-Temporal transmission patterns of Black-Band Disease in a coral community. *PLoS ONE* **4**, 1-10. Q1, IF 2.806. Citations (Google scholar) - 91.
 4. Barkan, R., and ten Brink, U. 2010. Tsunami simulations of the 1867 Virgin Islands earthquake: Constraints on epicenter location and fault parameters. *Bulletin of Seismological Society of America* . **100**, 995-1009. Citations (Google scholar) - 40.
 5. Winters, K. B. and Barkan, R. 2013. Available potential energy density for Boussinesq fluid flow. *J. Fluid Mech.* **714**, **476-488**. Q1, IF 2.821. Citations (Google scholar) - 42.
 6. Barkan, R., Winters, K.B. and Lewellyn-Smith, S.G. 2013. Rotating Horizontal Convection. *J. Fluid Mech.* **723**, **556-586**. Q1, IF 2.821. Citations (Google scholar) - 45.
 7. Barkan, R., Winters, K.B. and Lewellyn-Smith, S.G. 2015. Energy Cascades and Loss of Balance in a Re-entrant Channel Forced by Wind Stress and Buoyancy Fluxes. *J. Phys. Oceanogr.* **45**, **272-293**. Q1, 3.130. Citations (Google scholar) - 43.
 8. Pratt, L., and R. Barkan, and I. Rypina. 2016. Scalar flux kinematics. *Fluids*. **1.3: 27**. Q1, IF 1.93. Citations (Google scholar) - 12.
 9. Barkan, R., Winters, K.B. and McWilliams, J.C. 2017. Stimulated Imbalance and the Enhancement of Eddy Kinetic Energy Dissipation by Internal Waves. *J. Phys. Oceanogr.* **47**, **181-198**. Q1, IF 3.130. Citations (Google scholar) - 92.
 10. Choi. J., and A. Bracco, and R. Barkan, and J. C. McWilliams. 2017. Submesoscale Dynamics in the Northern Gulf of Mexico. Part III: Lagrangian Implications. *J. Phys. Oceanogr.* **47**, **2361-2376**. Q1, IF 3.130. Citations (Google scholar) - 44.
 11. Barkan, R and J. C. McWilliams, and A. F. Shchepetkin, and M. J. Molemaker, and K. Srinivasan, and A. Bracco, and J. Choi . 2017. Submesoscale Dynamics in the Northern Gulf of Mexico. Part II: Temperature-Salinity Compensation, and Cross Shelf Transport Processes. *J. Phys. Oceanogr.* **47**, **2347-2360**. Q1, IF 3.130. Citations (Google scholar) - 27.
 12. Barkan, R and J. C. McWilliams, and A. F. Shchepetkin, and M. J. Molemaker, and L. Renault, and A. Bracco, and J. Choi . 2017. Submesoscale Dynamics in the Northern Gulf of Mexico. Part I: Regional and Seasonal Characterization, and the Role of River Outflow. *J. Phys. Oceanogr.* **47**, **2325-2346**. Q1, IF 3.130. Citations (Google scholar) - 60.
 13. D'Asaro, Eric A., et al. 2018. Ocean convergence and the dispersion of flotsam. *Proceedings of the National Academy of Sciences*. **201718453**. Q1, IF 9.661. Citations (Google scholar) - 221.
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14. Pearson, Jenna and B. Fox-Kemper, and R. Barkan, and J. Choi, and A. Bracco, and J. C. McWilliams*. 2019. Impacts of convergence on Lagrangian statistics in the Gulf of Mexico. *J. Phys. Oceanogr.* **49**, **675-690**. Q1, IF 3.130. Citations (Google scholar) - 42.

15. Srinivasan, K and J. C. McWilliams*, and M. J. Molemaker, and R. Barkan. 2019. Submesoscale Vortical Wakes in the Lee of Topography. *J. Phys. Oceanogr.* **49**, 1949-1971. Q1, IF 3.130. Citations (Google scholar) - 55.
16. Barkan, R and J. C. McWilliams*, and K. Srinivasan, and M. J. Molemaker. 2019. The Role of Horizontal Divergence in Submesoscale Frontogenesis. *J. Phys. Oceanogr.* **49**, 1593-1618. Q1, IF 3.130. Citations (Google scholar) - 63.
17. Sun D., and Bracco A. and Barkan, R., and Berta, M. and Dauhajre, D and Molemaker M. J., and Choi, J. and Guangpen. L, and Griffa., A. and McWilliams J.C*. . 2020. Diurnal cycling of submesoscale dynamics: Lagrangian implications in drifter observations and model simulations of the northern gulf of mexico. *J. Phys. Oceanogr.* **50**, 1605-1623. Q1, IF 3.130. Citations (Google scholar) - 25.
18. Callies J., and Barkan, R, and Garabato A. N. 2020. Time Scales of Submesoscale Flow Inferred from a Mooring Array. *J. Phys. Oceanogr.* **50**, 1065-1086. Q1, IF 3.130. Citations (Google scholar) - 33.
19. Wang, T., Barkan, R., McWilliams*, J. C., and Molemaker, M. J. (2021). Structure of submesoscale fronts of the Mississippi River plume. *J. Phys. Oceanogr.* **51**, 1113-1131. Q1, IF 3.130. Citations (Google scholar) - 17.
20. Barkan, R., Srinivasan, K., Yang, L., McWilliams*, J. C., Gula, J., and Vic, C. (2021). Oceanic mesoscale eddy depletion catalyzed by internal waves. *Geophys. Res. Letts*, **48(18)**, e2021GL094376. Q1, IF 4.72. Citations (Google scholar) - 30.
21. Garabato A. N, Yu. X, Callies. J., Barkan. R., Polzin K. L. and Frajka-Williams E. E. (2022). Kinetic energy transfers between mesoscale and submesoscale motions in the open ocean's upper layers. *J. Phys. Oceanogr.* **52**, 75-97. Q1, IF 3.130. Citations (Google scholar) - 29.
22. Srinivasan K, Barkan, R., and McWilliams* J. C. (2023). A forward energy cascade at submesoscales driven by frontogenesis. *Journal of Physical Oceanography* **53**, 287-305. Q1, IF 3.130. Citations (Google scholar) - 18.
23. Siyanbola, O. Q., Buijsman M. C., Delpech A., Renault L., Barkan R., Shriver J. F., Arbic B. K., McWilliams* J. C. (2023). Remote internal wave forcing of regional ocean simulations near the U.S. West Coast. *Ocean Modelling.* **181**, 102-154. Q1, IF 3.6. Citations (Google scholar) - 9.
24. Delpech, A., Barkan, R., Renault, L., McWilliams*, J., Siyanbola, O.Q., Buijsman, M.C. and Arbic, B.K., (2023). Wind-current feedback is an energy sink for oceanic internal waves. *Scientific Reports*, **13**, 5915. Q1, IF 4.997. Citations (Google Scholar) - 5.
25. Kar, S. and Barkan R. (2023). Energy exchanges between a two-dimensional front and internal wave modes. *Journal of Physical Oceanography.* **53**, 2537-2557. Q1, IF 3.130. Citations (Google Scholar) - 0.
26. Solodoch, A. and Barkan, R. and Verma, V. and Gildor, H. and Toledo, Y. and Khain, P. and Levi, Y. (2023). Basin Scale to Submesoscale Variability of the East-Mediterranean Sea Upper Circulation. *Journal of Physical Oceanography.* **53**, 2137-2158. Q1, IF 3.130. Citations (Google scholar) - 0.
27. Miguel S. Solano, Maarten C. Buijsman, Jay F. Shriver, Jorge Magalhaes, Jose da Silva, Christopher Jackson, Brian K. Arbic, and Roy Barkan. (2023). Nonlinear internal tides in a realistically forced global ocean simulation. *Journal of Geophysical Research: Oceans.* **128(12)**, e2023JC019913. Q1, IF 3.6. Citations (Google scholar) - 0.

28. Delpech, A., Barkan, R., Srinivasan, K., McWilliams*, J. C., Arbic, B.K., Siyanbola, O.Q., and Buijsman, M.C. (2023) .Eddy - Internal Wave Interactions and their Contribution to Cross-Scale Energy Fluxes: a case study in the California Current. *Journal of Physical Oceanography*. **DOI: <https://doi.org/10.1175/JPO-D-23-0181.1>**. Q1, IF 3.130. Citations (Google scholar) - 0.
29. Yang, L., Barkan, R., Srinivasan, K., McWilliams*, J. C., Shakespear, C. J., and Gibson, A. H. (2023). Oceanic eddies induce a rapid formation of an internal wave continuum. . *Nature Comm. Earth and Environment*. **4(1), 484**. Q1, IF 7.9. Citations (Google scholar) - 0.
30. Barkan, R., Srinivasan, K., and McWilliams*, J. C. (2024). Eddy - Internal Wave Interactions: Stimulated Cascades in Cross-scale Kinetic Energy and Enstrophy Fluxes. *Journal of Physical Oceanography*. **in press.**. Q1, IF 3.130. Citations (Google scholar) - 0.

Articles Under Review

1. Shaham, M., and Barkan, R. (2024). Spectral Flux Decomposition in Turbulent Channel Flow with Near-Inertial Waves. *Journal of Advances in Modeling Earth Systems*.
2. Verma, V., and Barkan, R., and Solodoch, A., and Gildor, H., and Toledo, Y. (2024). The eastern Mediterranean boundary current: seasonality, stability, and spiral formation. *Journal of Physical Oceanography*.
3. Siyanbola, O.Q, Buijsman, M.C., Delpech, A., Barkan, R., Pan Yulin, and Arbic, B.K. (2024). Interactions of Remotely Generated Internal Tides with the U.S. West Coast Continental Margin. *Journal of Geophysical Research: Oceans*.
4. Fadida Y., and Verma, V., and Barkan, R, and Biton Eli., and Solodoch, A., and Lehahn Y. (2024). Submesoscale horizontal stirring enhances seasonal enrichment of low-chlorophyll surface waters. *PNAS*.