

# Introduction to tropical meteorology

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SWAP2011, NZZ






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EPIC stands for the Eastern Pacific Investigation of Climate Processes in the Coupled Ocean-Atmosphere System.

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# Huatulco airport















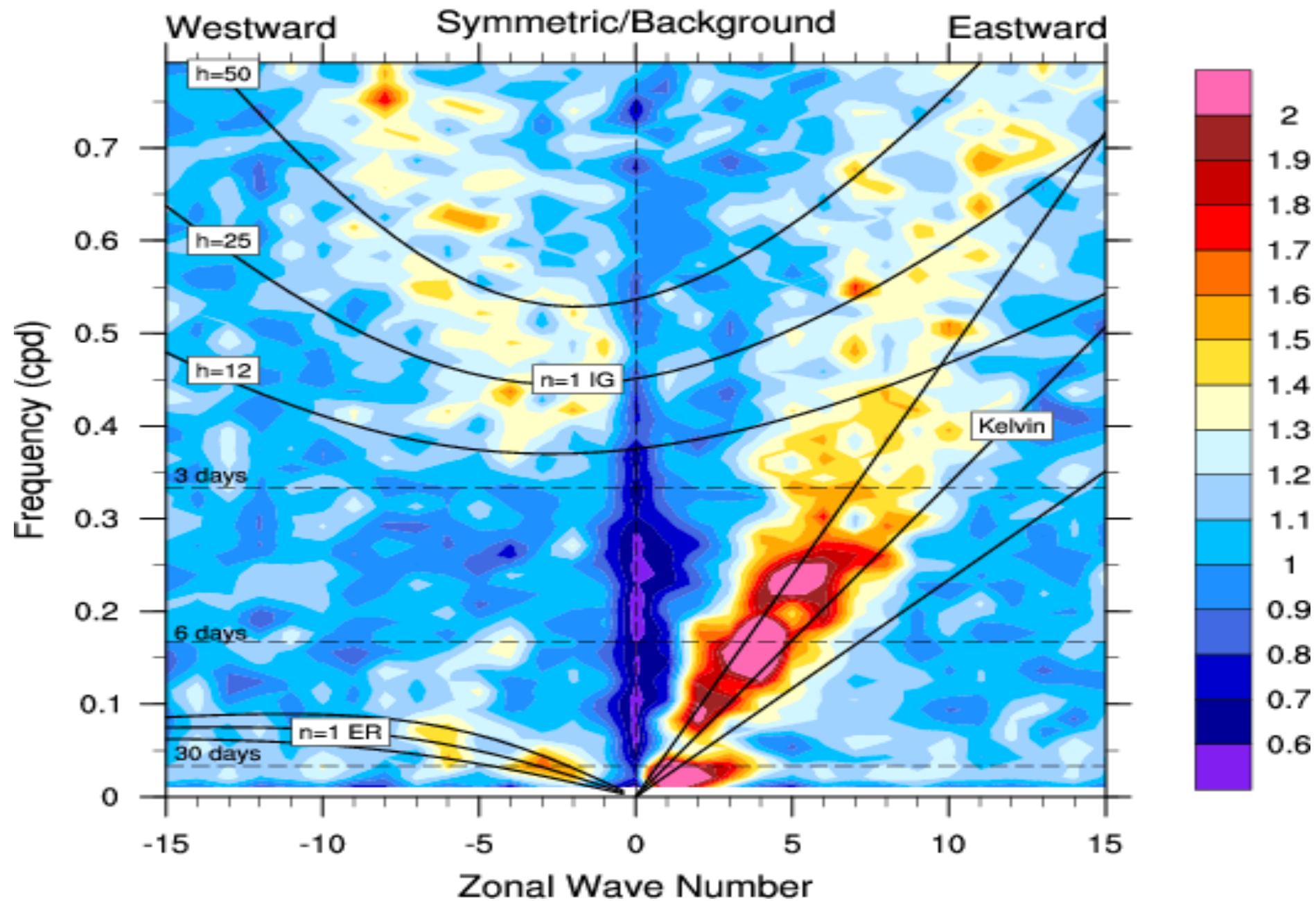








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# MJO

- \* Biggest rain producer, “holy grail” of tropical meteorology
- \* Eastward propagating, period of 30 to 100 days, speed of 5 m/s, Indian and western Pacific
- \* Moisture mode instability
- \* Increasing saturation fraction
- \* Negative GMS

# Gross moist stability

- \* The gross moist stability relates the net lateral outflow of moist entropy or moist static energy from an atmospheric convective region to some measure of the strength of the convection in that region.
  - \* Convective profile: max mass flux in lower troposphere – lateral flow imports moist entropy –  $GMS$  negative - increases saturation fraction
  - \* Stratiform profile: max mass flux in upper troposphere – lateral flow exports moist entropy –  $GMS$  positive – decreases saturation fraction
- (moisture divergence generally negative in convectively active regions)

# Conclusion

\*Physics of the tropics is:

