



*JGR: Atmospheres*

Supporting Information for

**Low-Frequency Modes of Vorticity and Divergence in Monsoon Intraseasonal Oscillation**

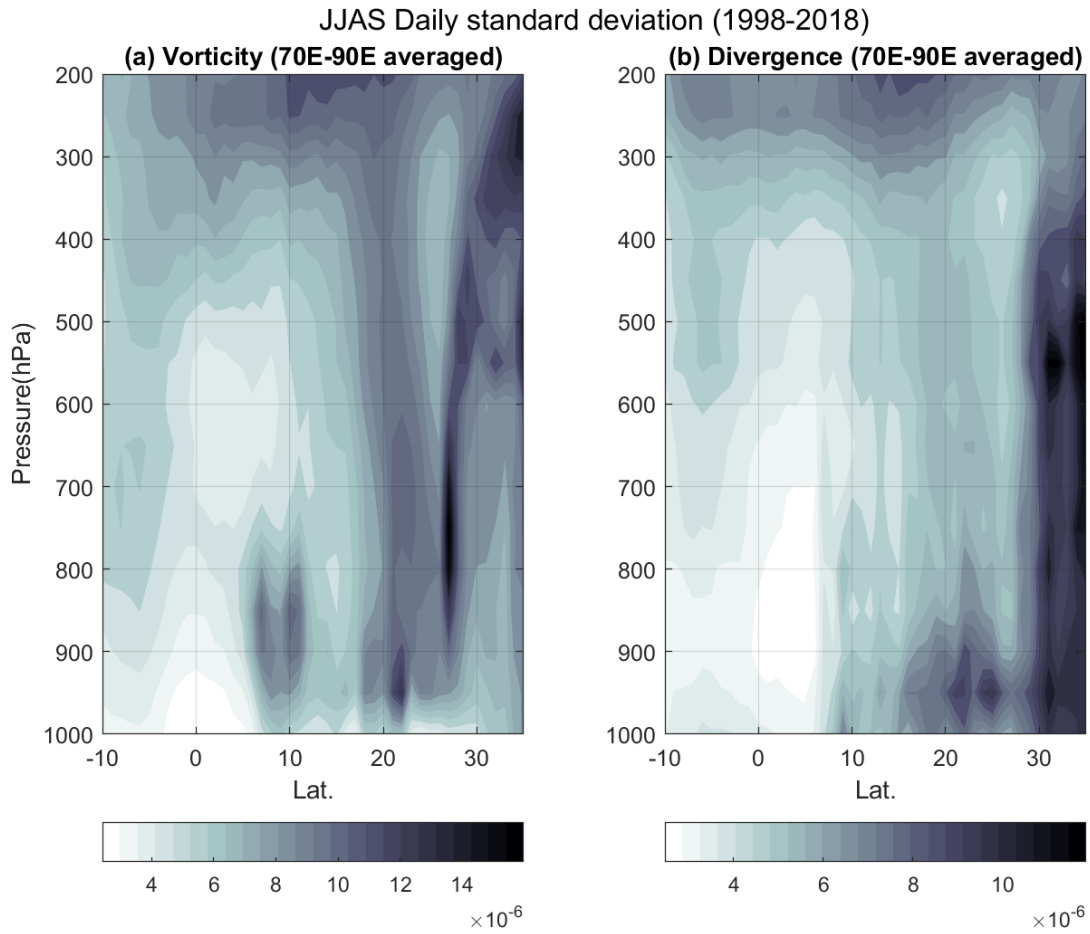
Rajat Masiwal<sup>1</sup>, Ashwin K Seshadri<sup>1,2</sup>

<sup>1</sup> Centre for Atmospheric and Oceanic Sciences, Indian Institute of Science, Bengaluru, India.

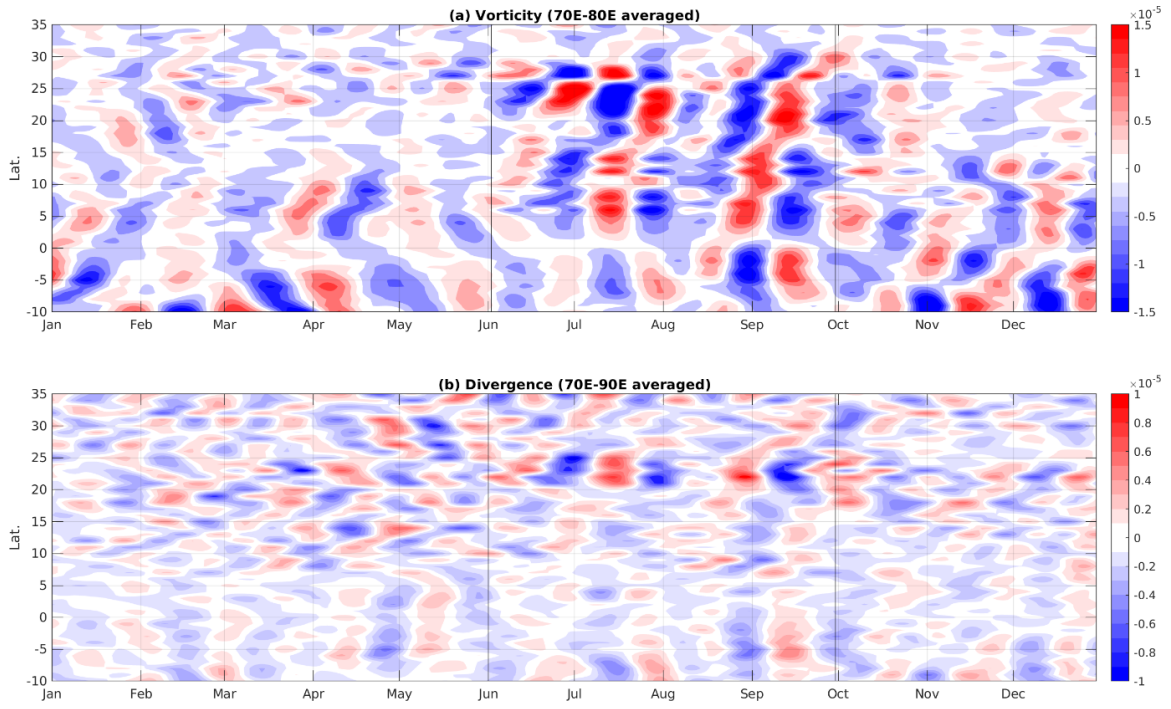
<sup>2</sup> Divecha Centre for Climate Change, Indian Institute of Science, Bengaluru, India.

**Contents of this file**

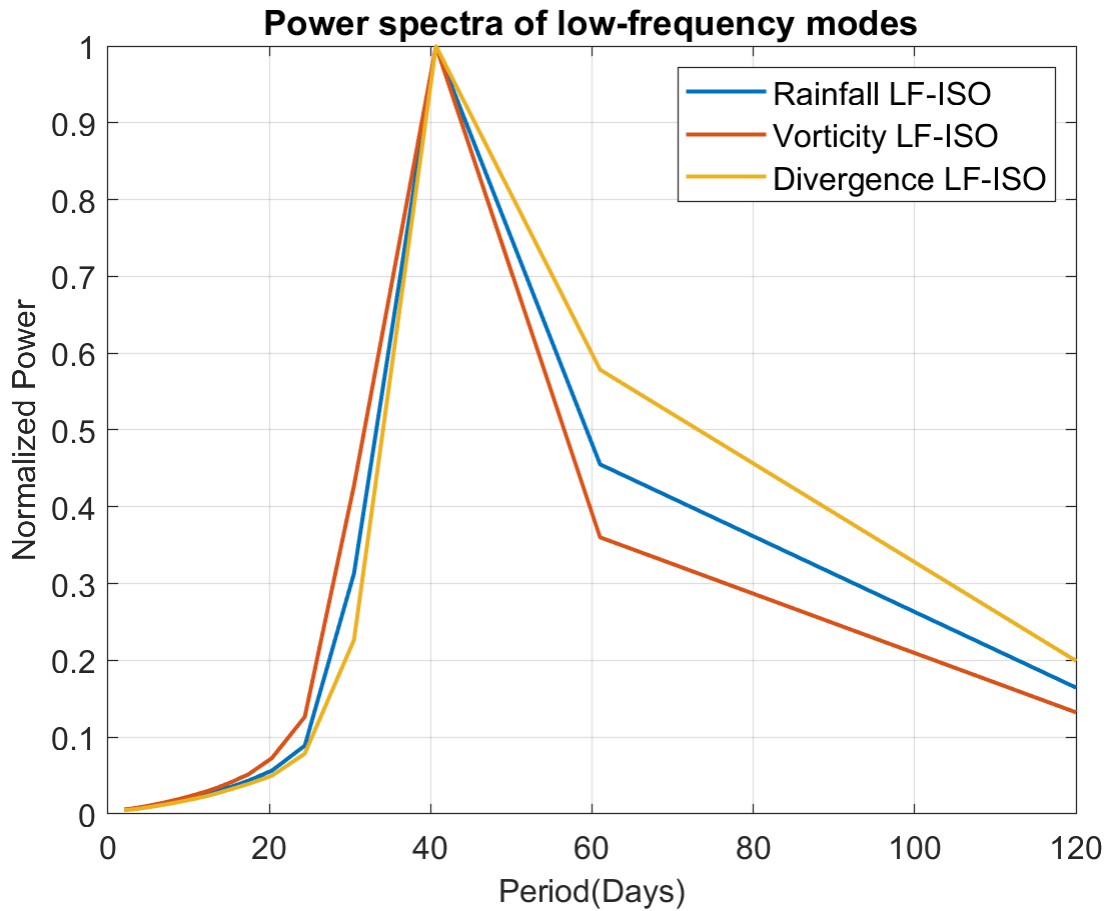
Figures S1 to S4



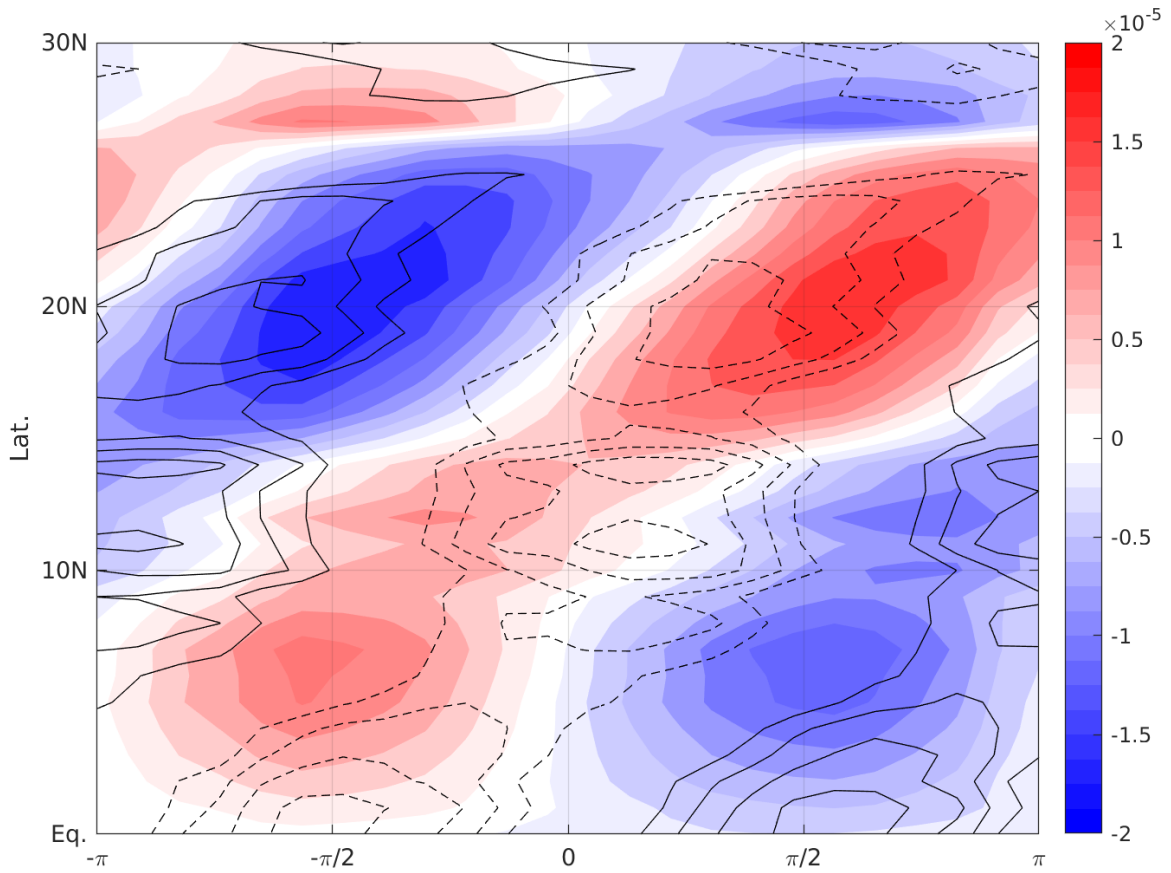
**Figure S1.** Pressure-latitude cross section of JJAS mean daily standard deviation of (a) vorticity and (b) divergence in  $s^{-1}$



**Figure S2.** Latitude-time section of 20-60 days band-passed (a) vorticity and (b) divergence at 900hPa for the year 2005 averaged over 70E-90E. The vertical black lines enclose the monsoon period (JJAS). The units are in  $s^{-1}$



**Figure S3.** Power spectra of first principal component of the rainfall, vorticity and divergence low-frequency ISOs obtained through MSSA. The power of each signal is normalized by its maximum power so to have all three signals on the same scale.



**Figure S4.** Latitude-phase section for barotropic vorticity (color shading) and baroclinic divergence (contour line with dotted lines for negative values) in  $s^{-1}$  averaged from 70E-90E. The barotropic vorticity and baroclinic divergence are obtained by separately projecting the vorticity and divergence LF-ISOs for regions (0-14N and 15N-30N) onto the vertical EOF for the respective regions. For 0-14N, the divergence LF-ISO is projected onto the first two modes since both have equal contribution to the total vertical structure of divergence. For 0-15N, barotropic vorticity leads the divergence term northward of that baroclinic divergence starts leading the barotropic vorticity.