



# AMS

American Meteorological Society

## Supplemental Material

*Journal of Physical Oceanography*

DOI:10.1175/JPO-D-19-0253.1

### **Energetic Submesoscale Dynamics in the Ocean Interior**

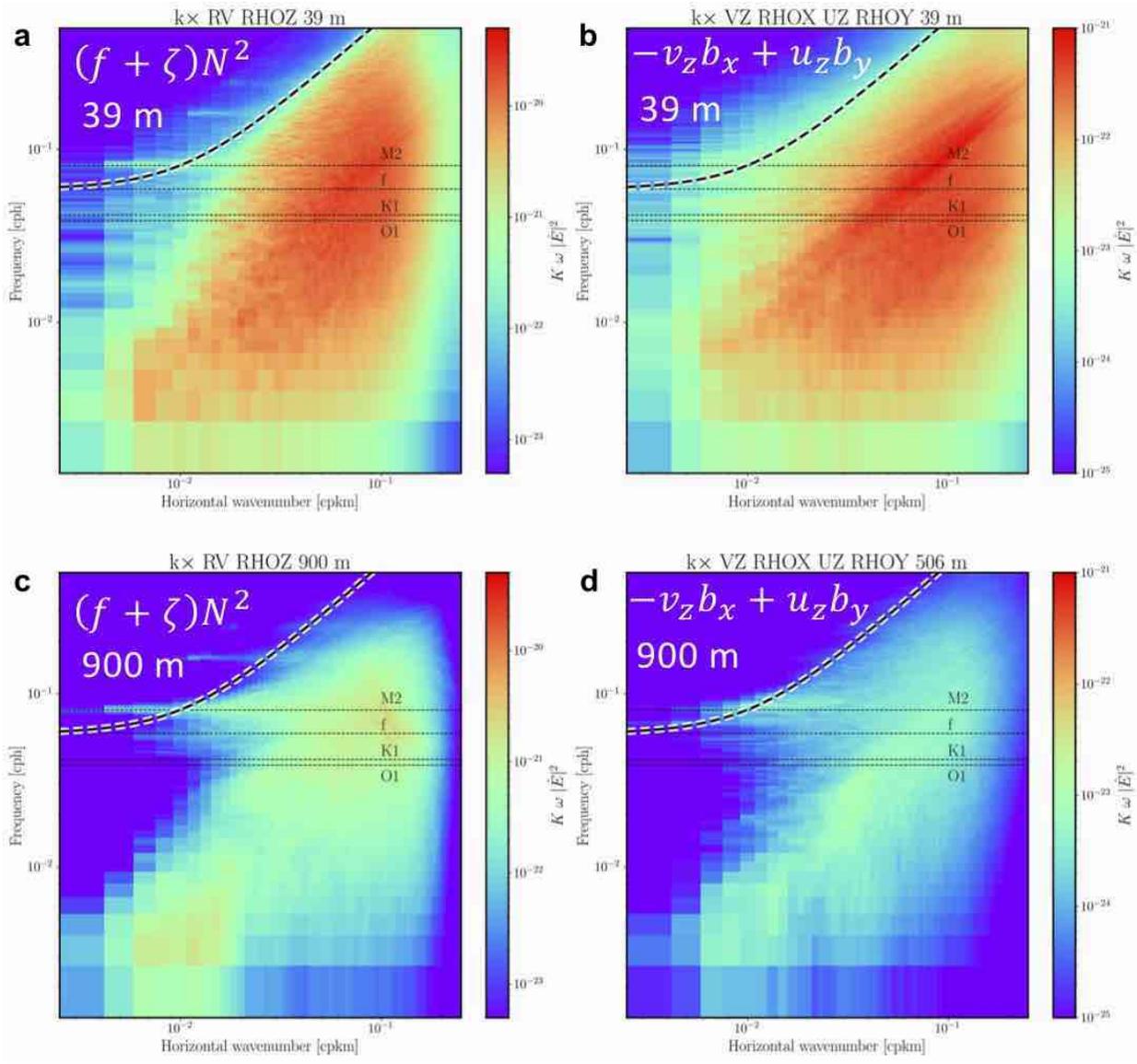
Lia Siegelman

*California Institute of Technology, and Jet Propulsion Laboratory, California Institute of Technology,  
Pasadena, California*

*Corresponding author: Lia Siegelman, lsiegelman@caltech.edu*

[© Copyright 2020 American Meteorological Society](#)

Permission to use figures, tables, and brief excerpts from this work in scientific and educational works is hereby granted provided that the source is acknowledged. Any use of material in this work that is determined to be “fair use” under Section 107 of the U.S. Copyright Act or that satisfies the conditions specified in Section 108 of the U.S. Copyright Act (17 USC §108) does not require the AMS’s permission. Republication, systematic reproduction, posting in electronic form, such as on a website or in a searchable database, or other uses of this material, except as exempted by the above statement, requires written permission or a license from the AMS. All AMS journals and monograph publications are registered with the Copyright Clearance Center (<http://www.copyright.com>). Questions about permission to use materials for which AMS holds the copyright can also be directed to [permissions@ametsoc.org](mailto:permissions@ametsoc.org). Additional details are provided in the AMS Copyright Policy statement, available on the AMS website (<http://www.ametsoc.org/CopyrightInformation>).



770 Fig. S1. Wavenumber-frequency spectra computed from October 15, 2012 to November 15, 2012 at 39 m  
 771 (top panels) and 900 m (bottom panels) of a,c) Ertel PV's first component  $(f + \zeta)N^2$ , b,d) Ertel PV' second  
 772 component  $-v_z b_x + u_z b_y$ . Consistent with the features observed in physical space, the variance of Ertel PV's  
 773 first component is greater than that of Ertel PV' second component by approximately an order of magnitude.  
 774 Note also that the only substantial difference between the w-f spectra of  $(f + \zeta)N^2$  and  $\zeta$  (Figure 5c,g) is the  
 775 larger impact of IGWs on  $(f + \zeta)N^2$  that is enabled by the background stratification.

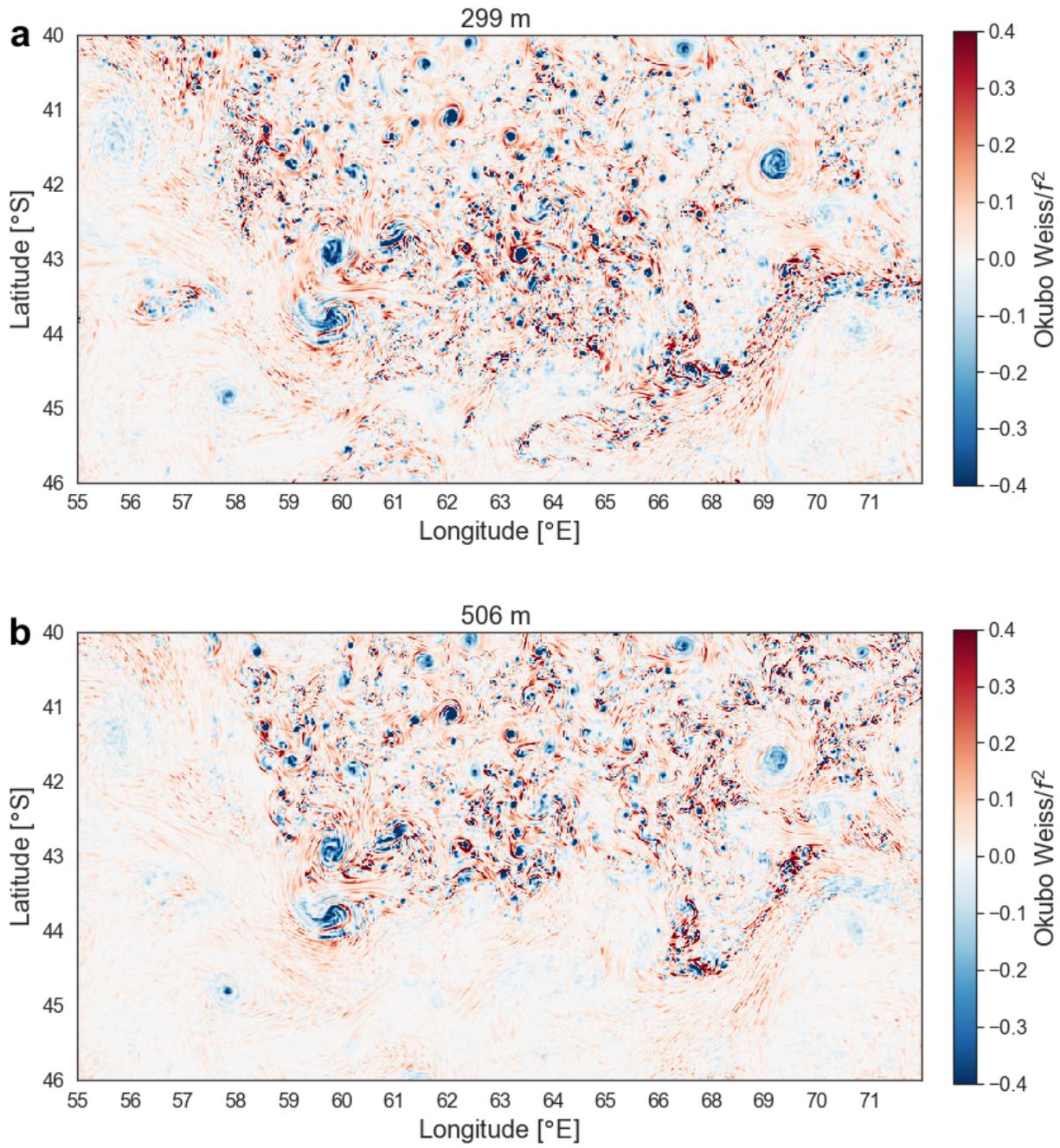


Fig. S2. Maps of the Okubo-Weiss quantity normalized by  $f^2$  at a) 299 m and b) 506 m.