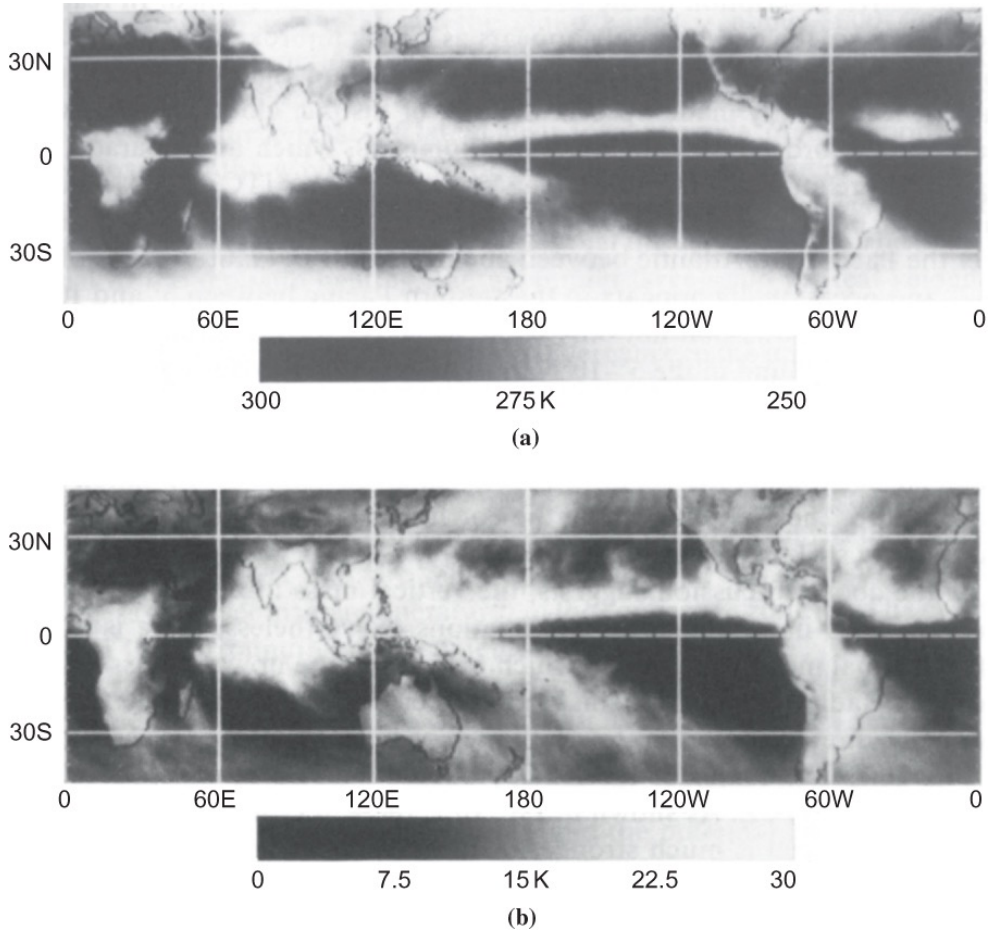
ITCZ variability

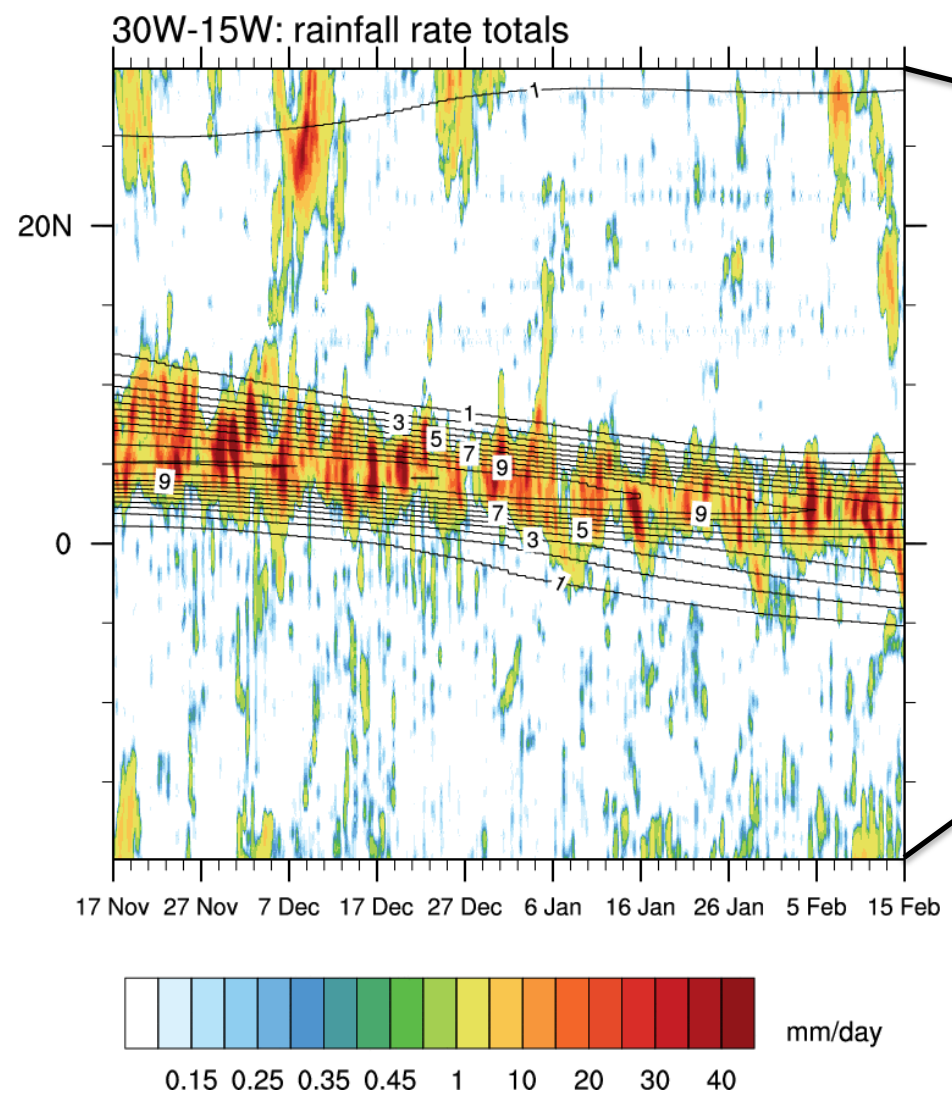


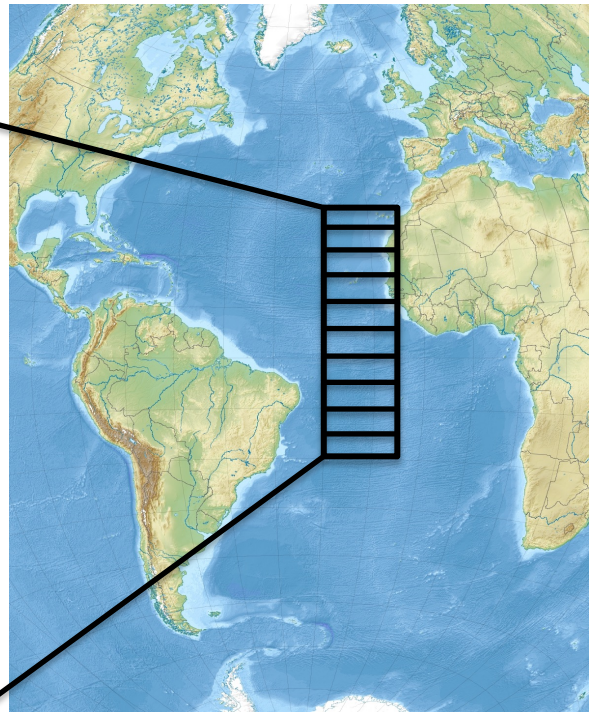
14 August – 17 December

Time-mean IR brightness temperature (top)

Three-hour standard deviation about the time mean (bottom)

ITCZ variability



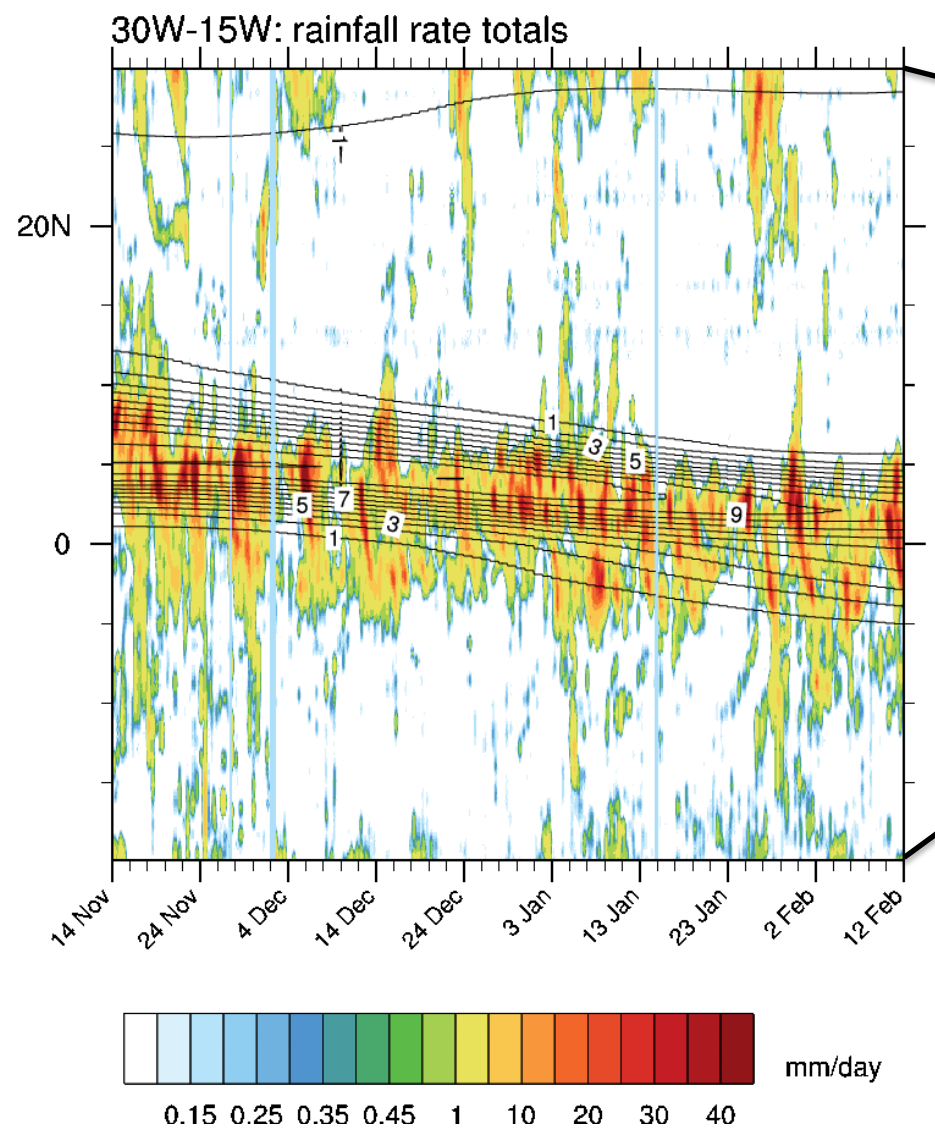


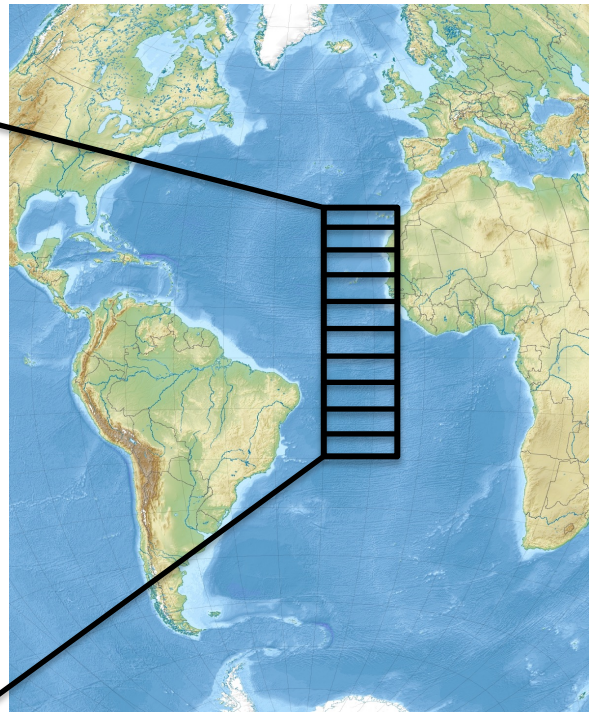
November 2014–February 2015

Atlantic ITCZ latitude–time plot

TRMM rainfall (shaded) and climatological rain rates (mm/day; contoured)

ITCZ variability



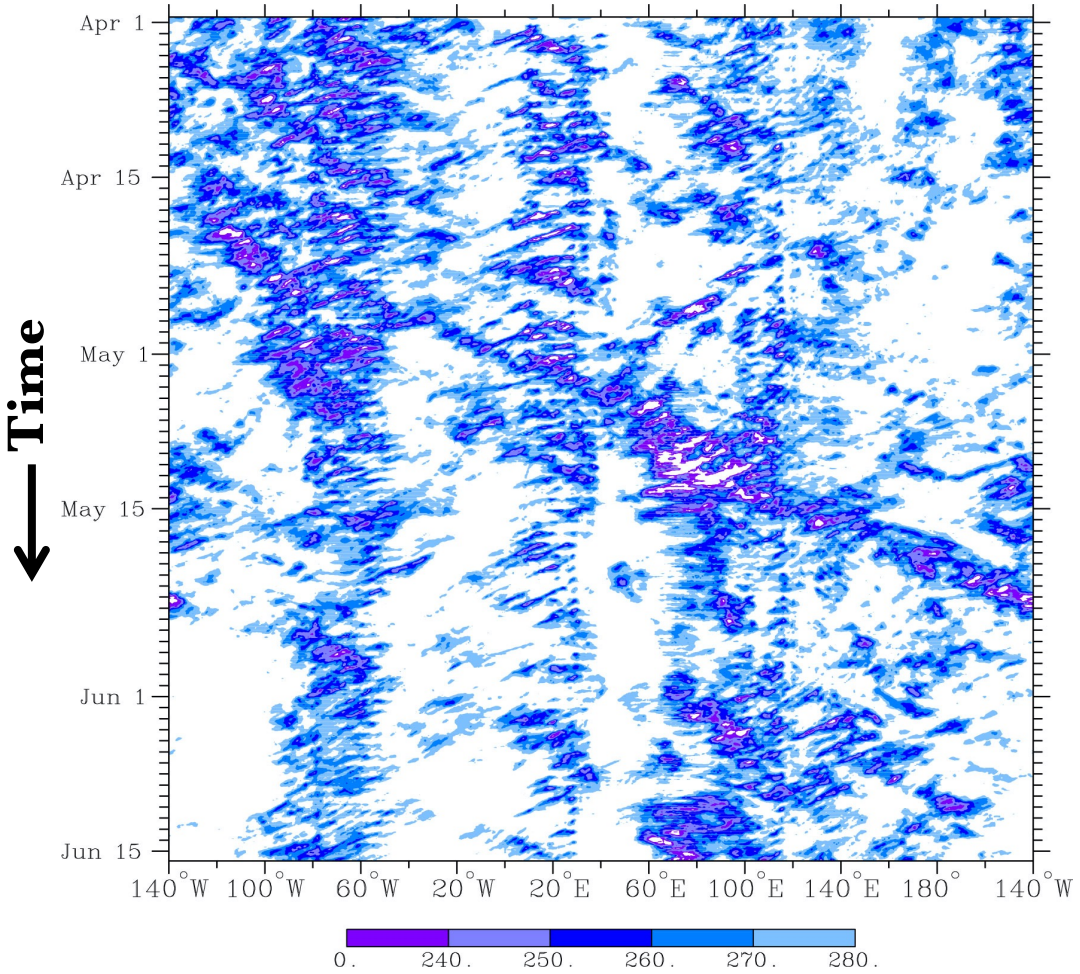


November 2018–February 2019

Atlantic ITCZ latitude–time plot

TMPA rainfall (shaded) and climatological rain rates (mm/day; contoured)

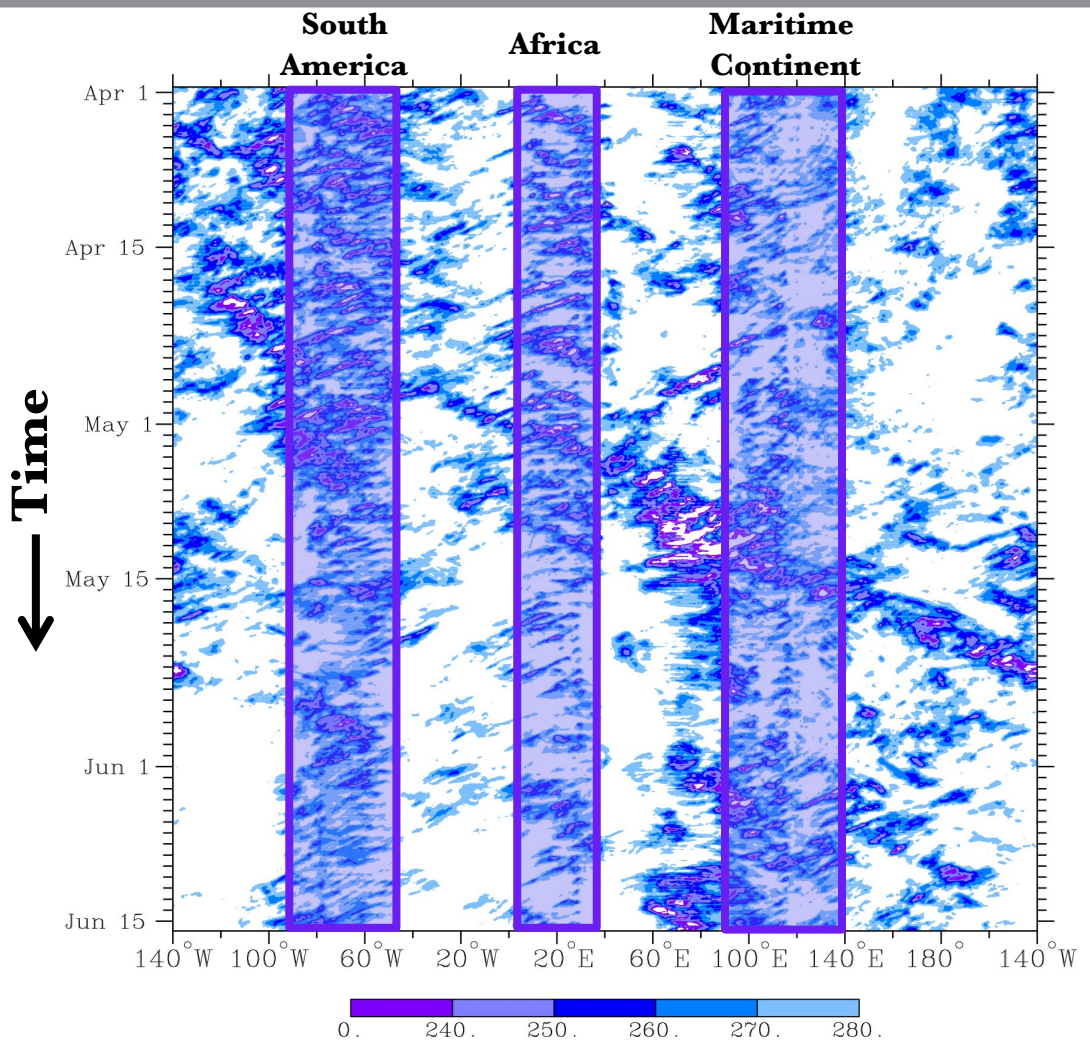
Propagating equatorial convection



1 April–15 June 1998

CLAUS Brightness Temperature averaged 5° S–5° N

Propagating equatorial convection



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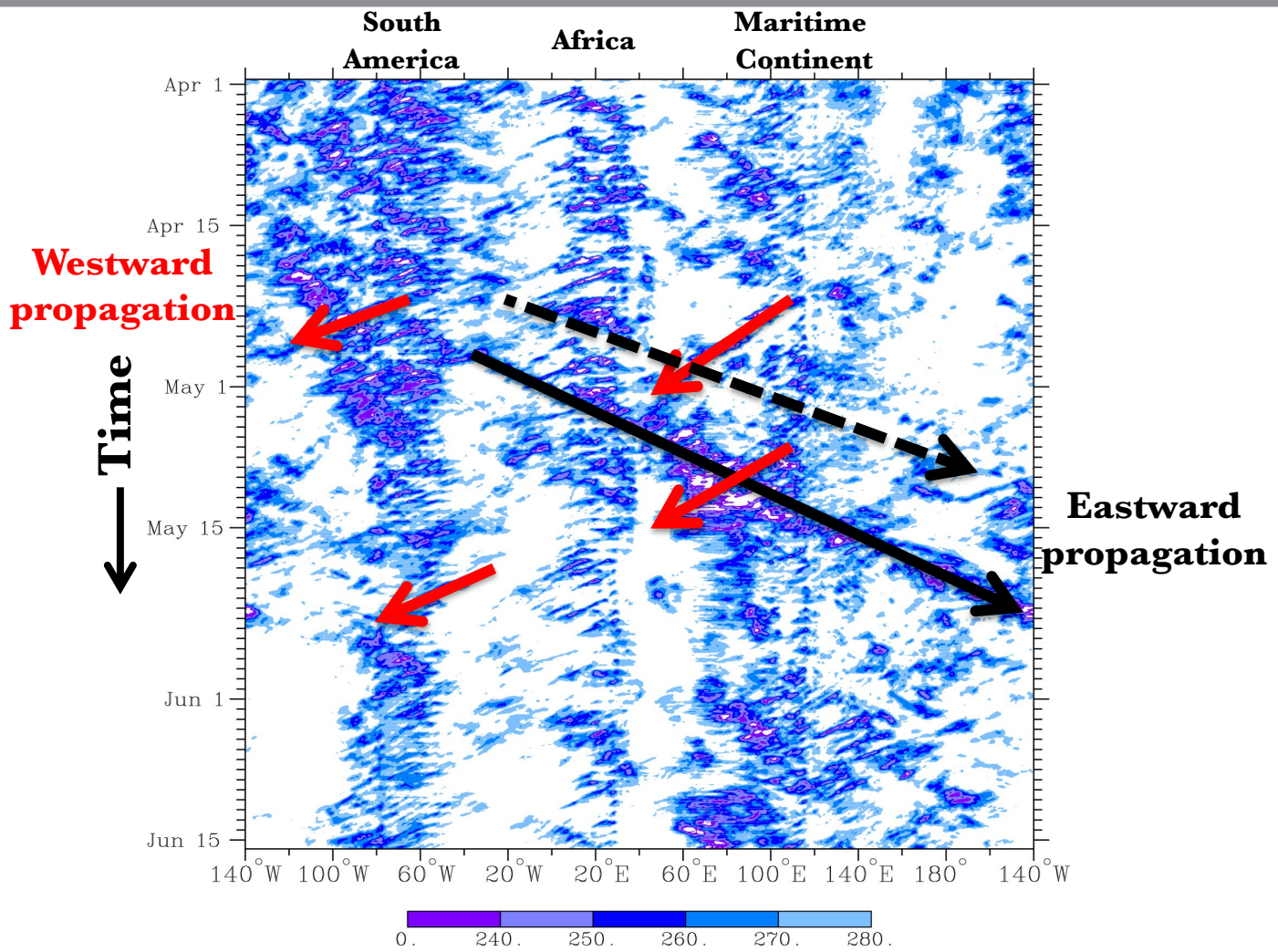
CLAUS Brightness Temperature averaged 5° S–5° N

Propagating equatorial convection



1 April–15 June 1998

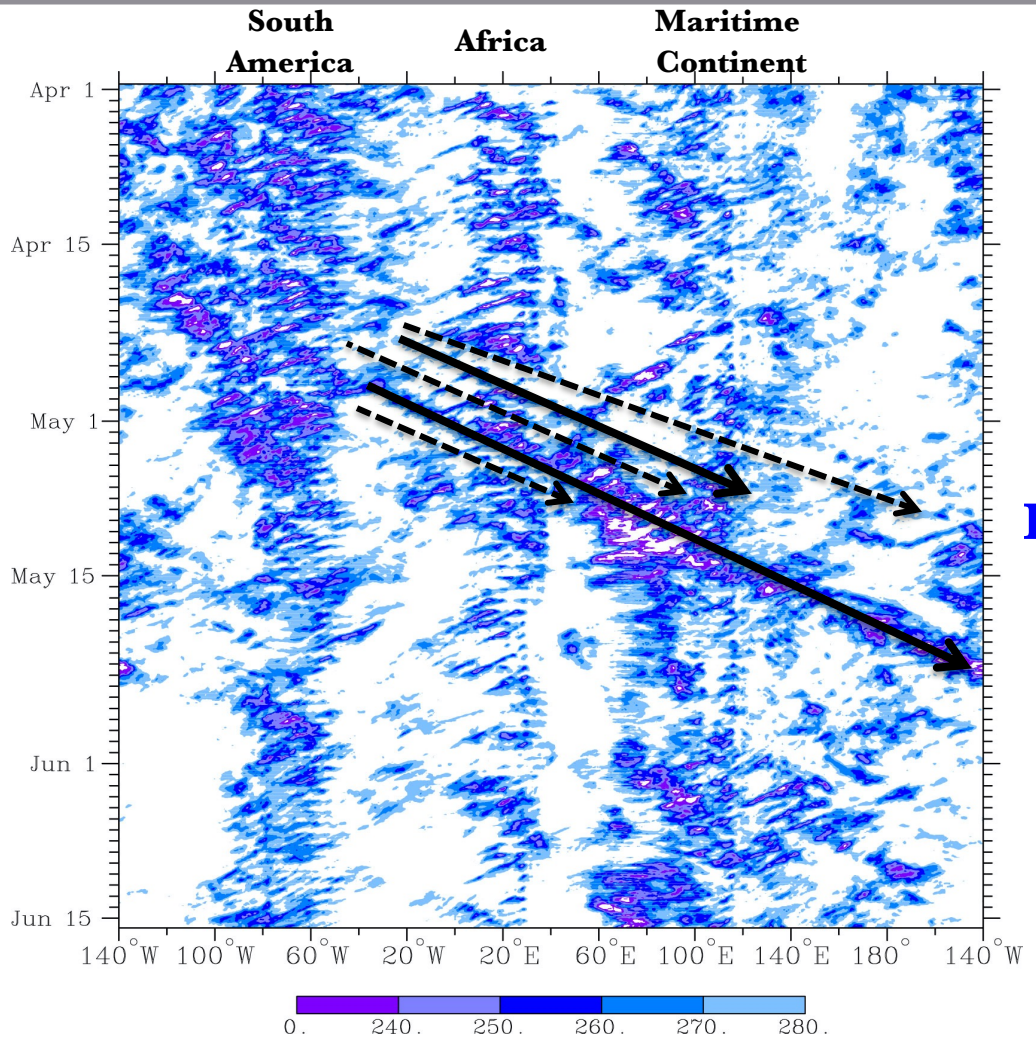
CLAUS Brightness Temperature averaged 5° S–5° N

Kelvin waves

Wavelength
3,756 km

Period:
4.5 days

Speed:
11 m s^{-1}



Convectively suppressed (dashed)

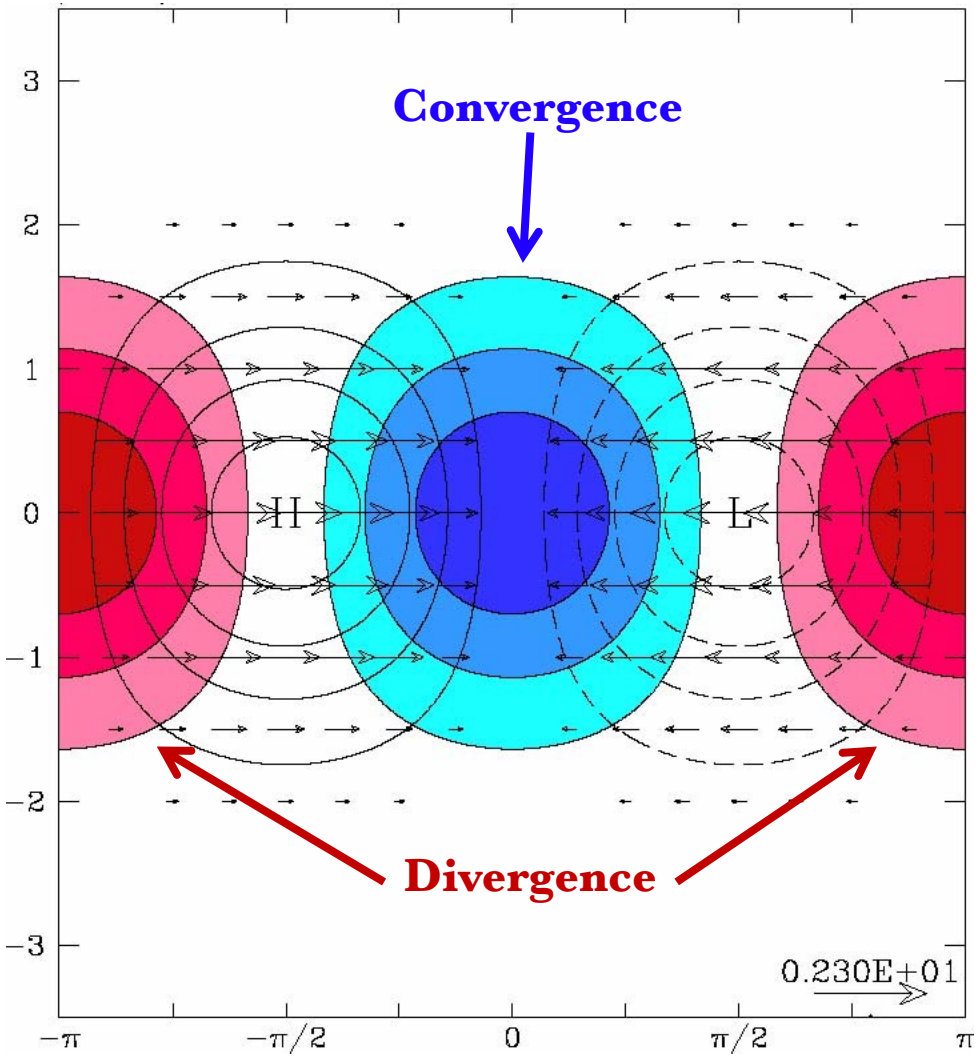
KELVIN WAVES

Convectively active (solid)

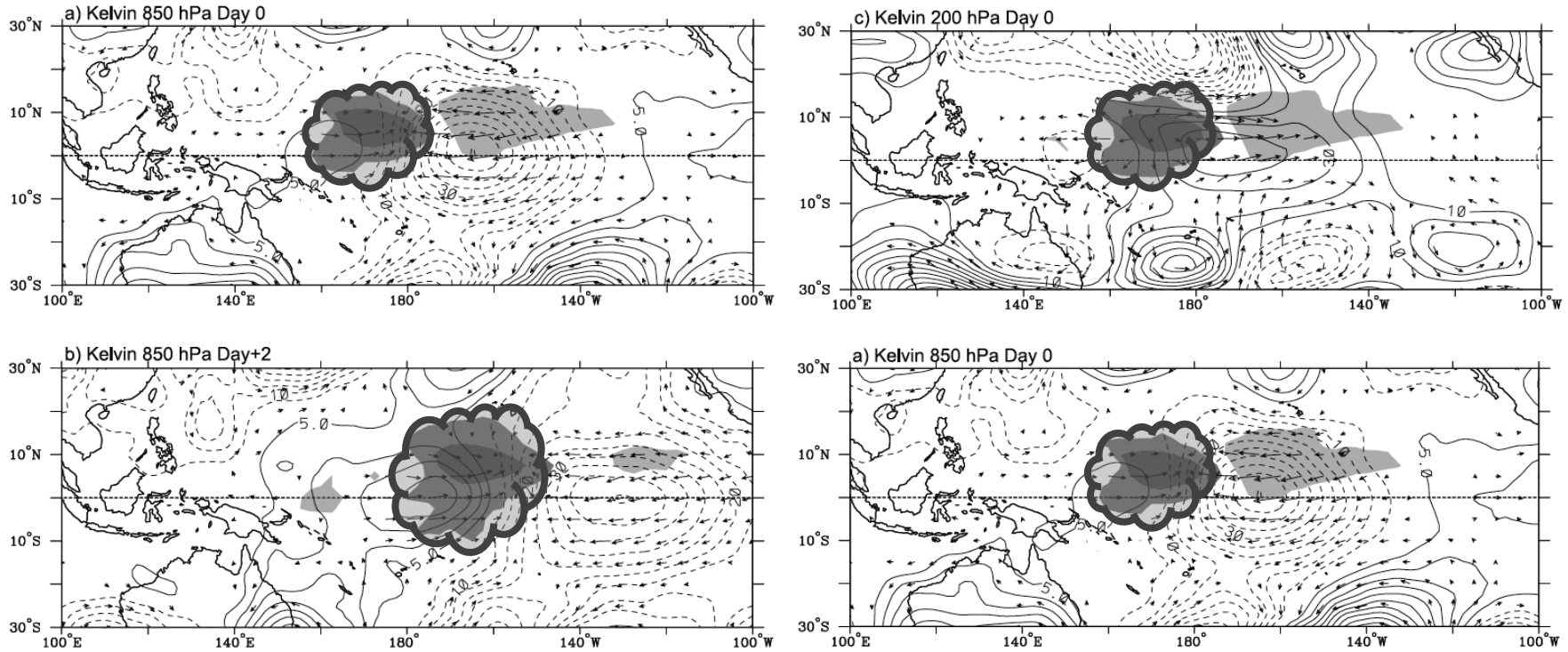
1 April–15 June 1998

CLAUS Brightness Temperature averaged 5° S–5° N

Theoretical Kelvin wave structure



Observed Kelvin wave structure

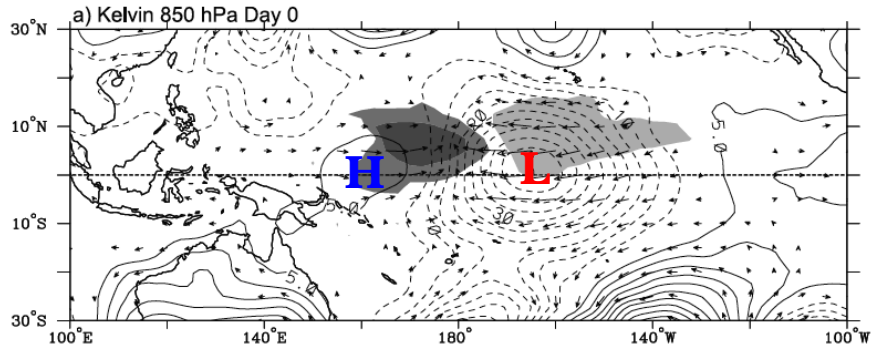


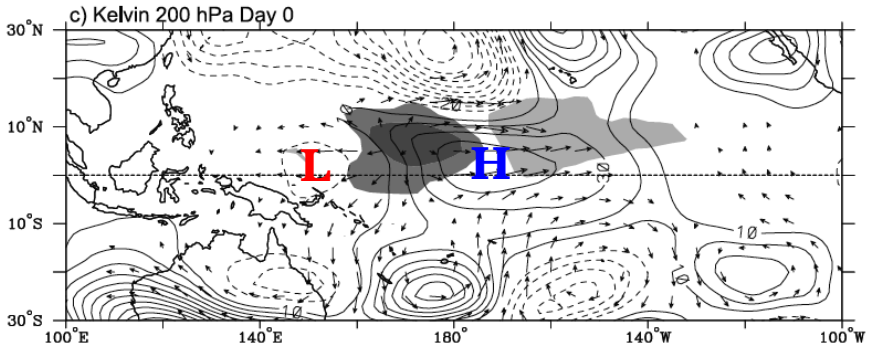
<u>Propagation (left) and vertical structure (right)</u>: <u>Real Kelvin wave</u>

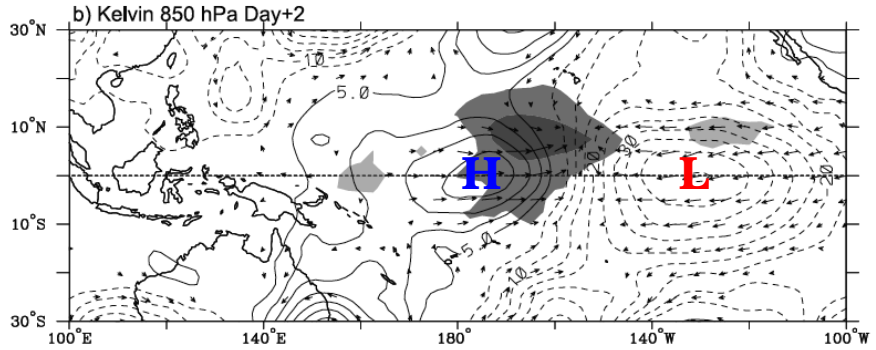
Anomalous T_b (shading; dark = active, light = suppressed convection)

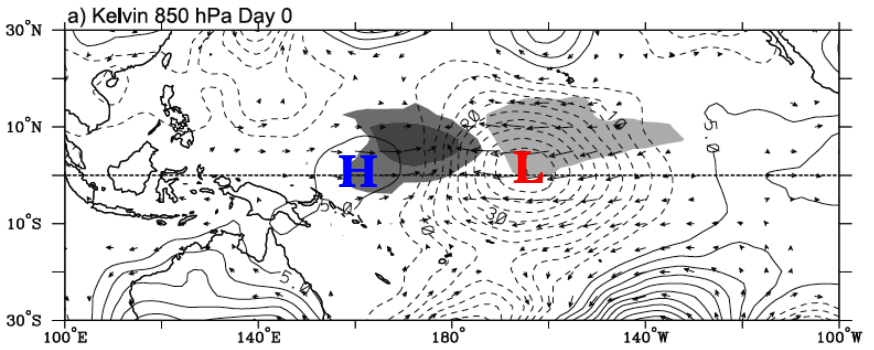
Kiladis et al. (2009)

Observed Kelvin wave structure









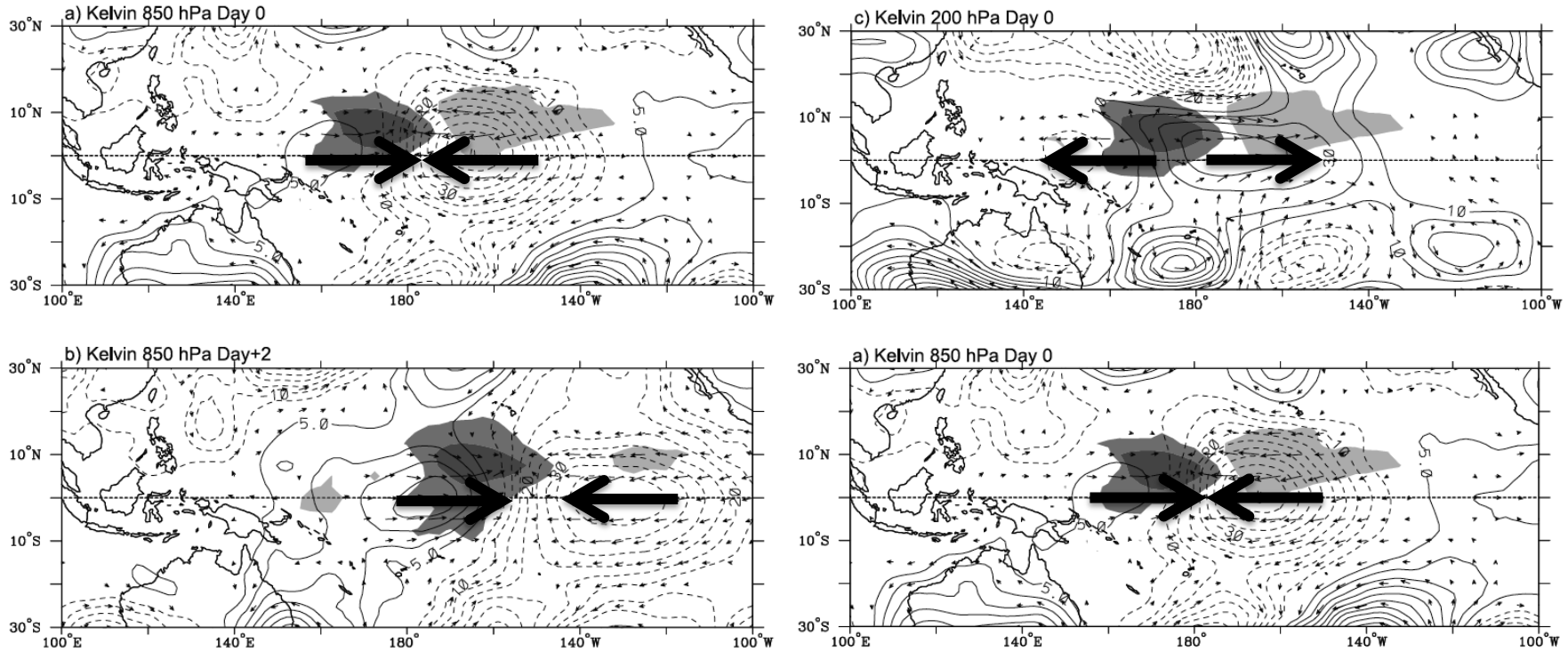
Propagation (left) and vertical structure (right): Real Kelvin wave

Anomalous T_b (shading; dark = active, light = suppressed convection)

Geopotential height anomalies (contours; dashed = negative)

Kiladis et al. (2009)

Observed Kelvin wave structure



Propagation (left) and vertical structure (right): Real Kelvin wave

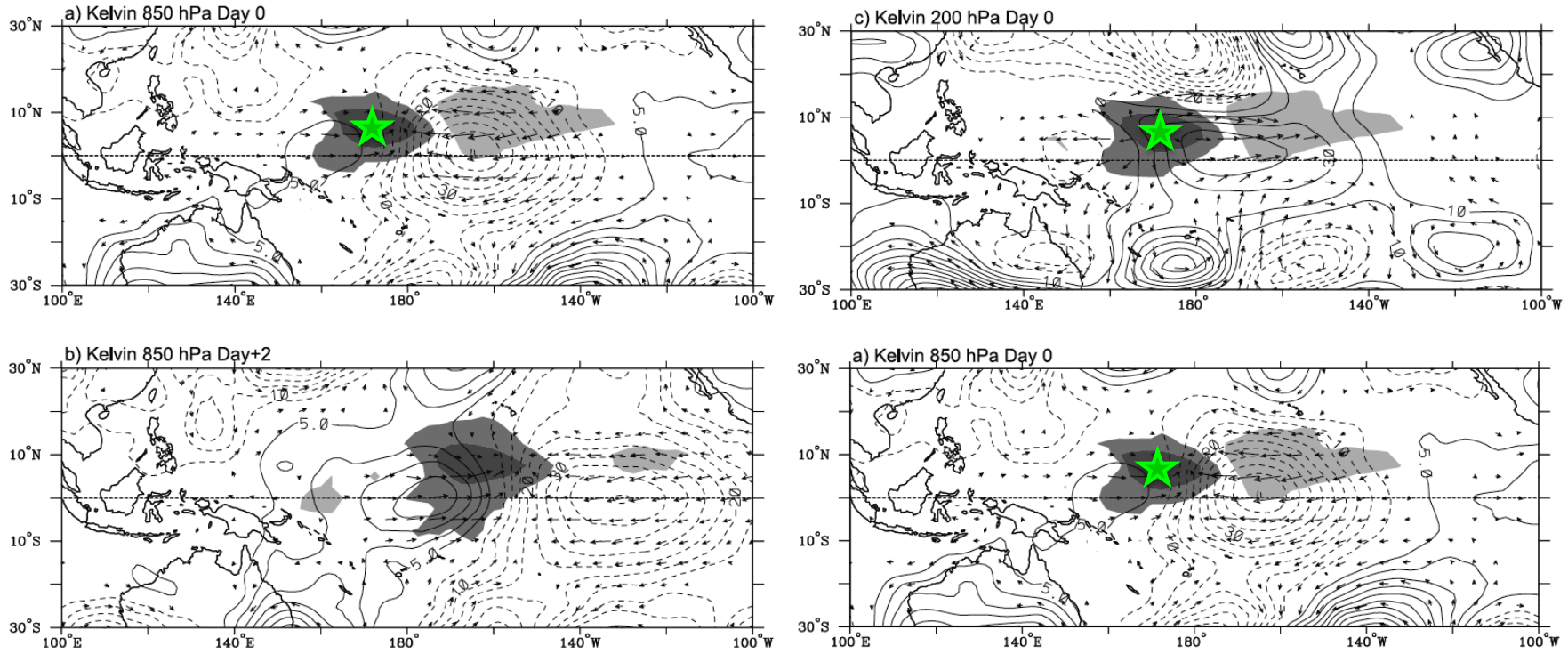
Anomalous T_b (shading; dark = active, light = suppressed convection)

Geopotential height anomalies (contours; dashed = negative)

Wind anomalies (vectors; largest = 2 m s^{-1})

Kiladis et al. (2009)

Observed Kelvin wave structure



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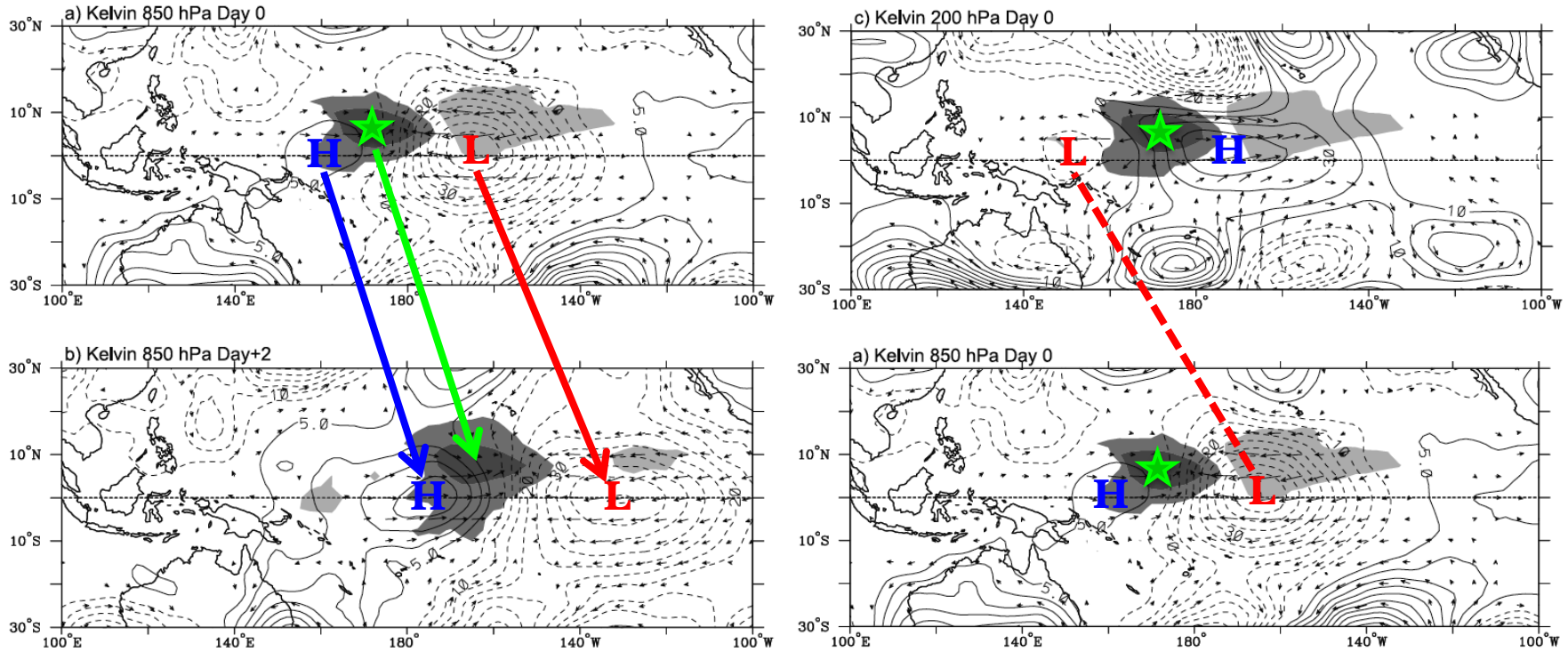
Wind anomalies (vectors; largest = 2 m s^{-1})

Kelvin wave at **star** on day 0

Kiladis et al. (2009)

Observed Kelvin wave structure



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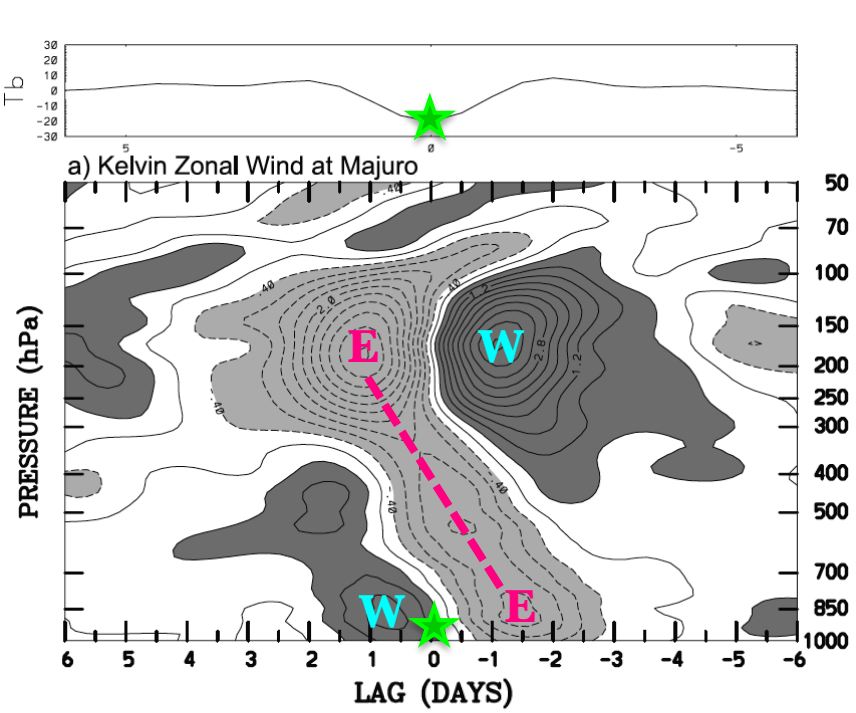

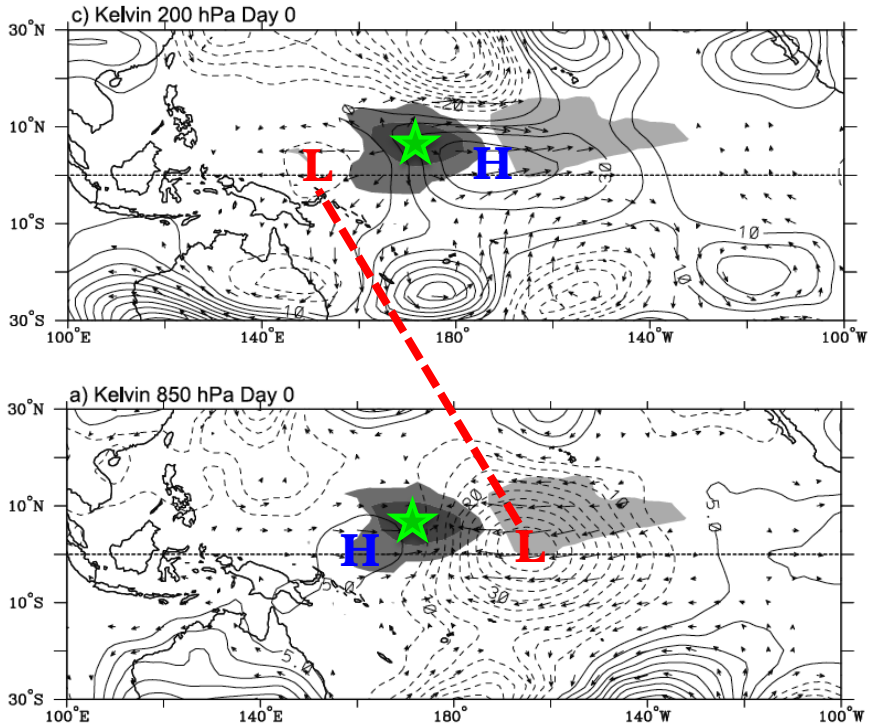

Vertical structure: Real Kelvin wave

Top: Evolution of anomalous T_b associated with the **Kelvin wave** at the **star** on day 0 (negative = lower temperature & deep convection)

Bottom: Time–height section of **zonal wind** associated with the passage of the Kelvin wave (negative = easterly, positive = westerly)

Kiladis et al. (2009)