

Impact of INSAT-observed Kelvin wave type disturbances during summer monsoon

by

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Outline of the Presentation

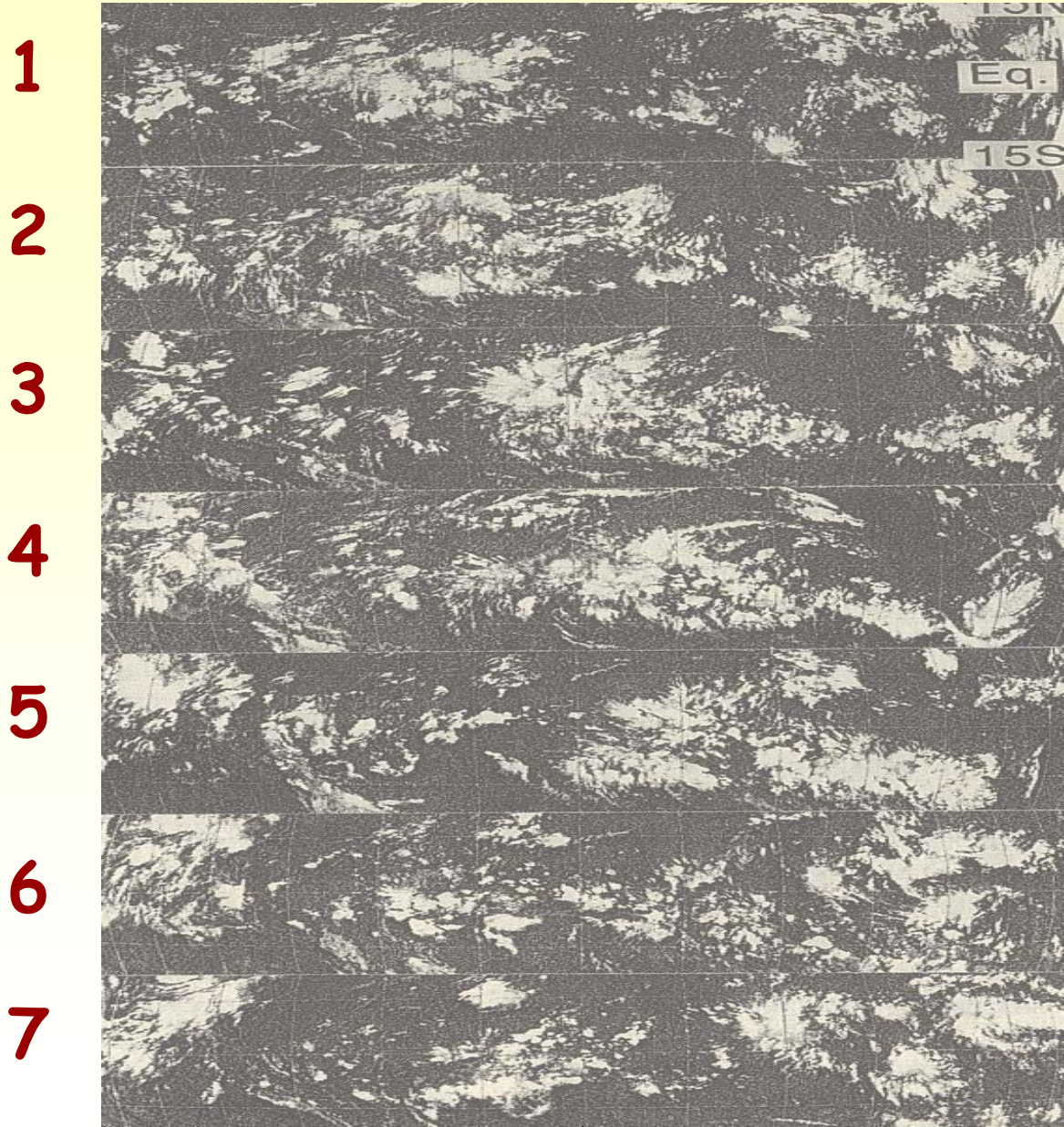
- GOES and GMS observed eastward propagation of Super Cloud Clusters over the Pacific Ocean and establishment of westerly wind pattern in its association
- INSAT-observed Super Cloud Clusters over the equatorial Indian Ocean and its impact on the southwesterly wind forcing while propagating in the vicinity of southern tip of Indian peninsula



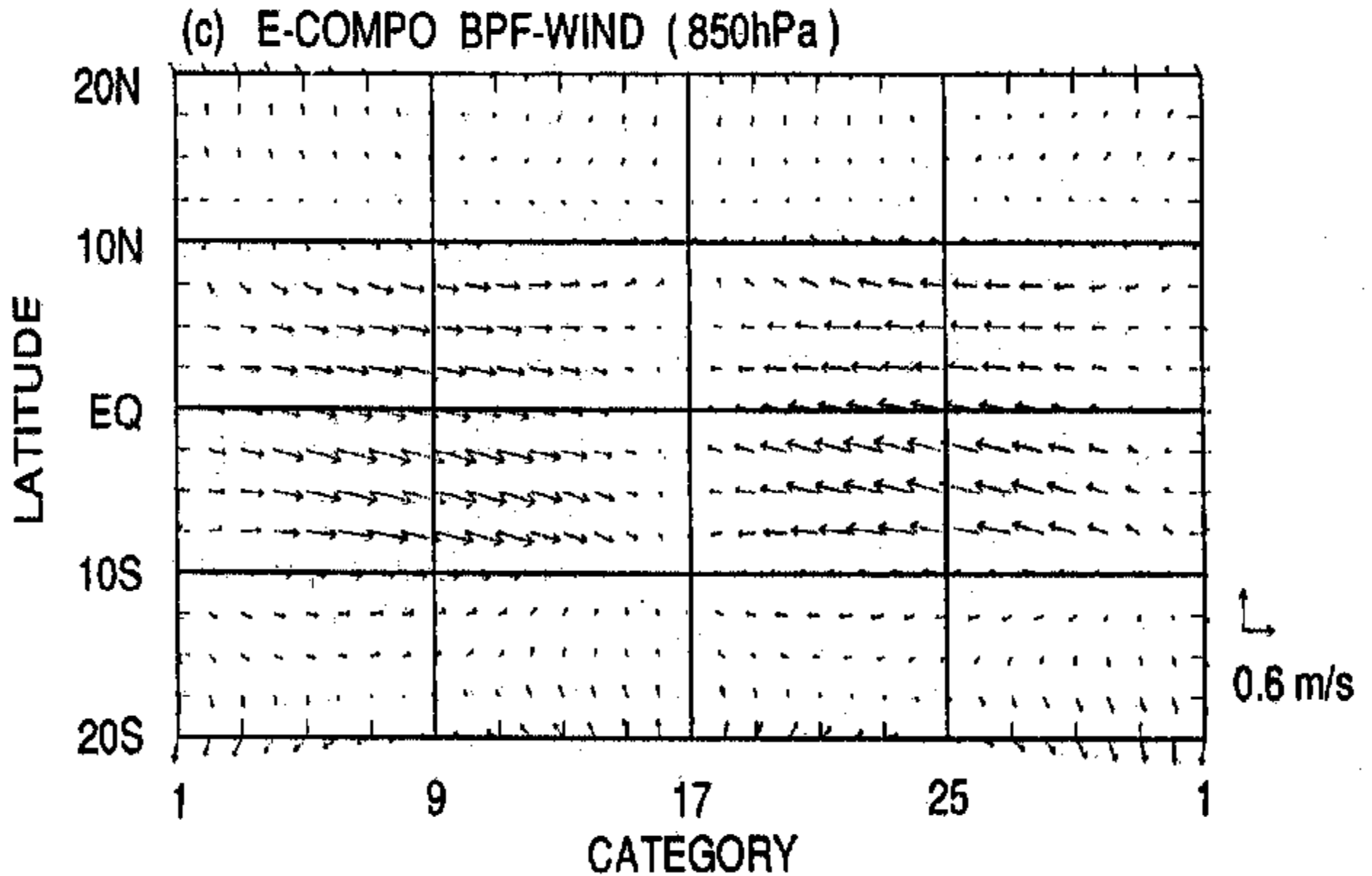
- Modulation of monsoon circulation over the Bay of Bengal through inputs of modified satellite derived winds for enhancing excitation of wind surge over the Bay of Bengal
- Impact of Super Cloud Clusters in the genesis/development of monsoon system over the head Bay

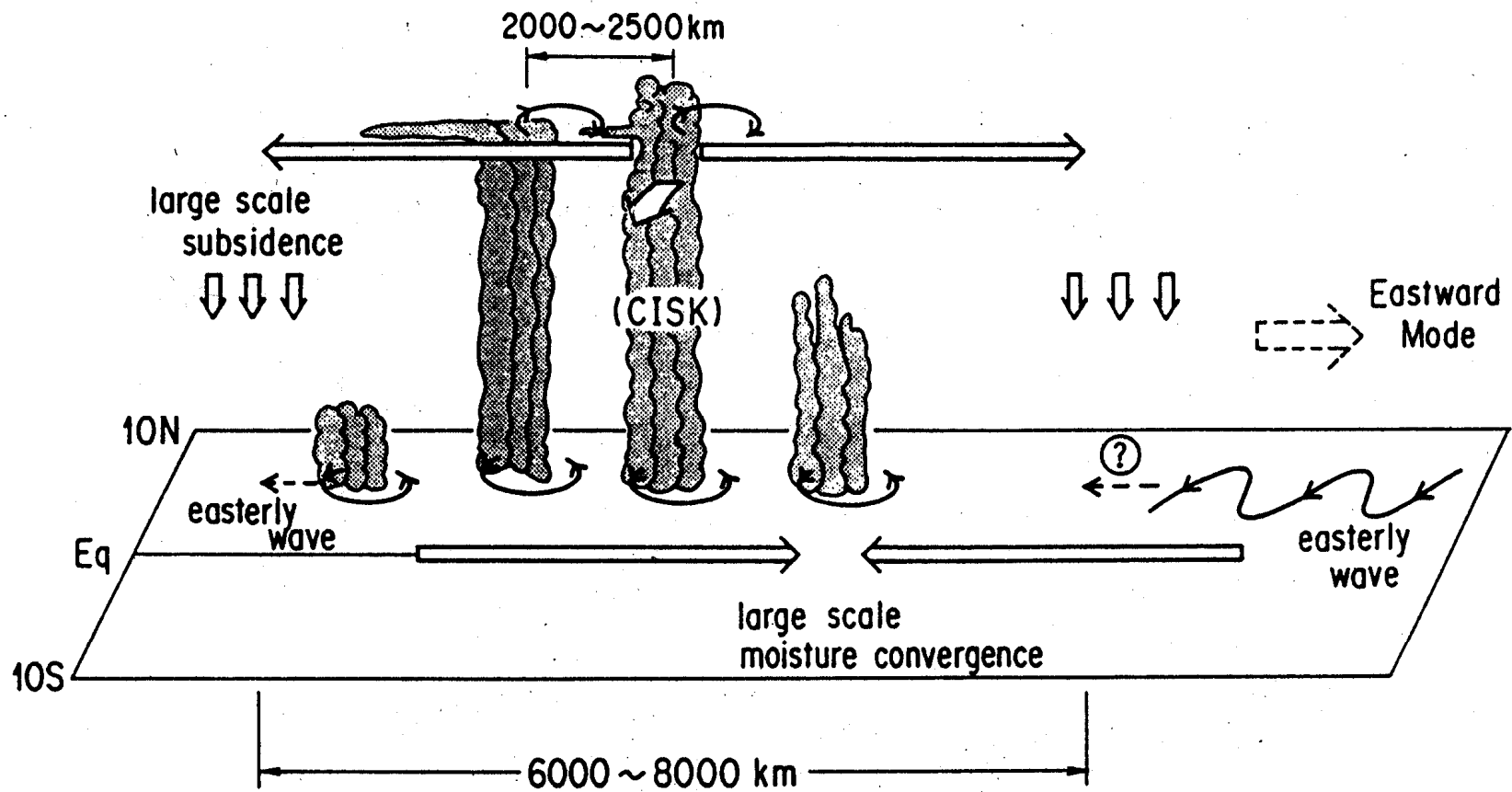


GMS - IR 01-07 June 1986

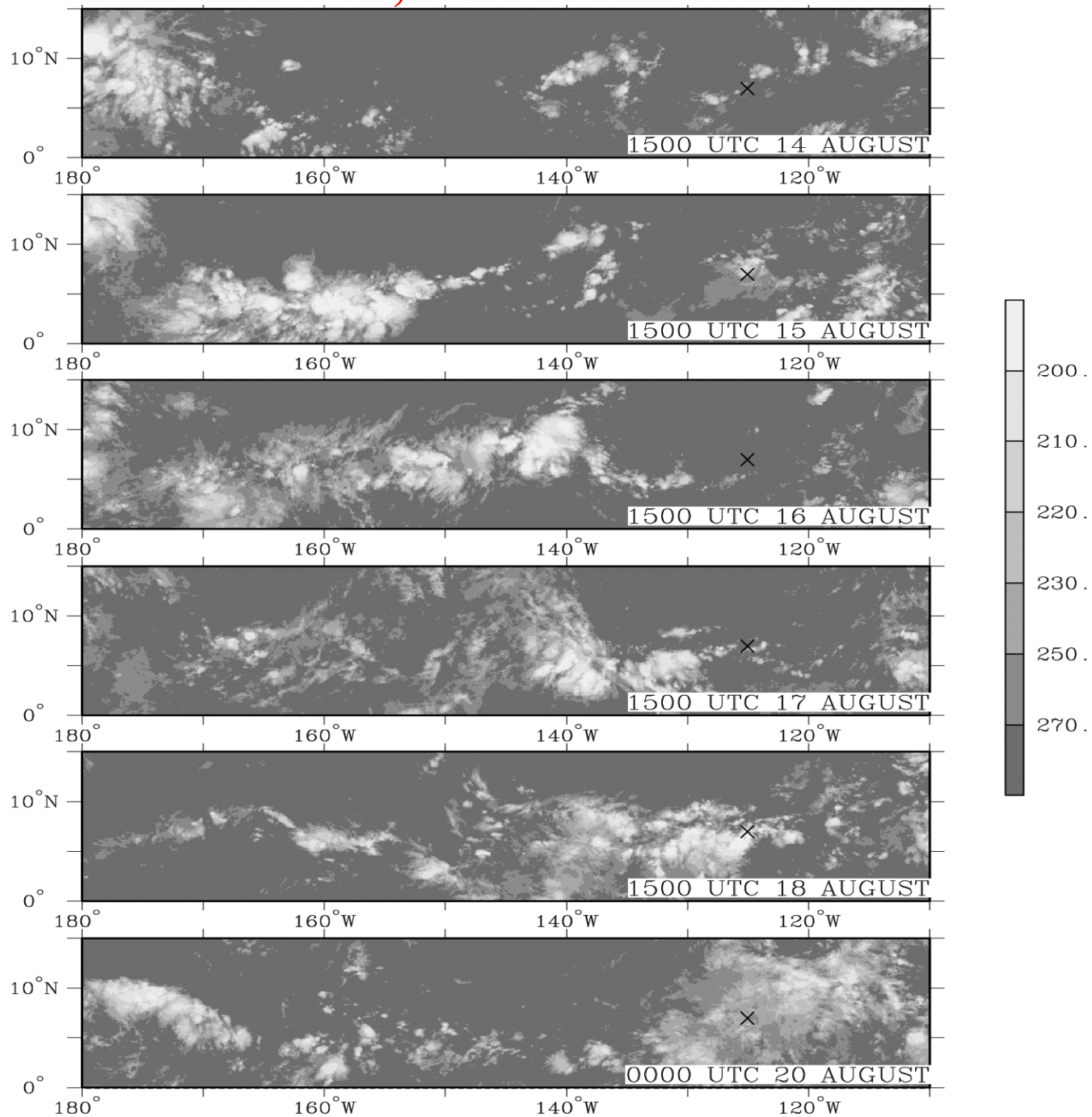


Filtered 850 hPa zonal wind

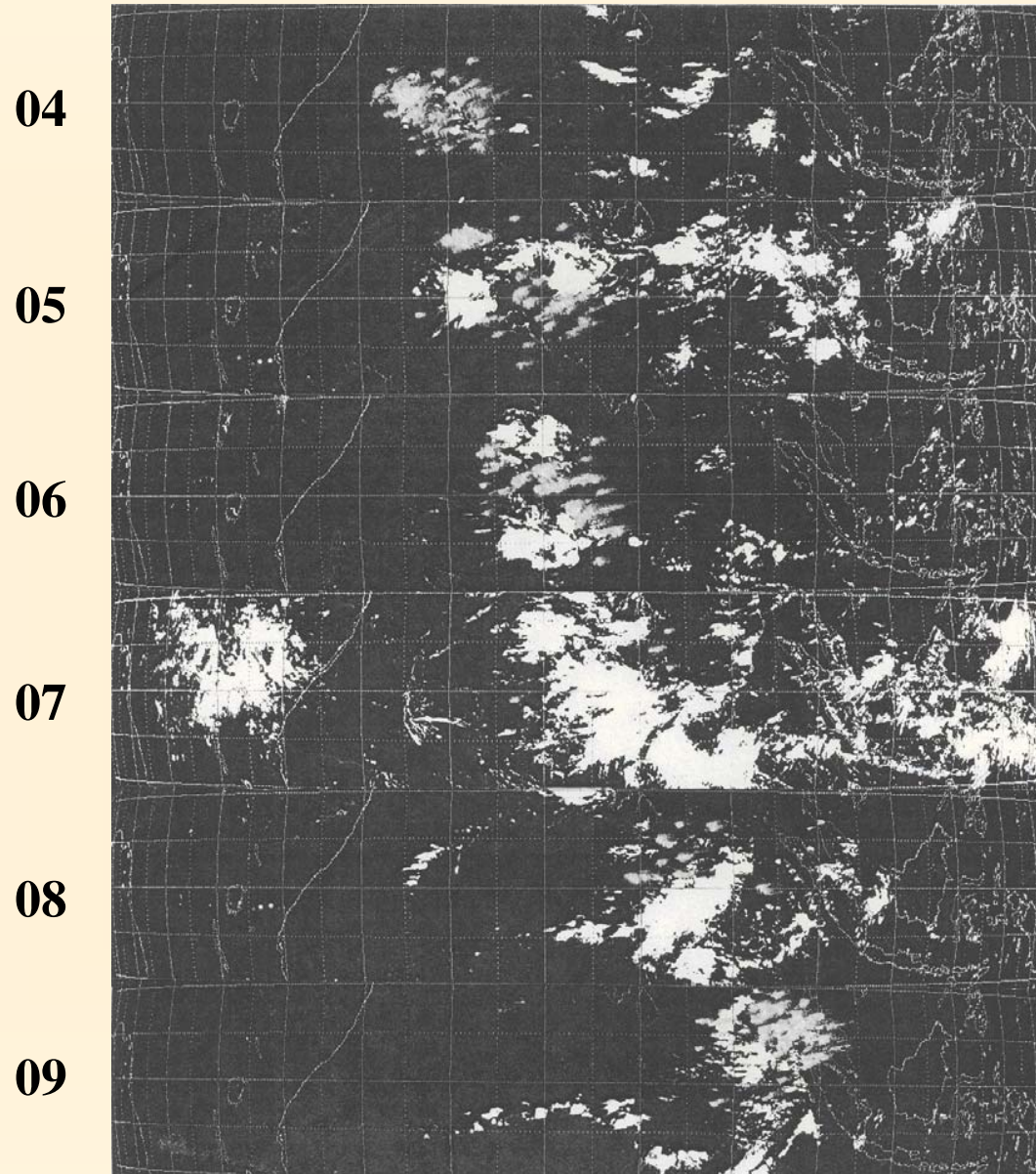




GOES-9 IR, 14-20 AUGUST 1997



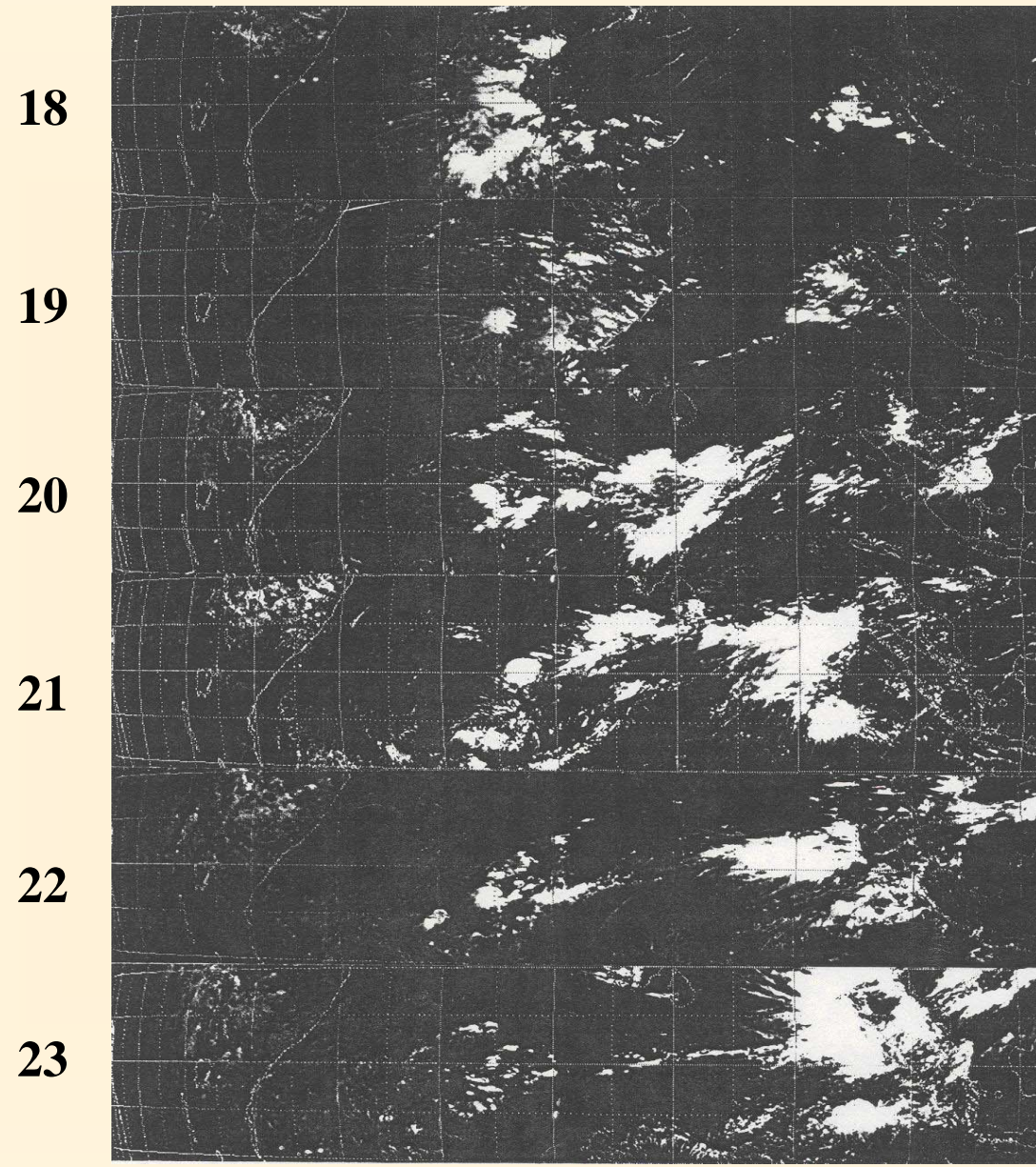
04-09 August 1988



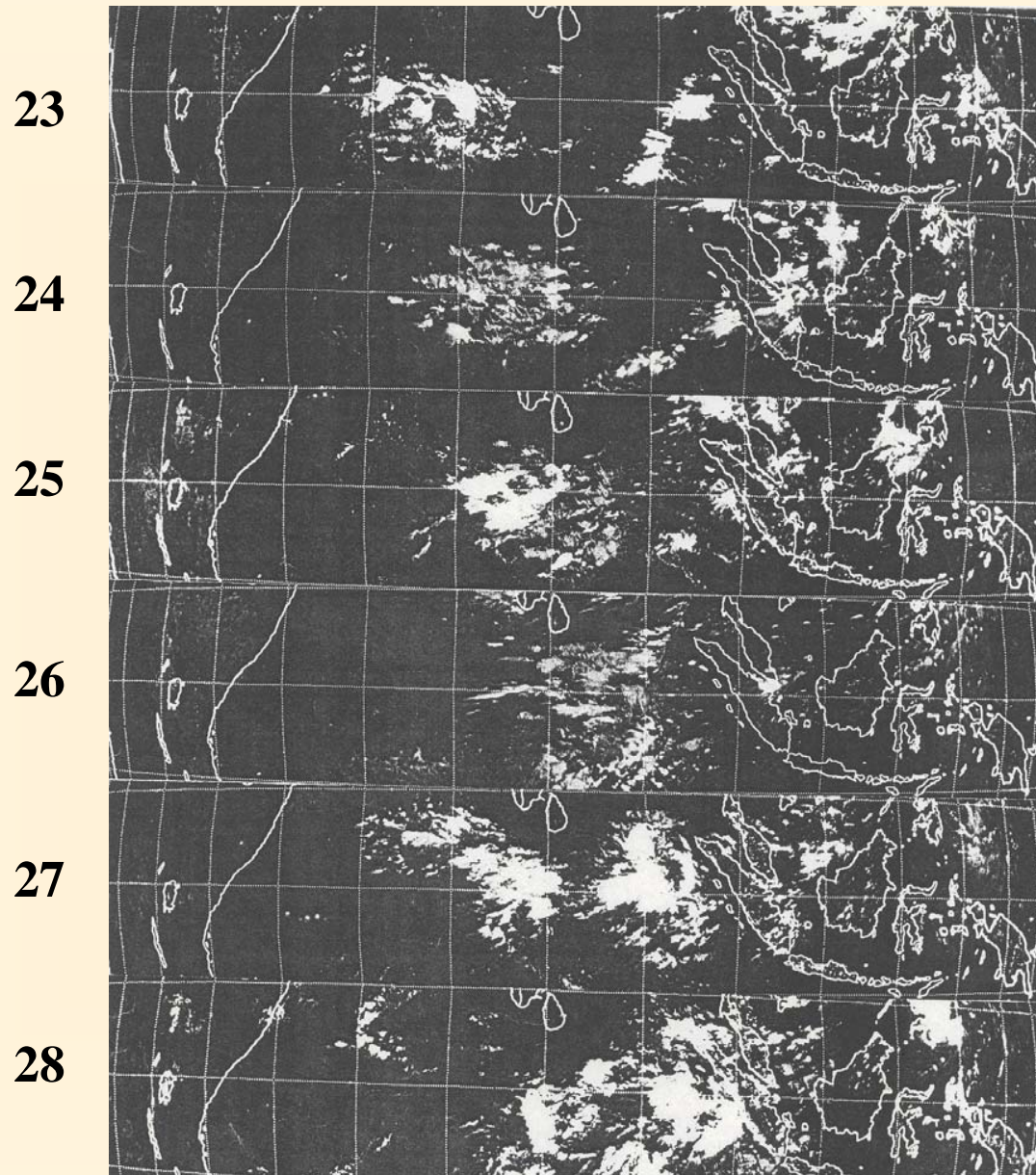
Indian Institute of Tropical Meteorology, Pune-8



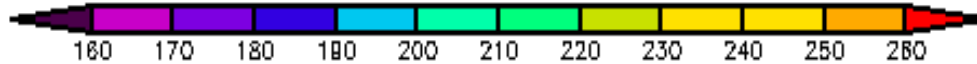
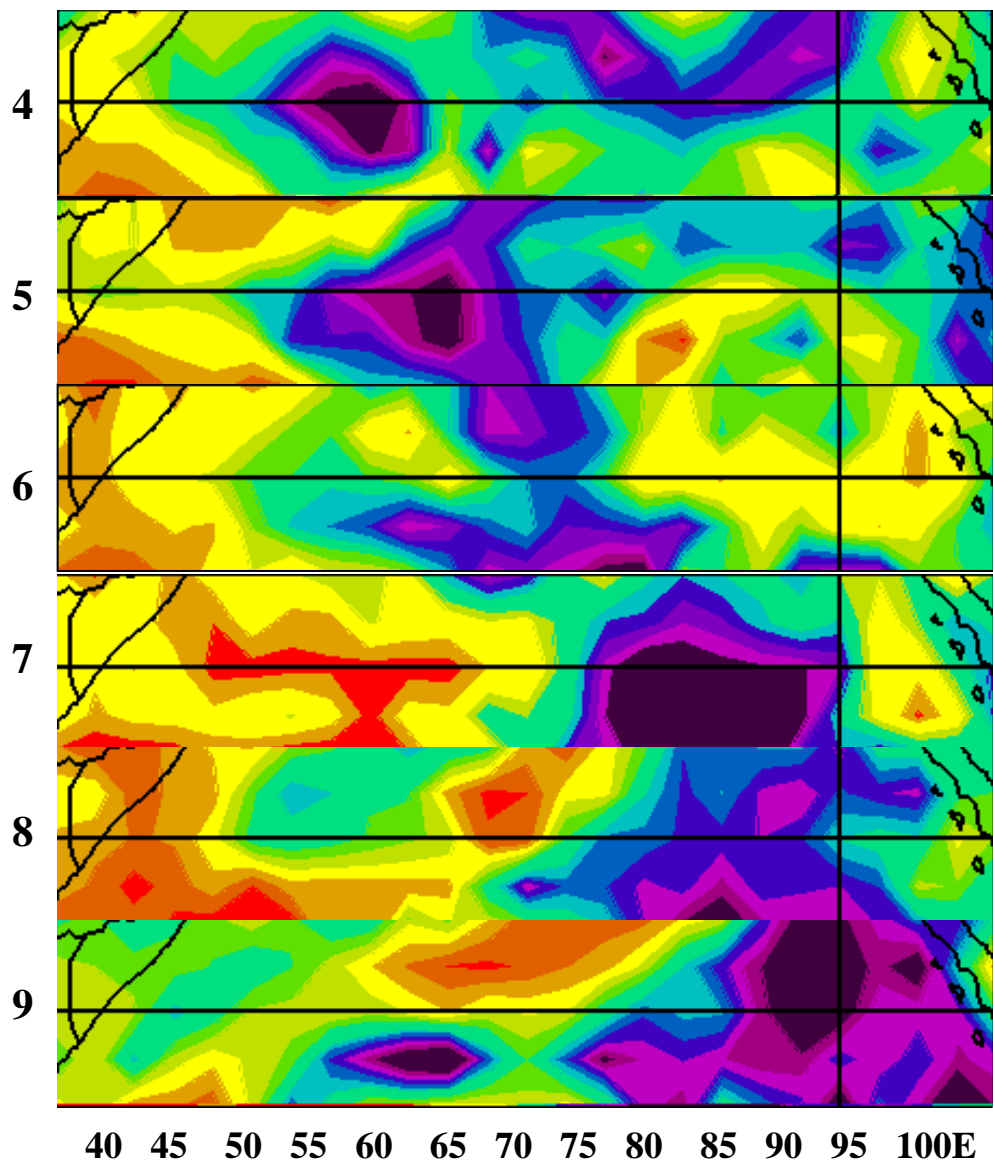
18-23 July 1991



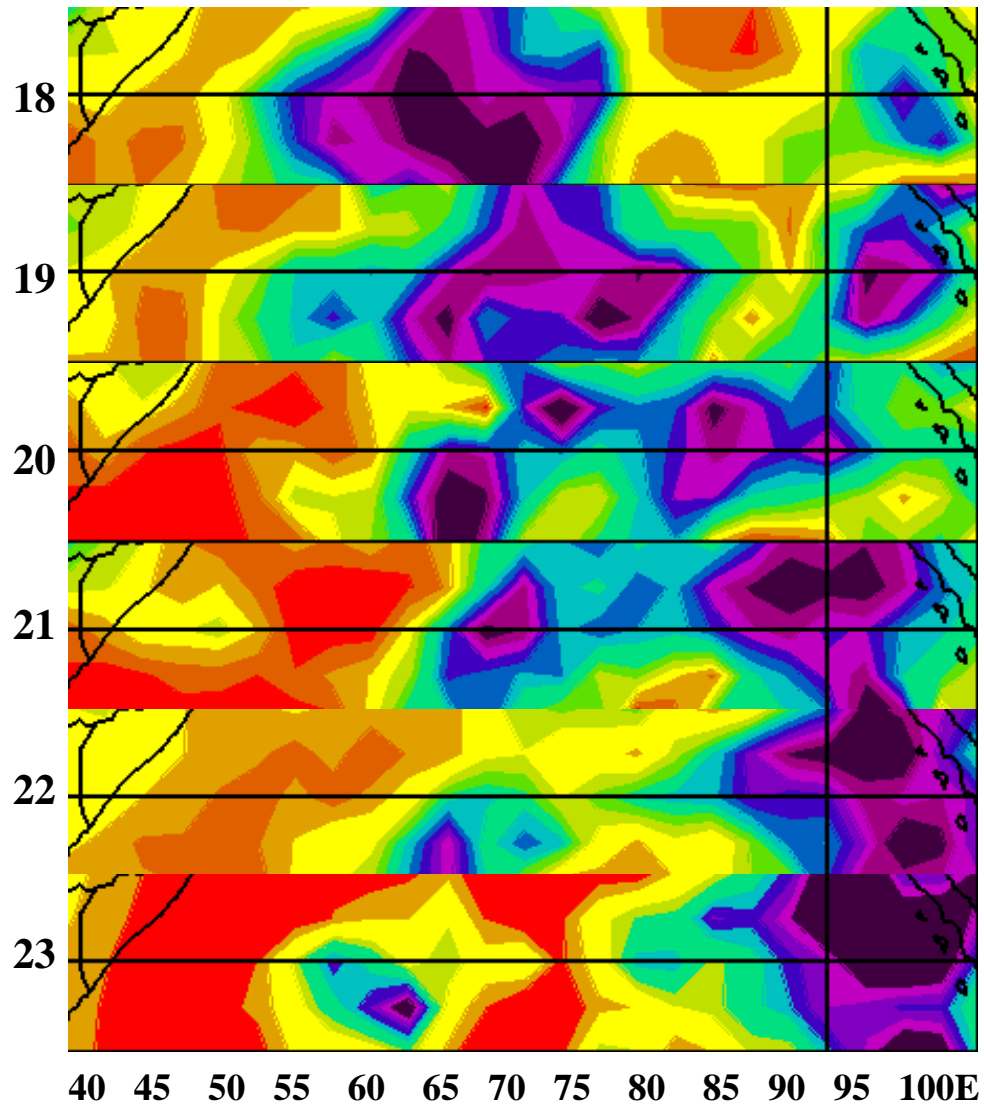
23-28 September 1995



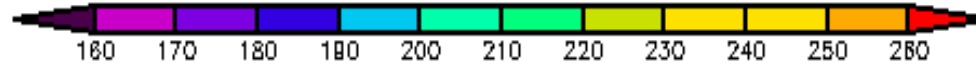
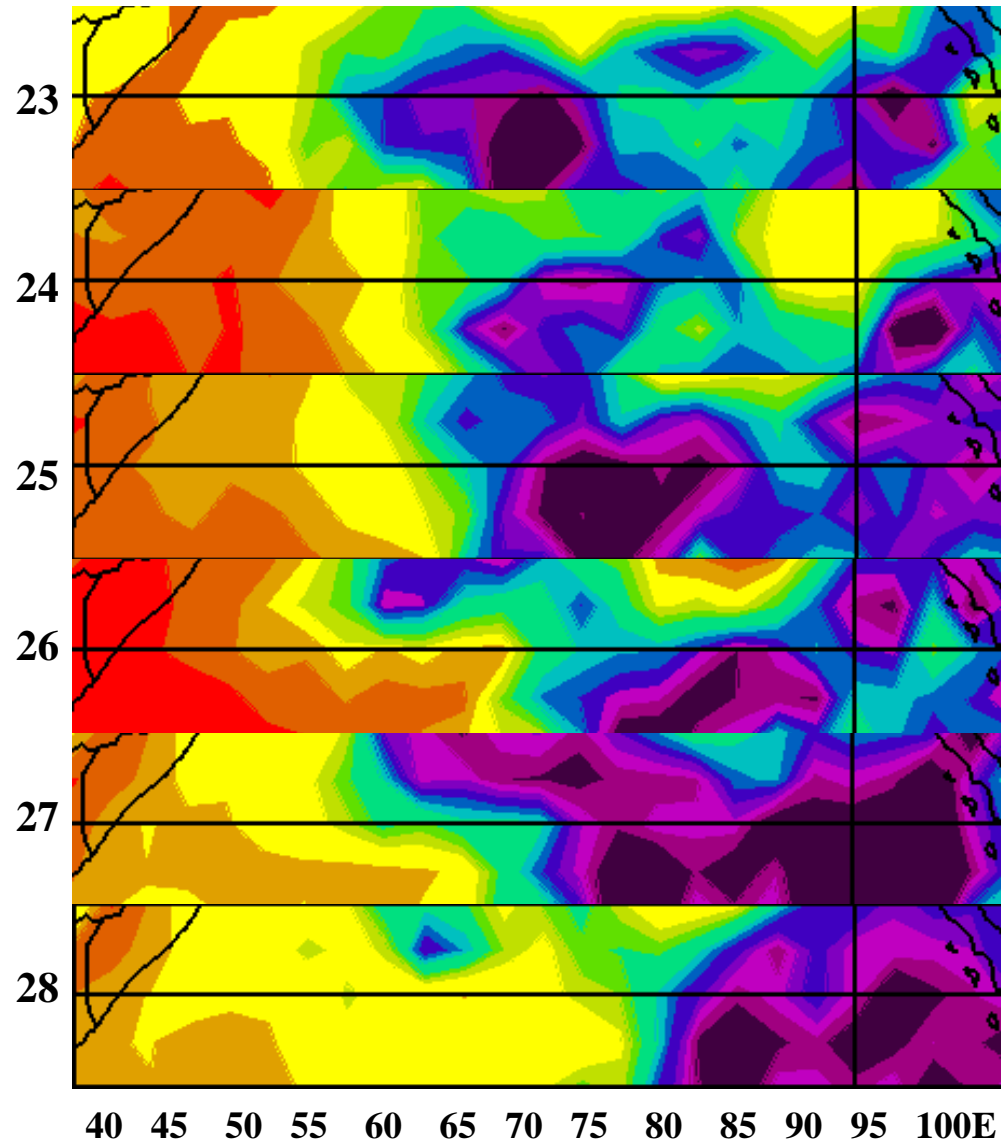
04-09 August 1988



18-23 July 1991



23-28 September 2005



**Objectively analysed wind fields
at 850 hPa with INSAT wind inputs**



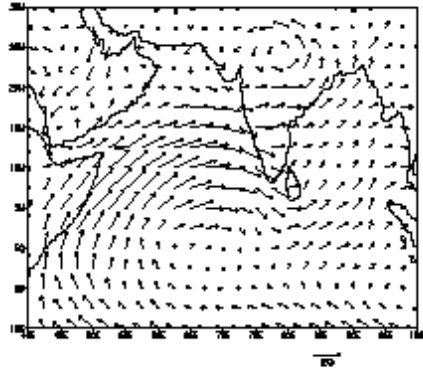
Statistical relationship between satellite winds and conventional winds

Level (hPa)	n	Regression relation	r	SD
850	105	$Y_u(850) = 3.51 + 0.976 X_1$	0.79	4.11
850	105	$Y_v(850) = -1.76 + 0.95 X_2$	0.74	3.59
200	160	$Y_u(200) = -3.71 + 0.83 X_3$	0.53	8.51
200	160	$Y_v(200) = 1.23 + 0.76 X_4$	0.48	7.62

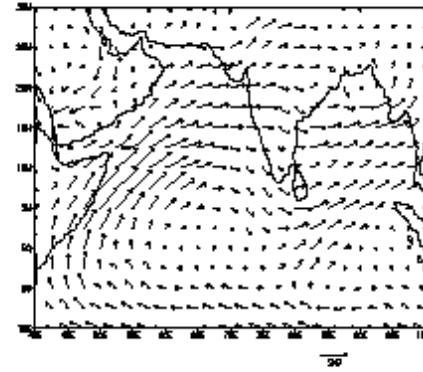


Wind Field at 850 hPa during 04-09 August 1988

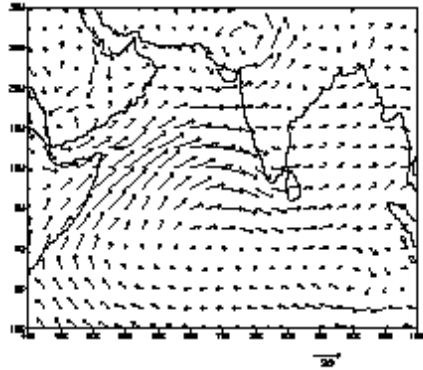
04.08.88



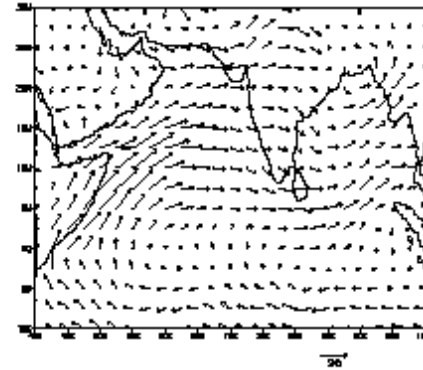
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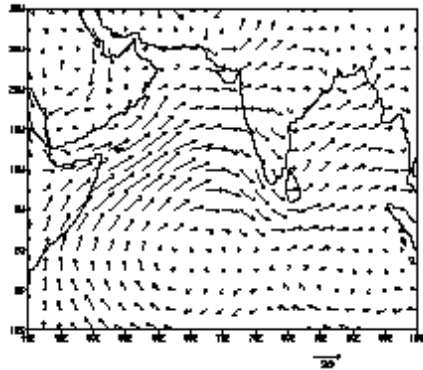
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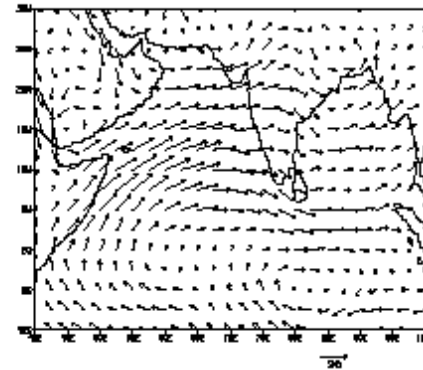
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08.08.88

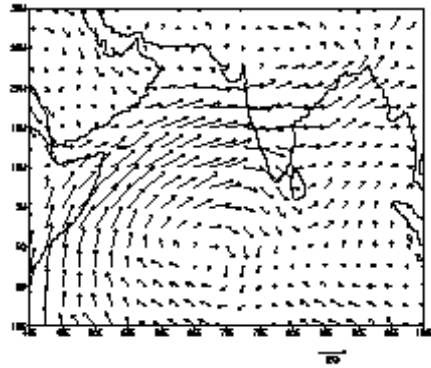


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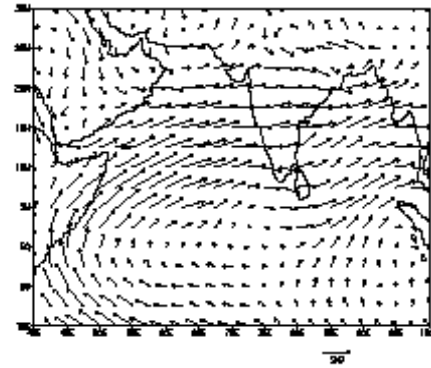


Wind Field at 850 hPa during 18-23 July 1991

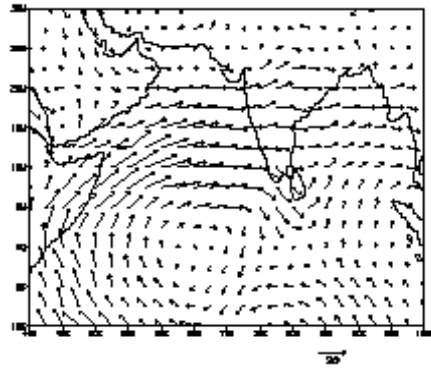
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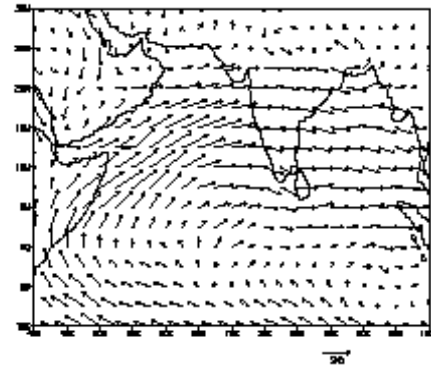
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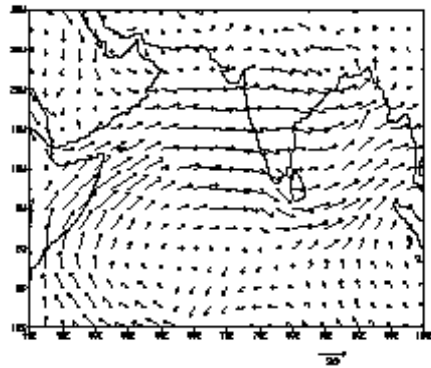
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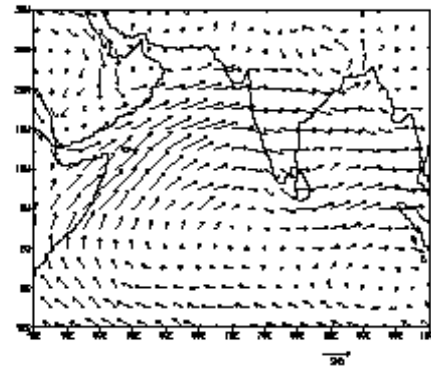
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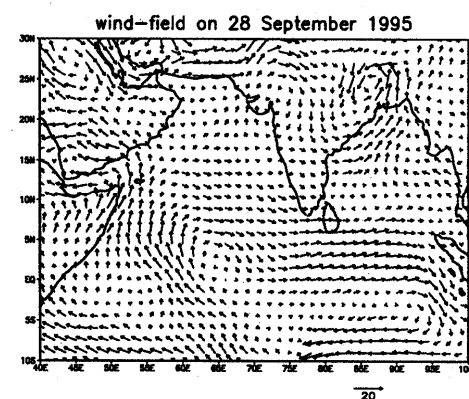
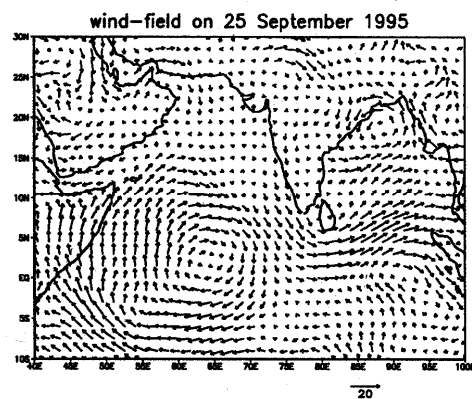
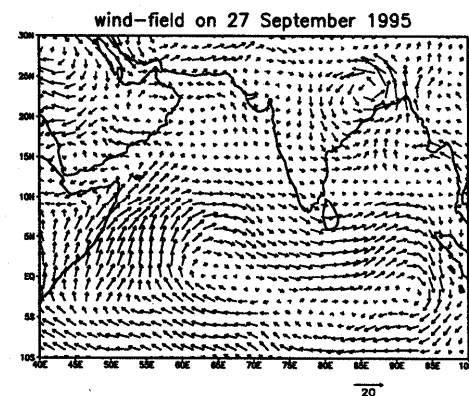
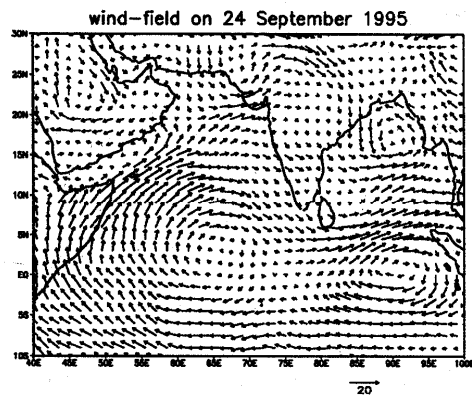
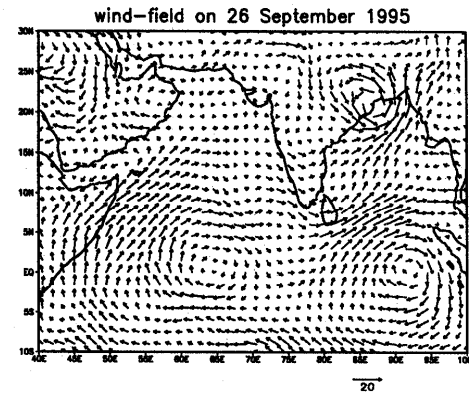
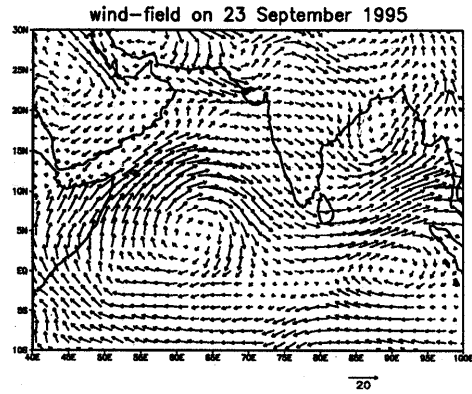
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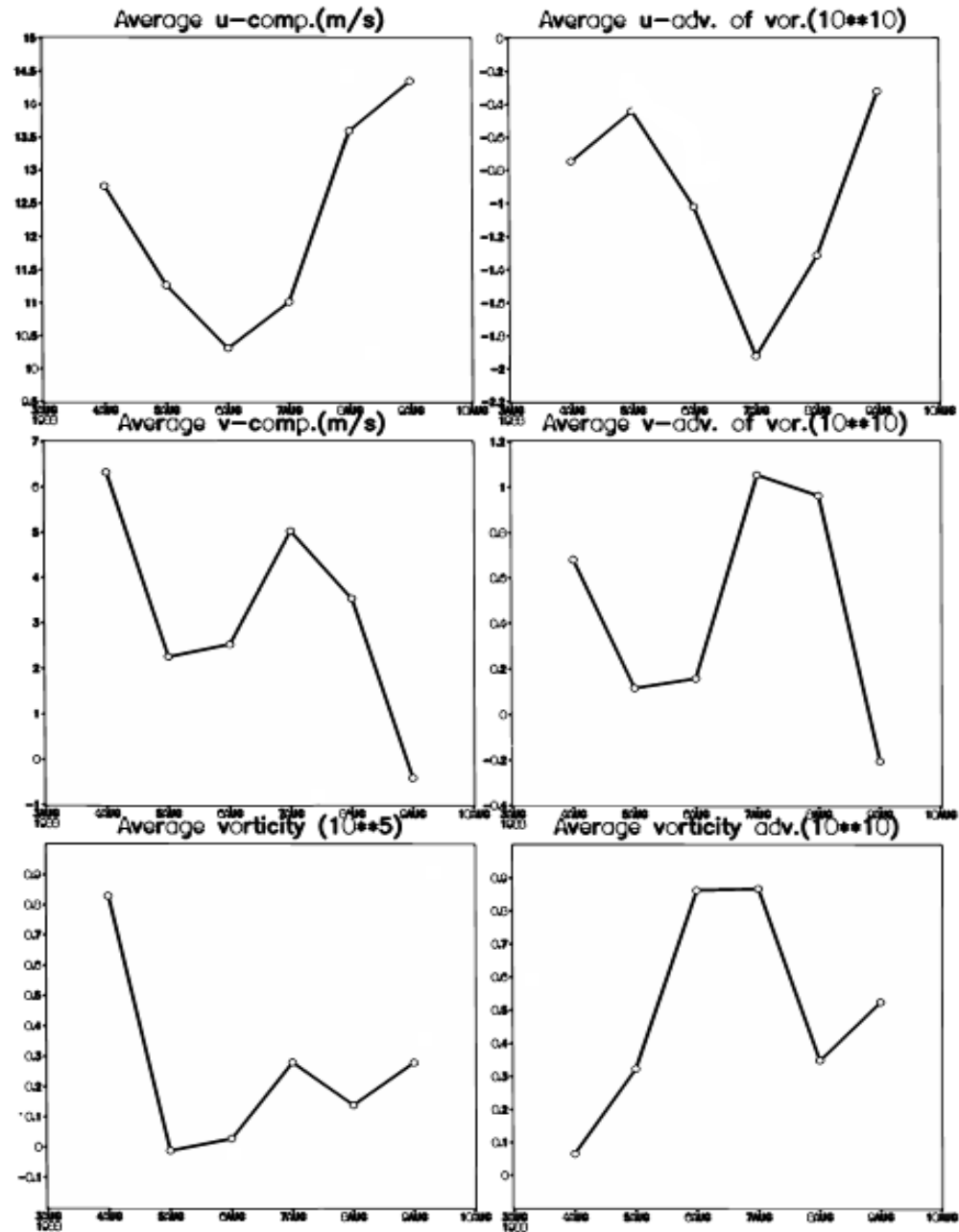
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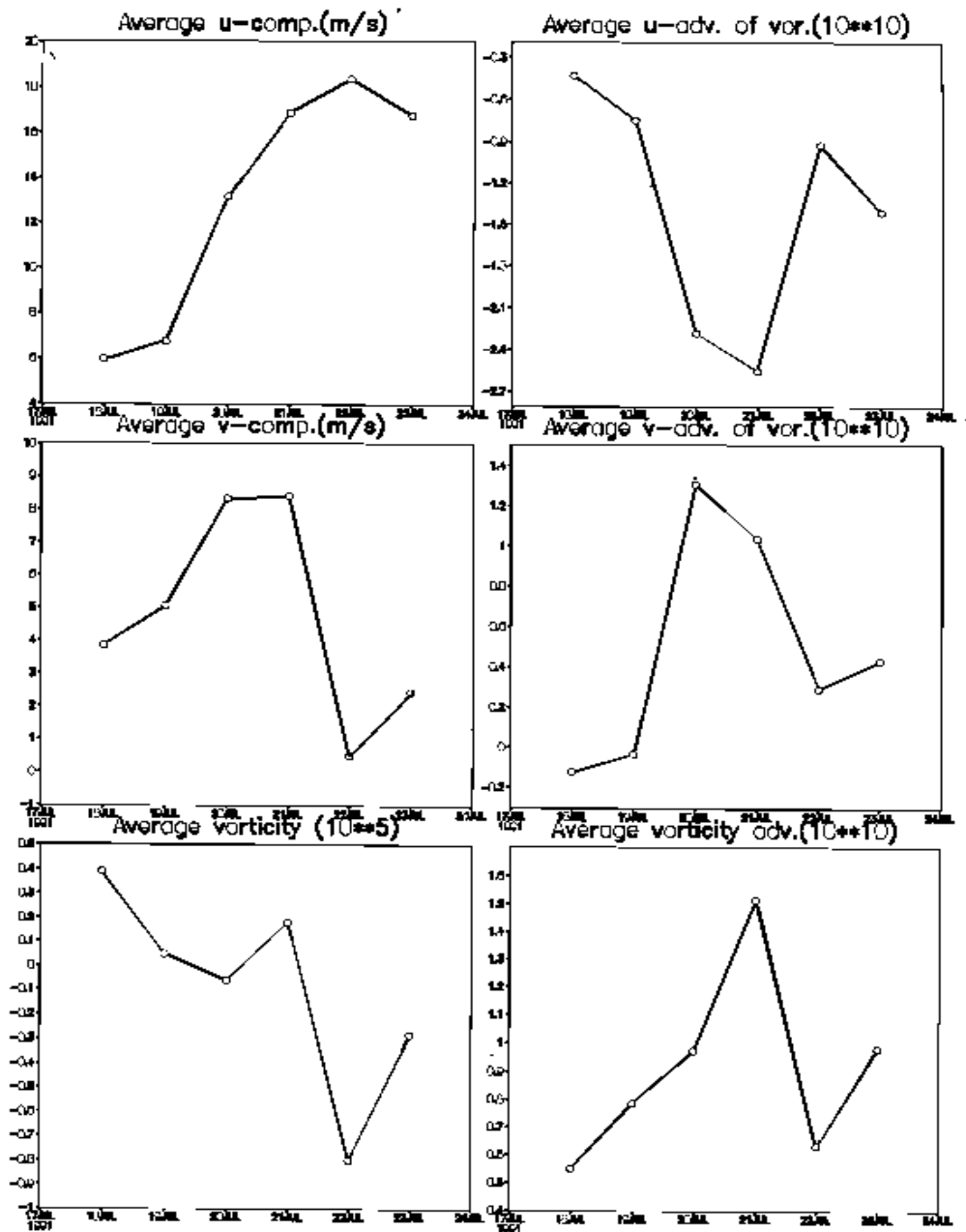
Wind Field at 850 hPa during 23-28 September 1995



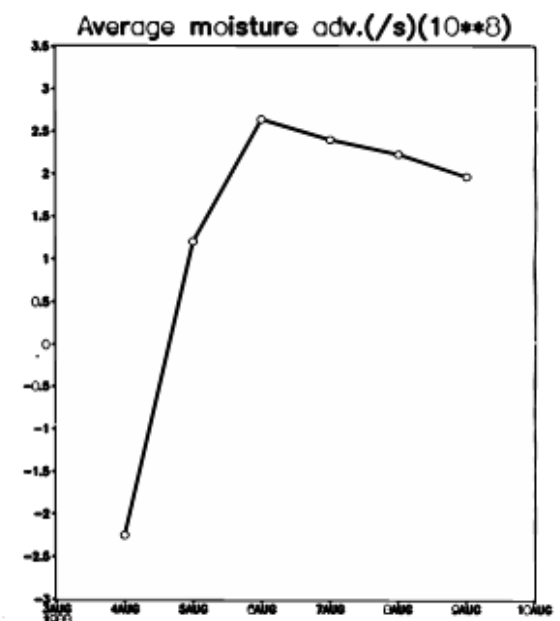
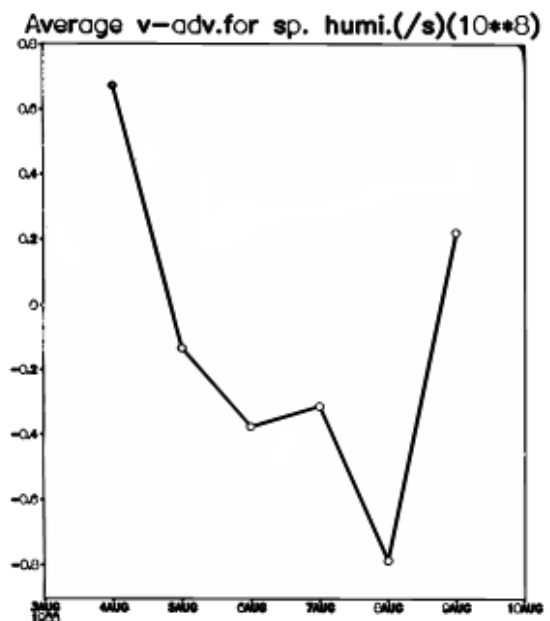
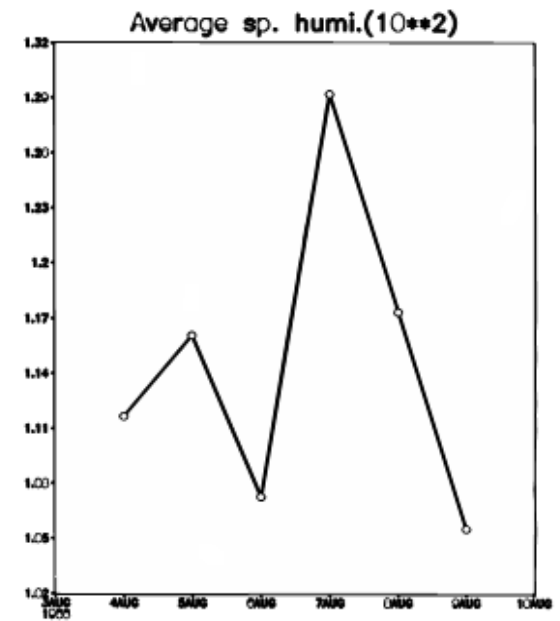
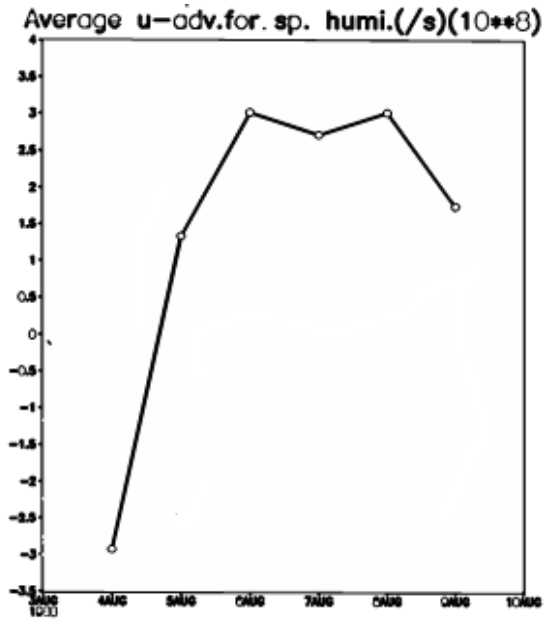
Vorticity Advection, 1988



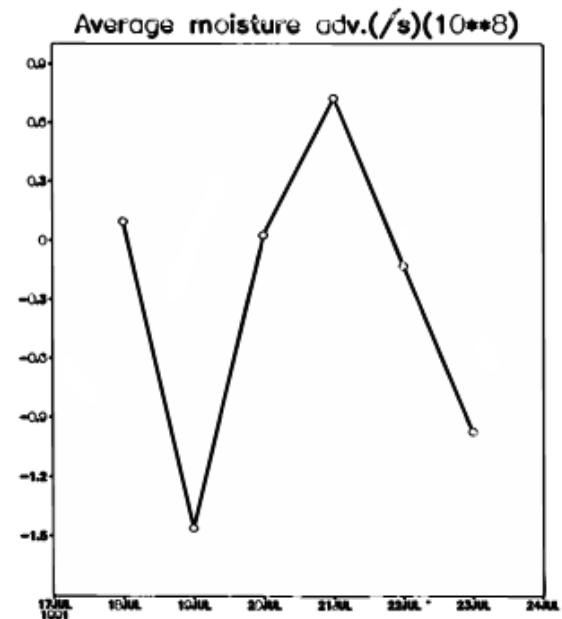
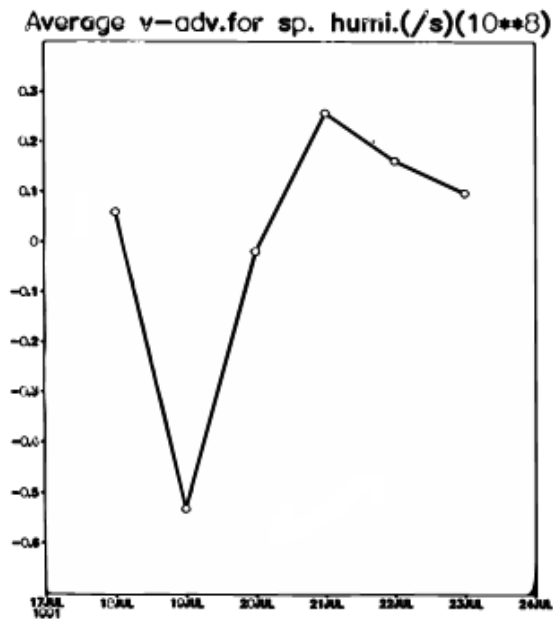
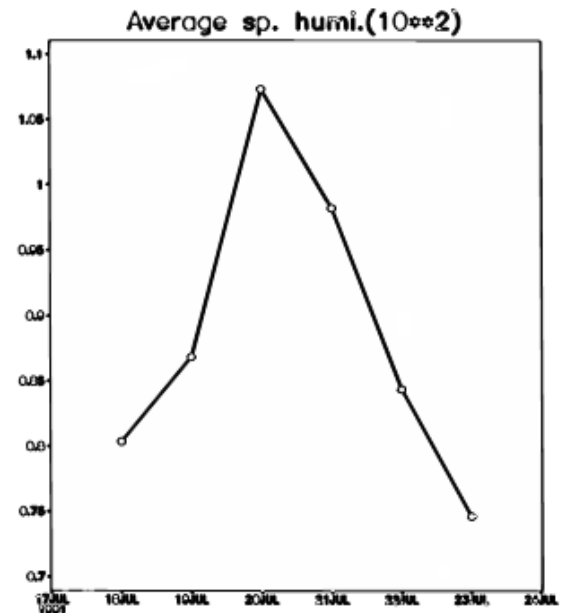
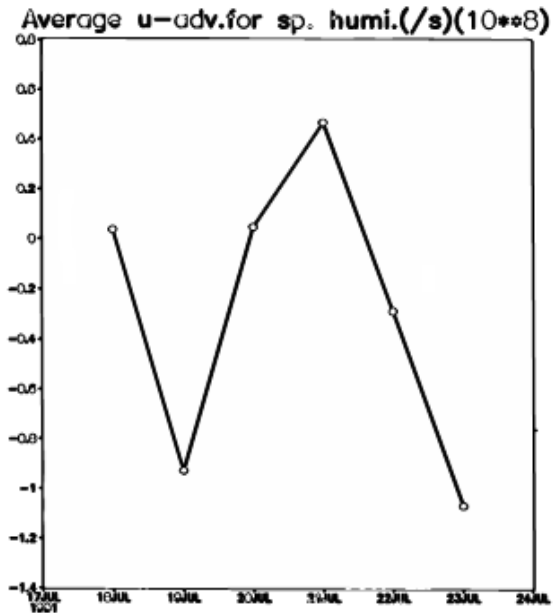
Vorticity Advection, 1991



Moisture Advection, 1988



Moisture Advection, 1991



Conclusion

- ❖ INSAT-observed Kelvin wave type disturbances in the form of eastward propagating super cloud clusters cause sudden triggering of strong southwesterly winds influencing more advection of cyclonic vorticity and moisture over the Bay of Bengal
- ❖ This creates favourable condition for the genesis/development of monsoon system over the Head Bay



Thank You!

