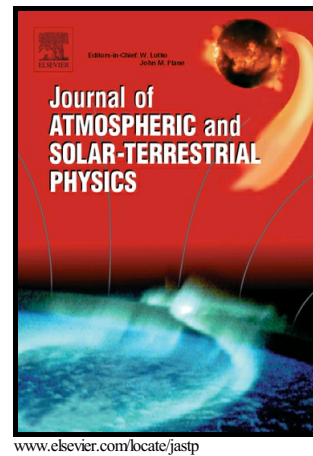


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Case study of convective instability observed in  
airglow images over the Northeast of Brazil

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9 **Abstract**

10 An intense activity of ripples during the nighttime was observed in airglow  
11 images over São João do Cariri (36.5° W, 7.4° S) on 10 October 2004 which  
12 lasted for two hours. Those ripples appeared simultaneously with the crossing  
13 of a mesospheric front and medium scale gravity waves. The ripples occurred  
14 ahead of the mesospheric front and their phase front were almost parallel to  
15 the phase of the mesospheric front and were almost perpendicular to the  
16 phase front of the gravity wave. Using wind measurements from a meteor  
17 radar located at São João do Cariri and simultaneous vertical temperature  
18 profiles from the TIMED/SABER satellite, on the night of the events and  
19 within the imager field of view, the atmospheric background environment in  
20 the mesosphere and lower thermosphere (MLT) was investigated in order to  
21 understand the instability process that caused the appearance of the ripples.  
22 Dynamic and convective instabilities have been pointed out as responsible  
23 for creation of ripples in the MLT. The observed ripples were advected by  
24 the neutral wind, they occurred into a region with negative lapse rate of

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