TOGA Pseudo-Stress Atlas 1985-1994

Volume II: Tropical Pacific

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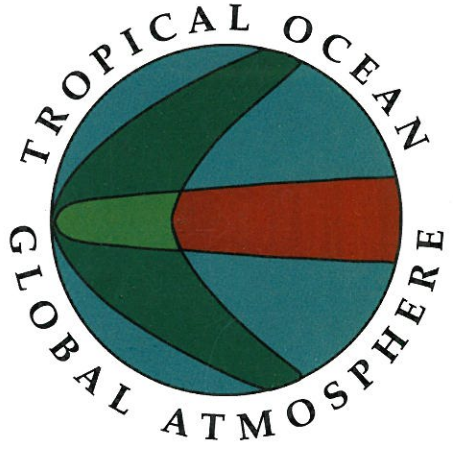

April 1997

COAPS Report 97-2

Forward to Volume I

The TOGA programme made considerable progress in the understanding and modelling of oceanic and coupled processes in the tropics. One of the major reasons for this was the progress in analyzing and distributing a surface wind product. This volume is the first in a three part series covering the three tropical oceans. Acquiring data was but one part of the TOGA programme: creating, documenting, cataloguing and distributing the data are equally important. I thank the authors Jacques Servain, James Stricherz, and David Legler for their work in analyzing the surface wind fields for the Atlantic and creating this nice record of the mean wind field and its variations over the TOGA period.

As any ocean modeller knows only too well, the performance of a numerical models is a strong function of the forcing fields, particularly the wind field. The analyses for all the tropical oceans performed by David Legler, Jacques Servain, and James Stricherz will provide an excellent record of the TOGA programme in providing forcing fields for ocean modellers. They will provide a nice complement to the forcing fields being developed from the atmospheric reanalyses currently underway at NCEP and at ECMWF. Only by using these fields to force ocean models and by intercomparing results will progress be made in both improving models and the forcing fields.

The authors would welcome any feedback on your perceived strengths or weaknesses of the fields. Although TOGA has now ended, it is a pleasure to see projects begun under TOGA coming to fruition. As the last Chairman of the International TOGA Scientific Steering Group, I would like to thank the authors for the valuable contribution they have made. I hope you will enjoy studying these atlases.

David Anderson
June 1996

Acknowledgments

This atlas reflects the continuing success of an effort that started over 15 years ago. The hard work of over 50 people can be seen by viewing this product.

Thanks goes to the Center for Ocean-Atmospheric Prediction Studies (COAPS) for always lending a hand when we needed it. Thanks, Gwen, Patty and Ruth for all the things that you do.

We gratefully acknowledge the support of NOAA and the TOGA Project Office; this project could not have been completed without them. Additional support over the yeas has been provided by NSF and ONR.

Finally, we would like to express our gratitude to all of the investigators who use this data and make our products the most widely used wind products for the tropical Pacific.

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Introduction

One of the legacies of the Tropical Ocean Global Atmosphere (TOGA) program are the specialized tropical wind datasets which have become the preferred forcing fields for tropical ocean modelling applications. As part of this legacy, we present this second (in a series of three) atlas portraying the monthly mean wind fields from the tropical Pacific for the TOGA period.

In Volume 1 of this set, the tropical Atlantic wind analyses from J. Servain (ORSTOM, Brest) were presented (Servain et al., 1996). This atlas, Volume II, focuses on the tropical Pacific wind products from Florida State University, while Volume III will present Florida State University wind products from the Indian Ocean.

Volume II is an extension of previous atlases covering the years prior to TOGA (Legler and O'Brien, 1985; Stricherz et. al., 1992). Additionally, a historical perspective can be found in these prior publications.

Analysis Procedure

All available in-situ data (includes merchant ships, buoys, and other marine observing stations) number about 165,000 for any given month for the entire world. To remove spurious wind reports, if any individual report of wind speed exceeds 40 m s^{-1}, the report is deleted.

The individual wind vector data in the tropical Pacific region, 30°N to 30°S, 120°E to 70°W, typically 25,000 observations monthly, are first converted to pseudo-stress. A pseudo-stress vector is defined as the wind components multiplied by the wind magnitude, and a pseudo-stress vector of 60 m^2s^{-2} corresponds to a wind stress of 1 dyne cm^{-2} assuming a drag coefficient of 1.4×10^{-3} and an air density of 1.2 kg m^{-3}.

These pseudo-stress vector components are then binned into 10° longitude by 2° latitude rectangles. In each rectangle with more than two observations, statistical theory is used to eliminate "bad" observations. For each rectangle with greater than two observations but less than 11, the lowest and the highest component values are ignored. For locations with greater than 10 reports, the top and bottom 10% are removed for each stress component.

New averages are then computed and a three-standard-deviation test is used to eliminate any remaining outliers. The resulting scalar fields are then subjectively analyzed and checked by trained meteorologists. After digitizing, the resulting 2° by 2° grid is given a final examination and checked for errors.

Near-Real-Time Analyses

Monthly fields are processed in near-real-time. At the end of each month we

receive from National Center for Environmental Prediction's (NCEP) Climate Analysis Center (CAC) the global marine surface observations that were received over the global telecommunications system (GTS) during that month. Additional wind reports, for example island stations, are used to verify these quick look results. These winds are analyzed as previously discussed. The resulting maps of pseudo-stress are widely distributed (WMO, CAC/CDBs, IGOSS, etc.). These so-called "quick look" products are available directly from FSU via WWW and ftp services.

Fields of the anomaly from the 23 year (1961-1983) mean month are also produced This data were used at Florida State University to drive a numerical model (see Busalacchi and O'Brien (1980), Busalacchi and O'Brien (1981)) producing estimates of the upper ocean currents in the tropical Pacific. It is also used in predicting the occurrence of ENSO events (e.g., Inoue and O'Brien (1984); Inoue and O'Brien (1986)).

Each spring, a more complete set of marine reports is obtained from the National Climatic Data Center for the previous year. This set contains data already received via the GTS and supplemental reports that were received late. The increase in the number of observations in the tropical Pacific regions is about 10-25%. The analysis procedure is the same for this more complete data set, and the results constitute the "research quality" product. These, too are available directly from FSU.

Atlas Description

Maps produced for this atlas are derived from the re-analyzed "research quality" FSU tropical Pacific products (based on COADS data). The pseudo-stresses are computed from:

$$\begin{aligned} \mathbf{T} &= T_x \boldsymbol{i} + T_y \boldsymbol{j} \\ T_x &= u\,|\mathbf{V}| \\ T_y &= v\,|\mathbf{V}| \end{aligned} \qquad (1)$$

where $\mathbf{T}$ is the pseudo-stress vector, $|\mathbf{V}|$ is the magnitude of the horizontal wind speed defined by $\mathbf{V}=u\boldsymbol{i}+v\boldsymbol{j}$, $|\mathbf{V}^2| = u^2+v^2$ and T_x, T_y are the pseudo-stress components.

Explanation of Maps

a. Climatology charts

These charts are the overall annual, annual anomaly, and monthly mean pseudo-stress vectors, curl of the stress vectors, and the divergence of the wind from the 1966-1994 and the 1985-1994 subjective analysis data over the tropical Pacific on a

2° latitude-longitude grid. The contour intervals are the same for each type of map. The vectors were drawn at every 4° in latitude and longitude for convenience. The countour interval is 20 $m^2 s^{-2}$, and 5 $m^2 s^{-2}$ for annual anomaly fields.

Contoured plots of the mean yearly wind stress curl were derived from 2° stress data. The magnitude of the stress curl is given by

$$\zeta = \hat{\mathbf{k}} \bullet \nabla \times \tau \qquad (2)$$

$$\tau = \rho_a C_d \mathbf{V}^2$$
$$\tau_x = \rho_a C_d u|\mathbf{V}|$$
$$\tau_y = \rho_a C_d v|\mathbf{V}|$$

where τ, τ_x, and τ_y are the stress vector and components, respectively, ρ_a is the air density, C_d is the drag coefficient computed by the Large and Pond (1982) method. The variation in the meridional separation was taken into account in these calculations. A single pass of a 1-2-1 smoother was applied in both the N-S and E-W directions. The contour interval is 2 x 10^{-8} Nm^{-3}.

The mean yearly wind divergence are calculated from the pseudo-stress components (see (1)):

$$u' = T_x (T_x^2 + T_y^2)^{-1/4}$$
$$v' = T_y (T_x^2 + T_y^2)^{-1/4} \qquad (3)$$

Where T_x and T_y are the pseudo-stress components. The divergence of the wind is then given by:

$$\nabla \bullet \mathbf{V} = \frac{\delta u'}{\delta x} + \frac{\delta v'}{\delta x}$$

The derivatives where computed monthly, and then averaged. Smoothing was applied by the same method used for the curl. The contour interval is 2 x 10^{-6} s^{-1}.

b. Monthly charts

These charts are the monthly pseudo-stresses for all 120 months: January 1985 through December 1994. The original analysis results are available on a 2° grid, but are plotted on a 4° grid. The contour interval is 20 $m^2 s^{-2}$.

The monthly pseudo-stress anomalies are deviations from the mean calendar month for the period 1985-1994, and 1966-1994. The contour interval is 10 $m^2 s^{-2}$.

The monthly wind stress curl is computed from (2), with the same smoothing applied as in the case of the yearly wind stress curl plots. The contour interval is 2×10^{-8} Nm^{-3}.

Data Availability

The products described are available to anyone who desires them. Monthly pseudo-stress analyses are available on magnetic media for the period 1966 to the present month. The pseudo-stress fields are also available via anonymous ftp at <url:ftp://coaps.fsu.edu/pub/wind/pac/> and via the World Wide Web at <url:http://www.coaps.fsu.edu/fsuwinds/>. For additional information please contact us.

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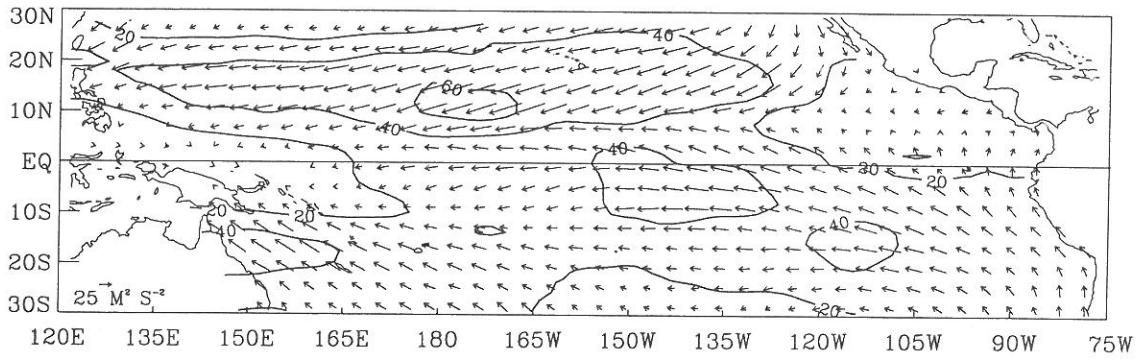
Annual Means

Yearly Mean Pseudo-stress ($M^2\ S^{-2}$) 1985



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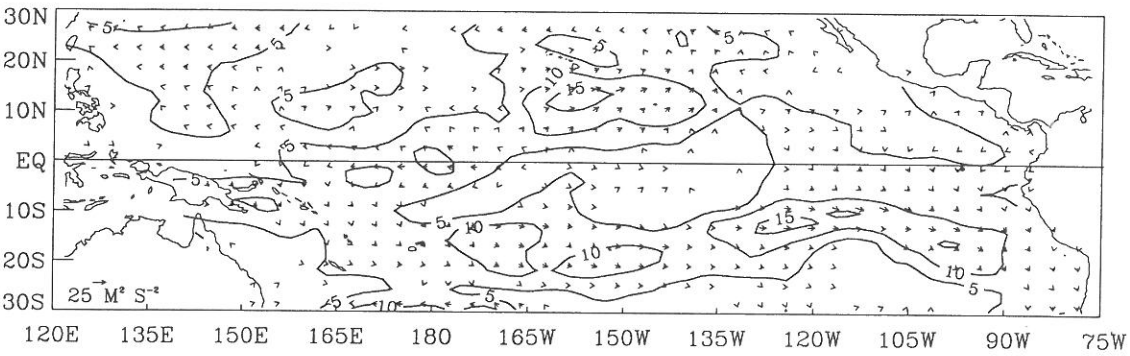

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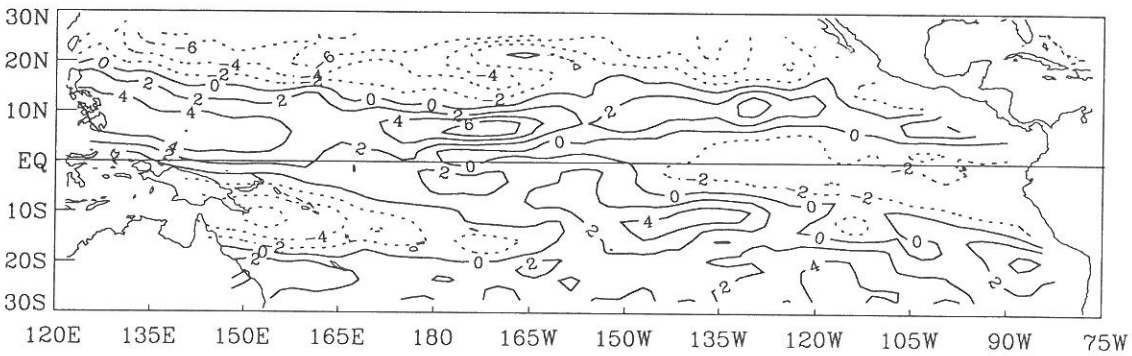

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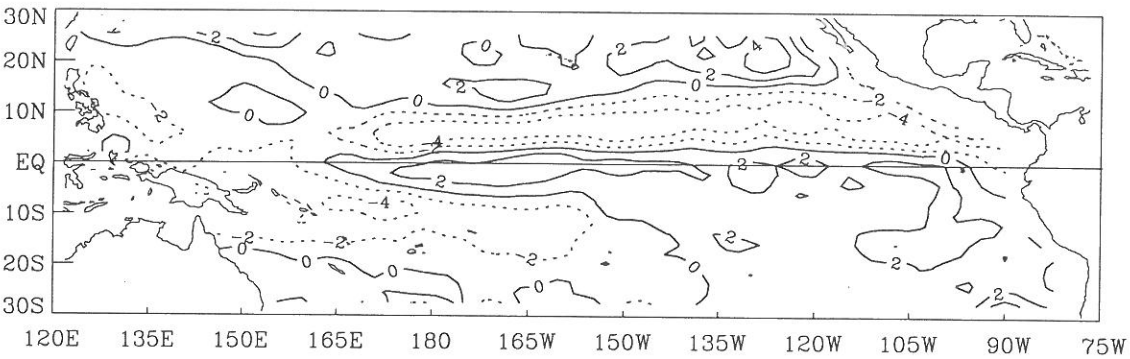

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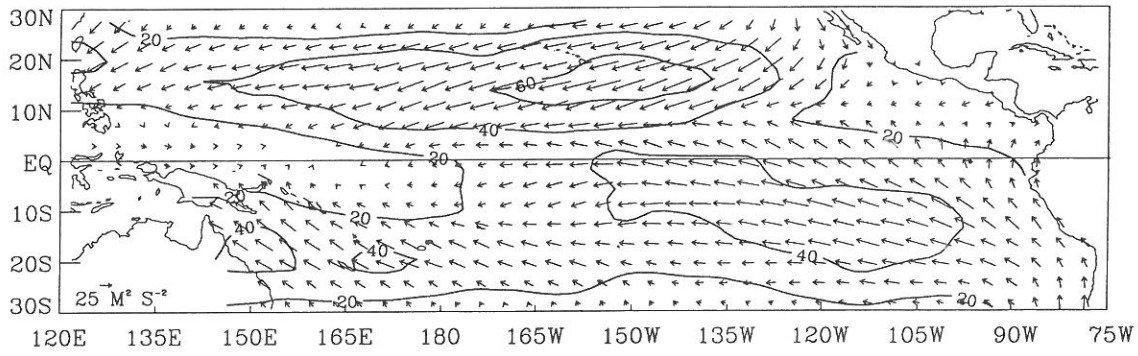

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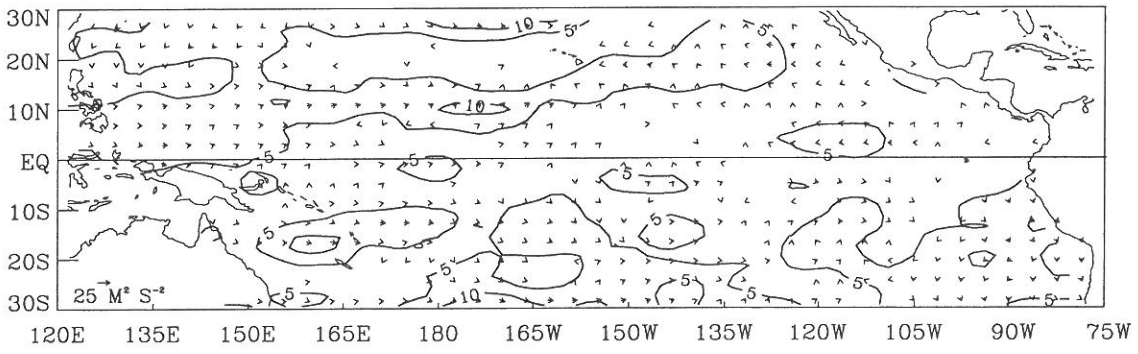

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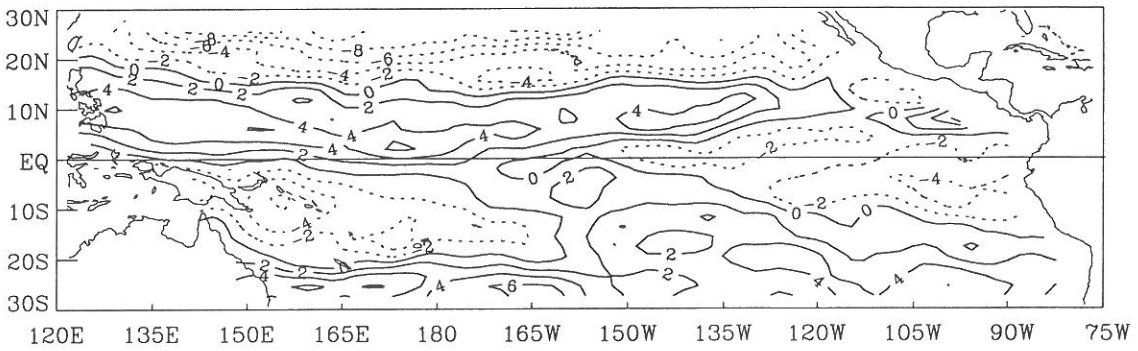

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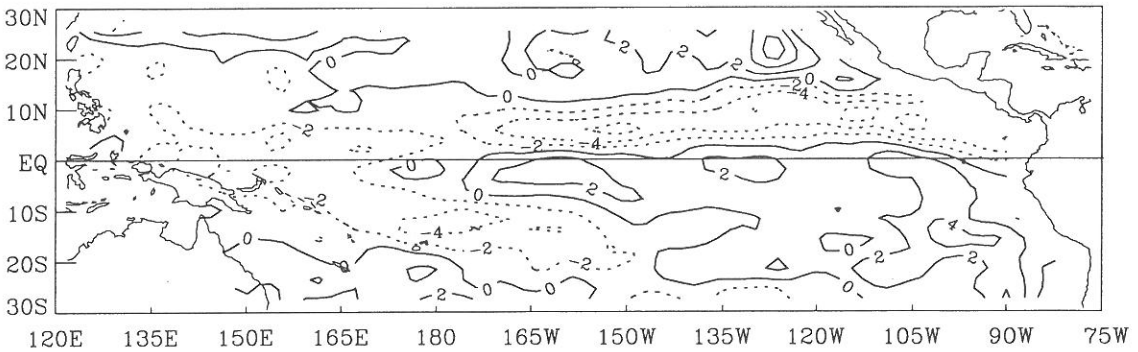

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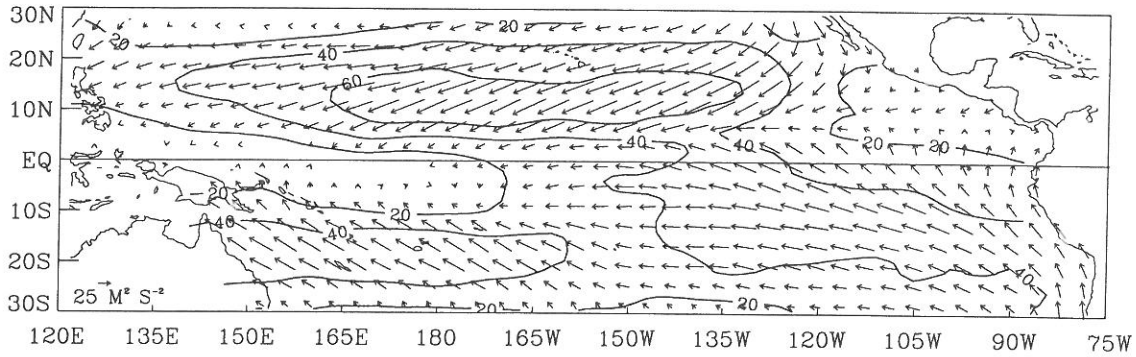

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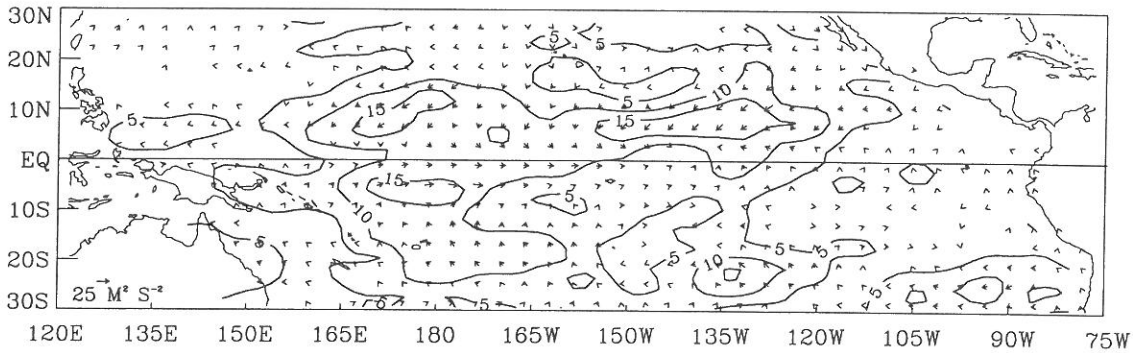

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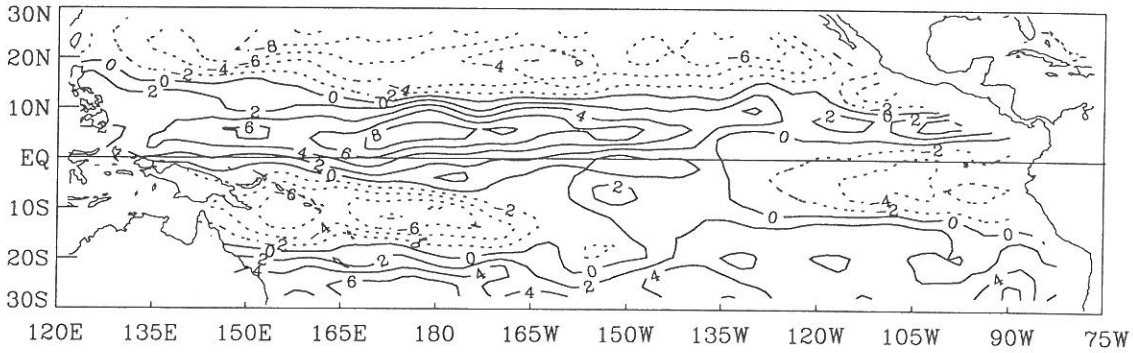

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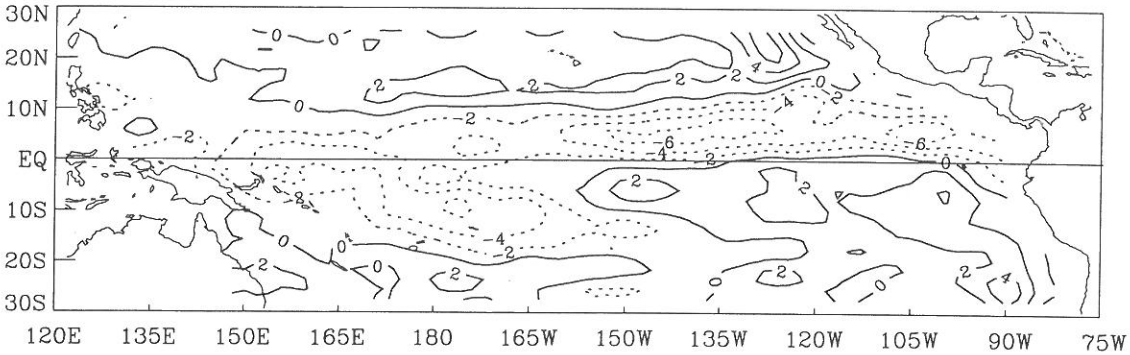

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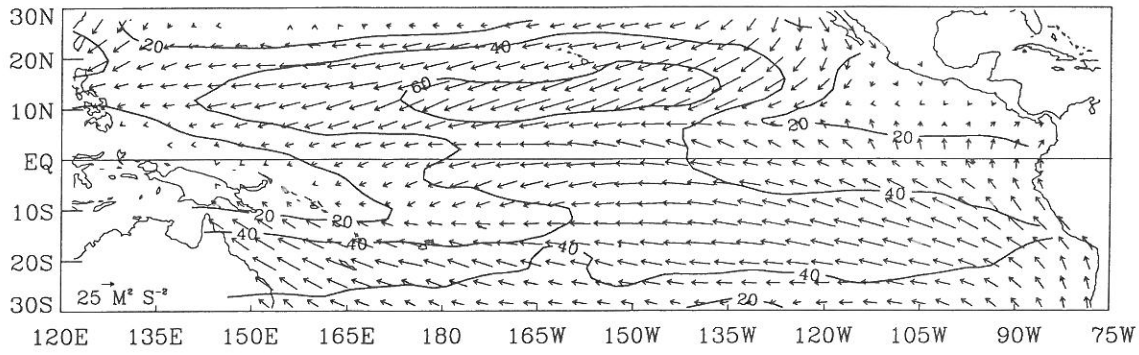

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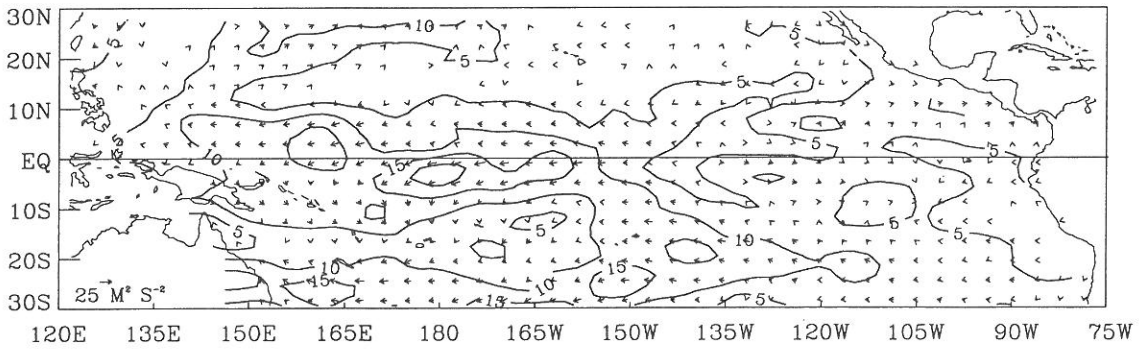

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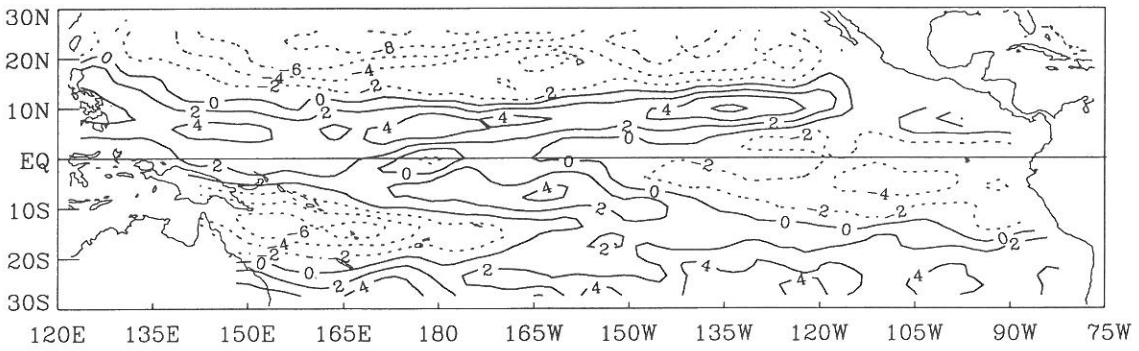

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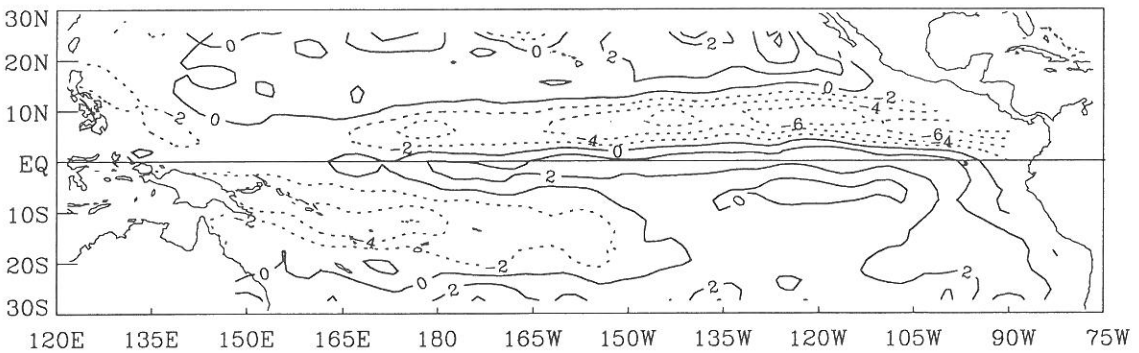

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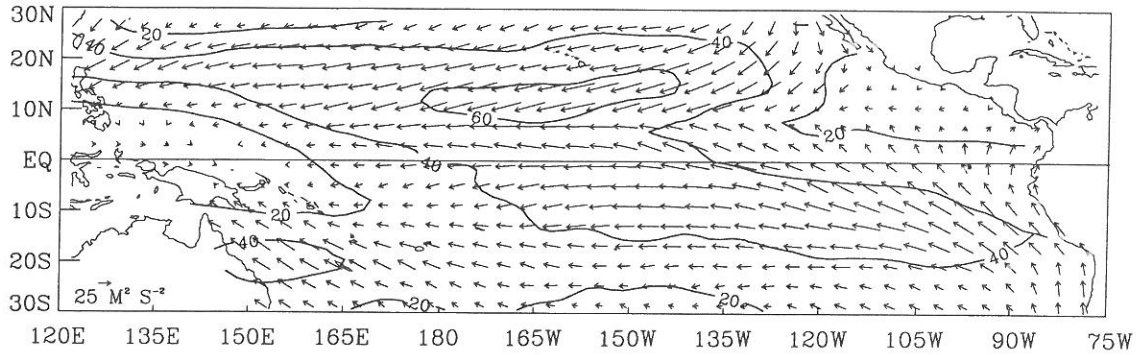

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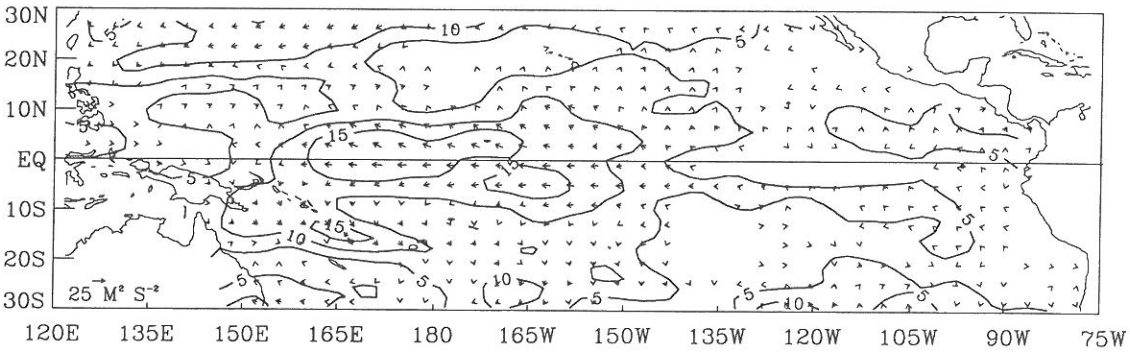

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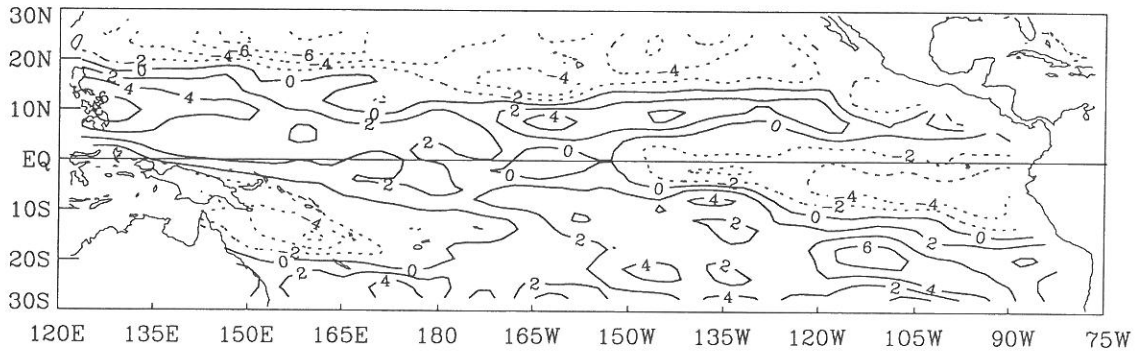

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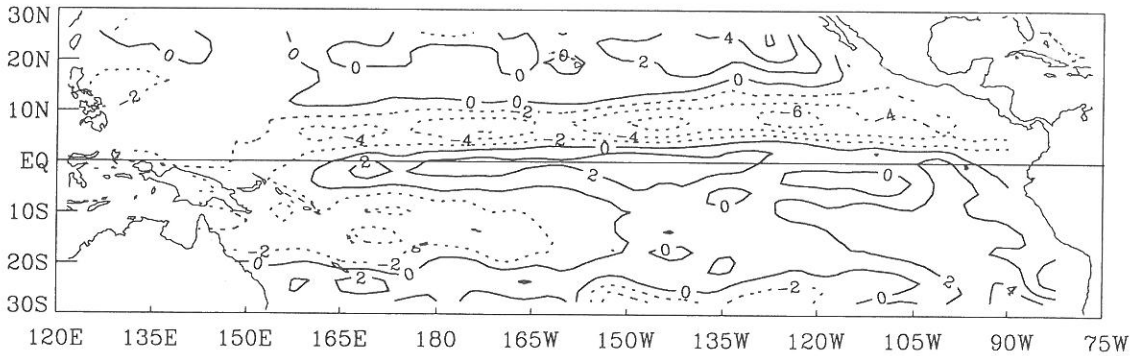

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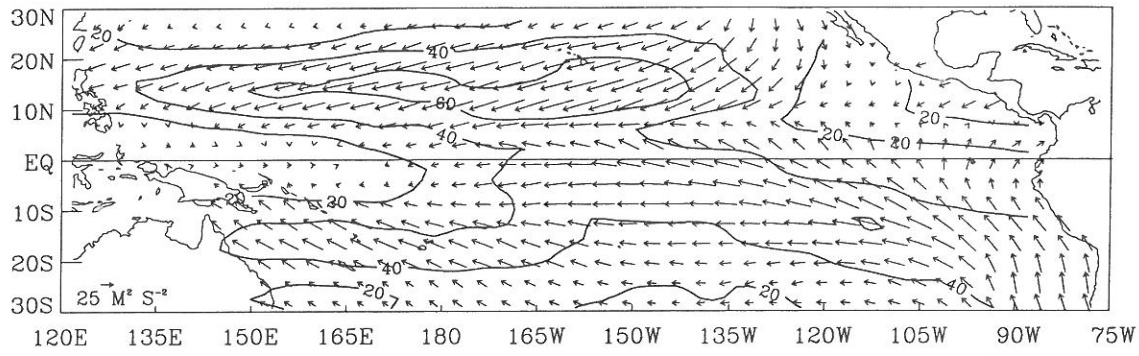

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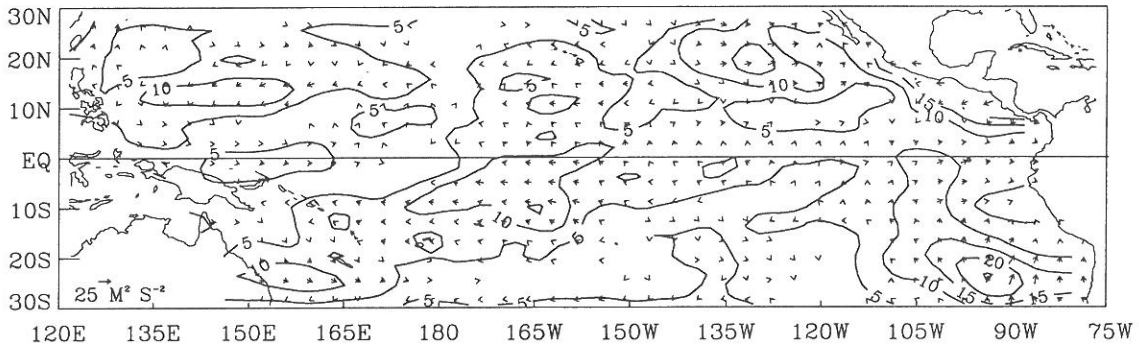

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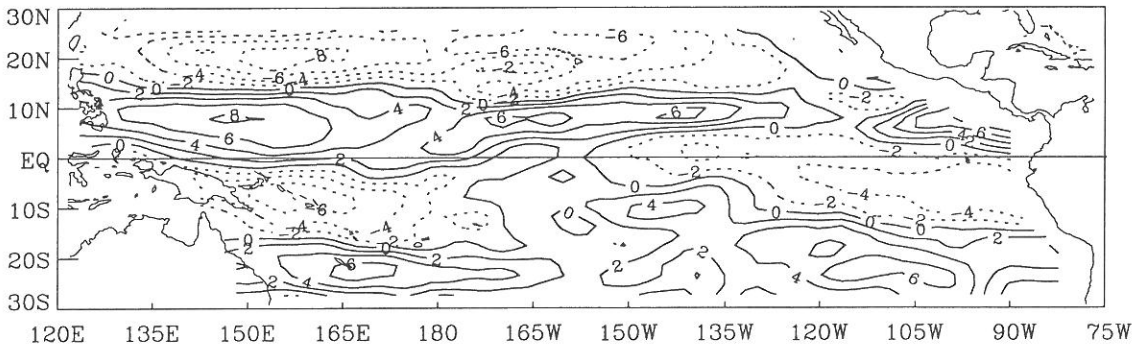

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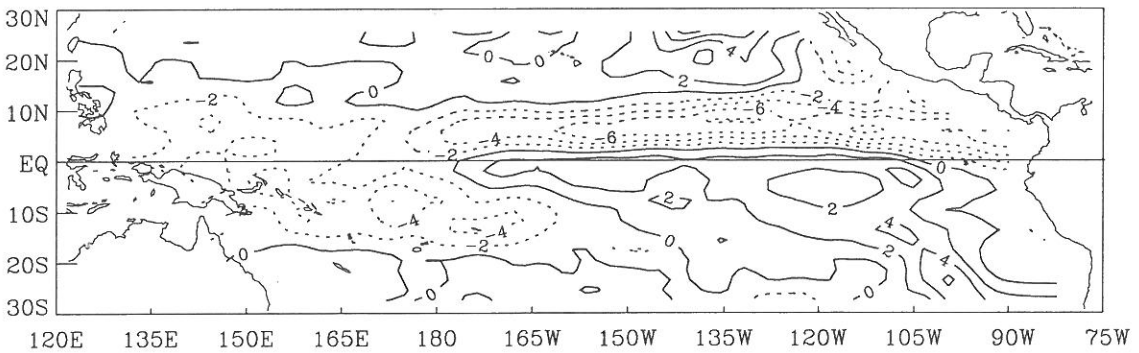

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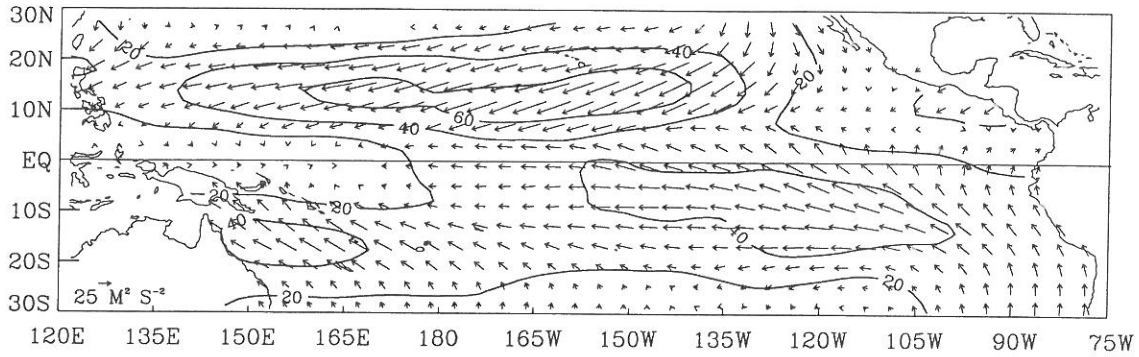

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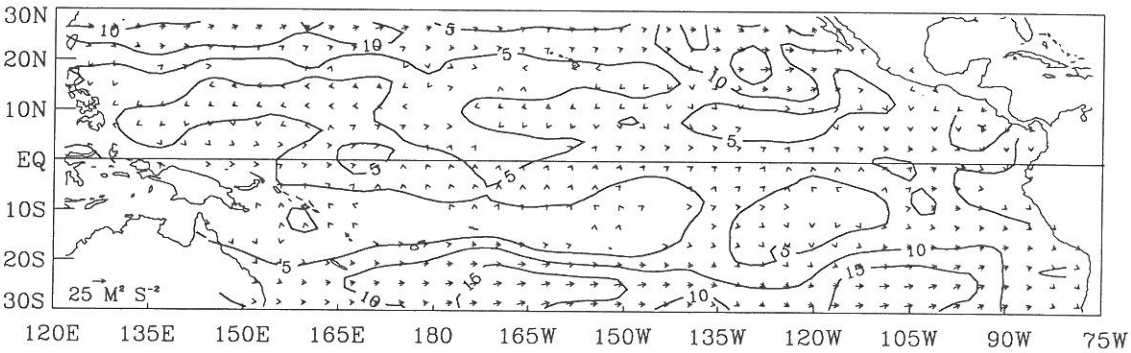

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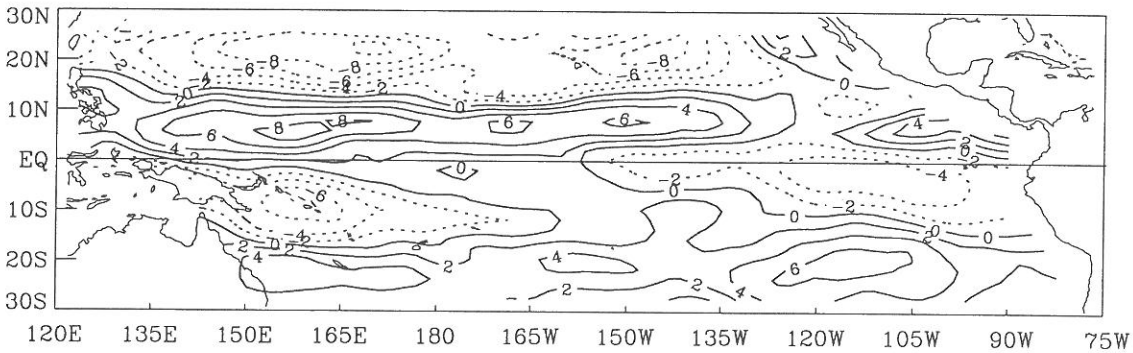

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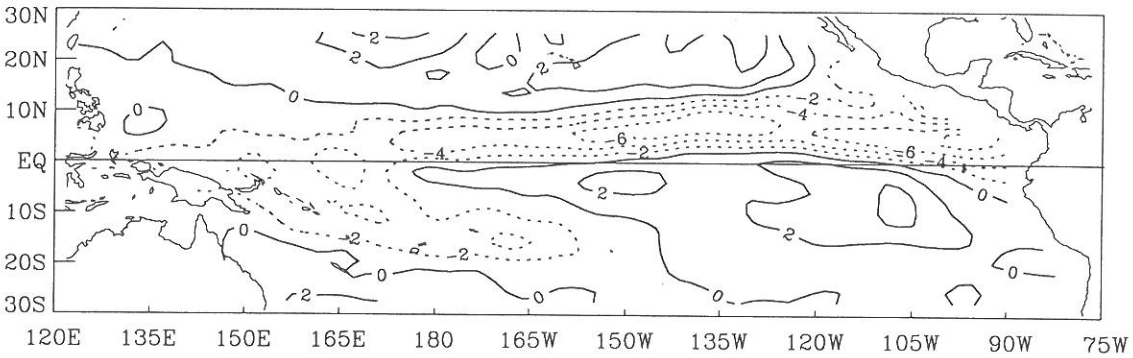

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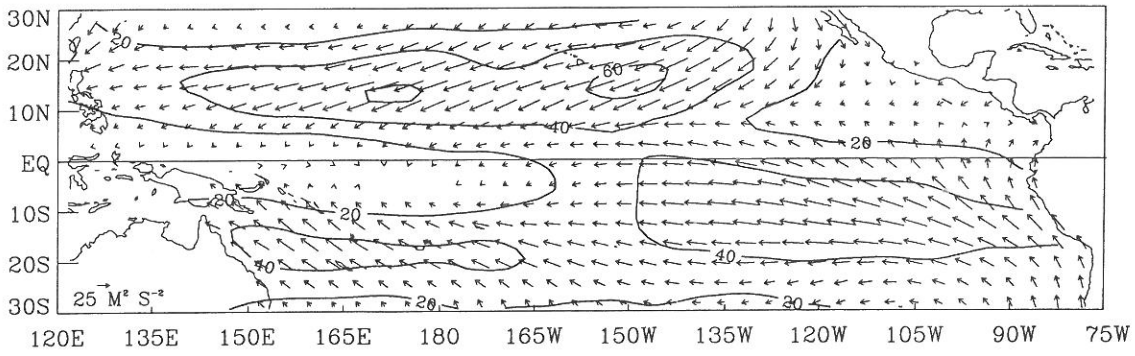

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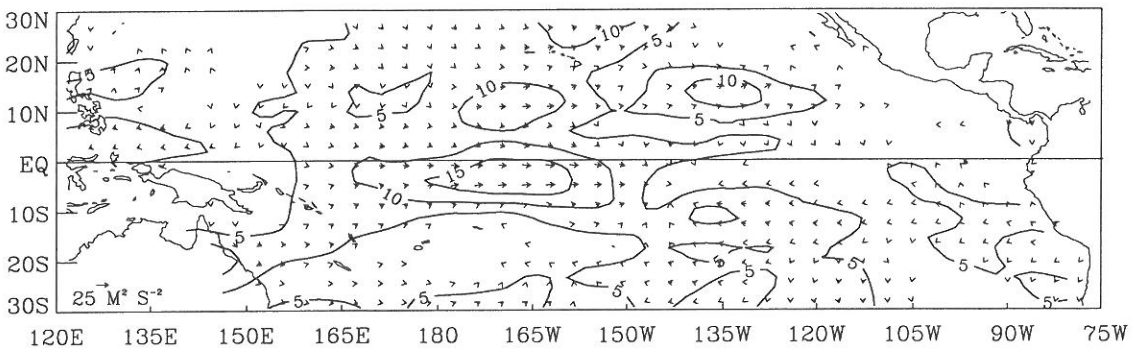

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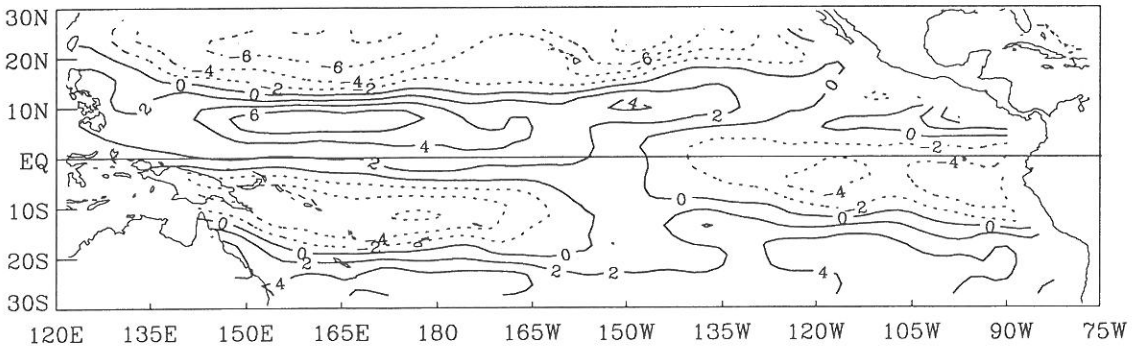

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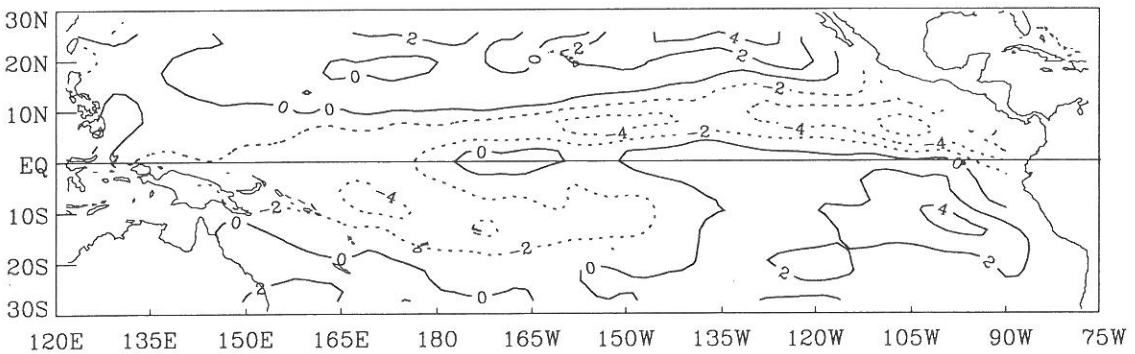

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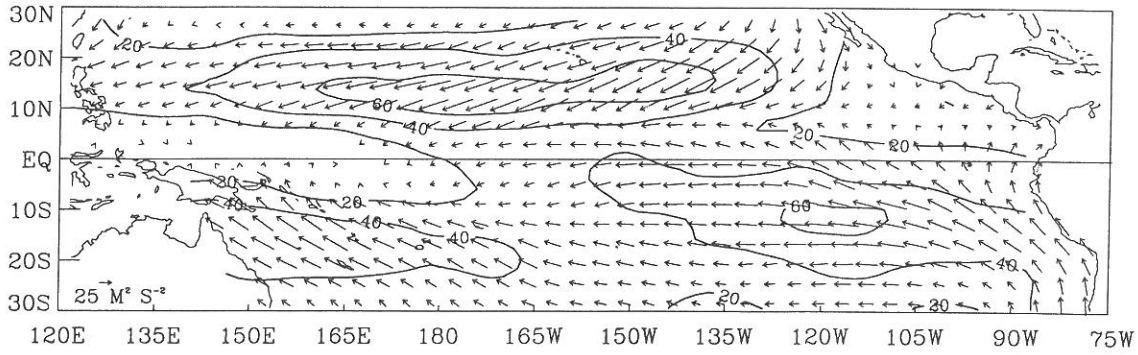
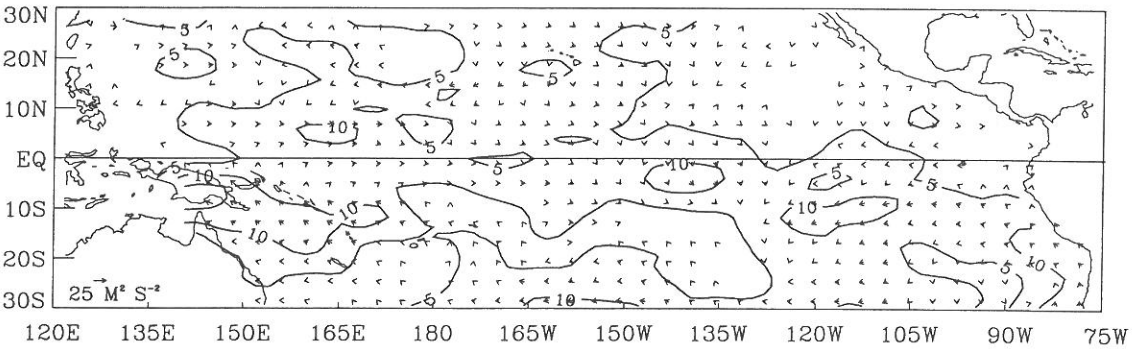
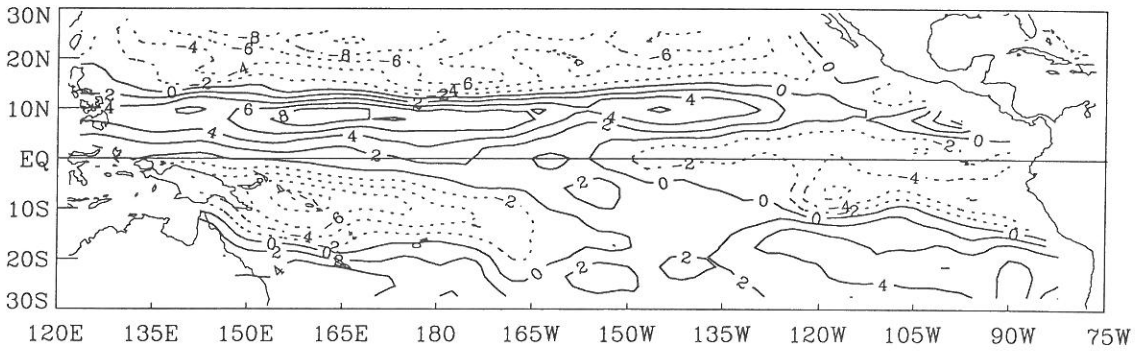


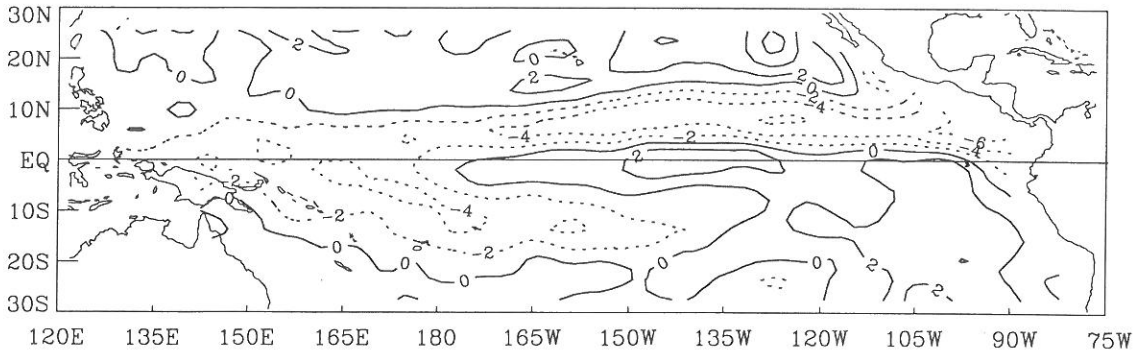
Yearly Mean Anomaly from 1966-94 Mean ($x10^{-2}$ N M^{-2})1993



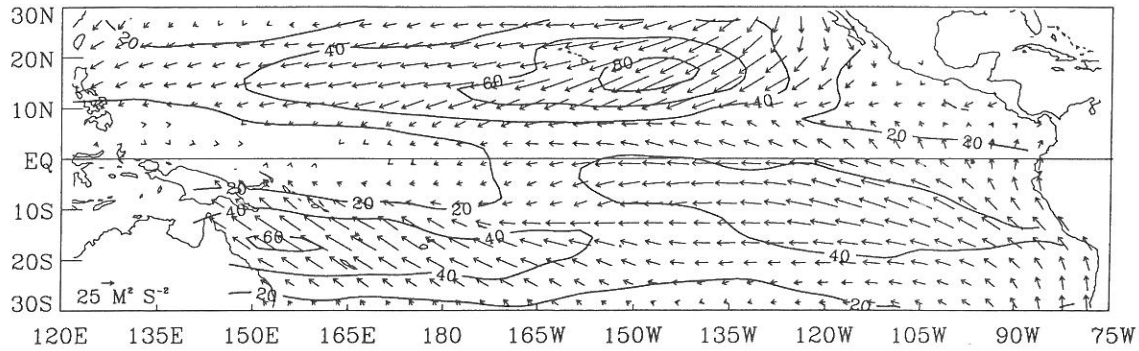
Yearly Mean Wind Stress Curl ($x10^{-8}$ N M^{-3}) 1993



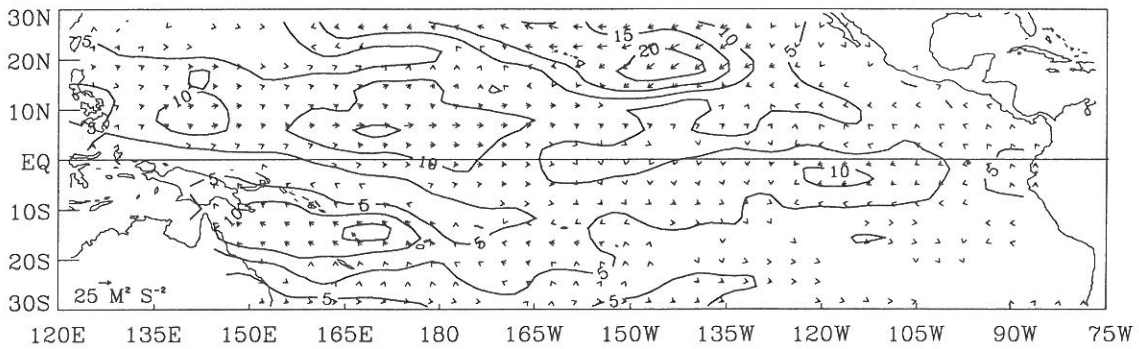
Yearly Mean Wind Divergence ($x10^{-6}$ s^{-1}) 1993



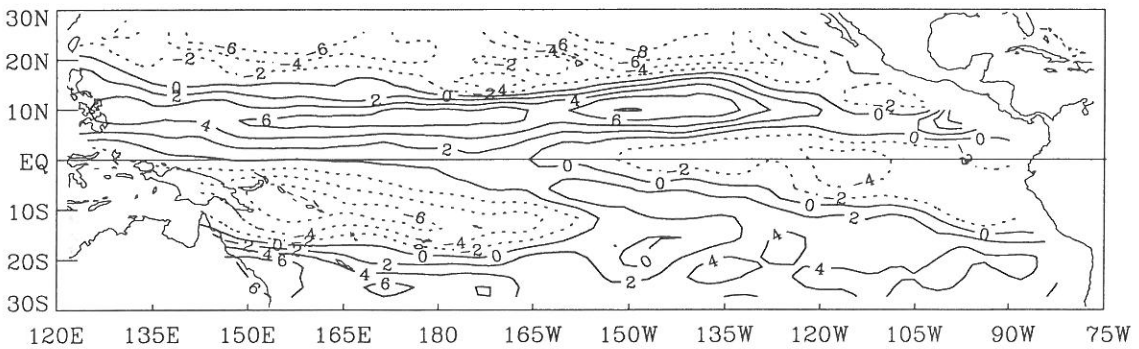
Yearly Mean Pseudo-stress ($M^2\ S^{-2}$) 1994



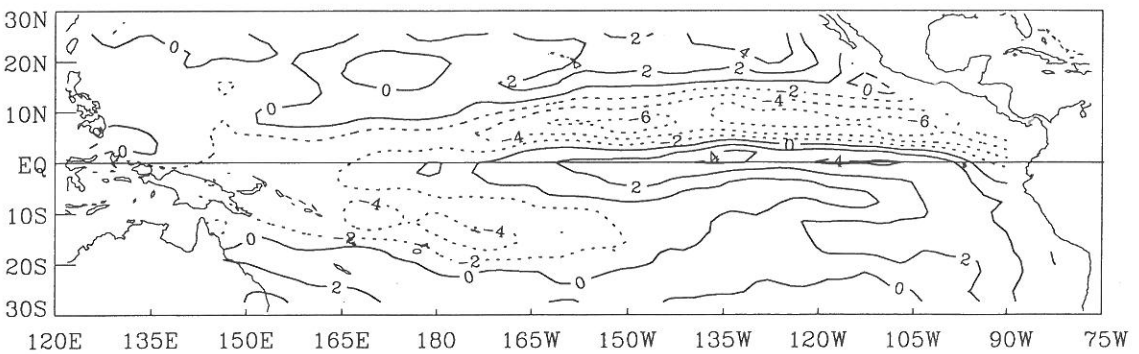
Yearly Mean Anomaly from 1966-94 Mean ($x10^{-2}$ N M^{-2})1994



Yearly Mean Wind Stress Curl ($x10^{-8}$ N M^{-3}) 1994

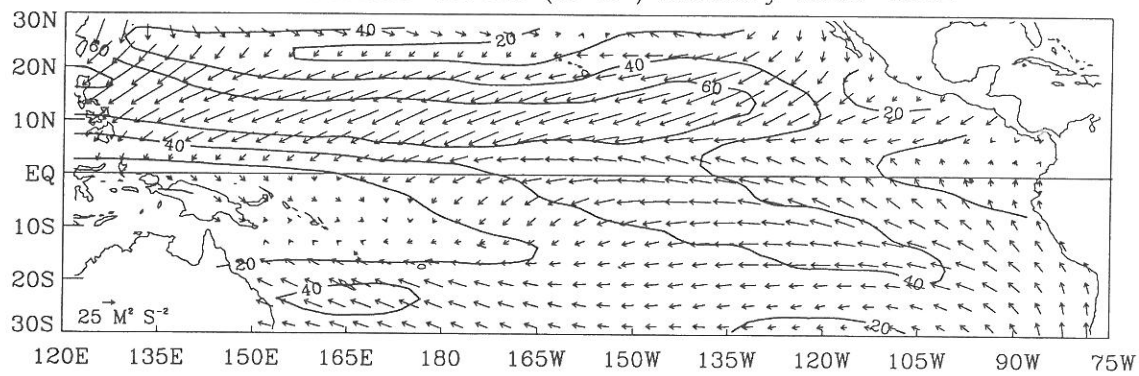


Yearly Mean Wind Divergence ($x10^{-6}$ s^{-1}) 1994

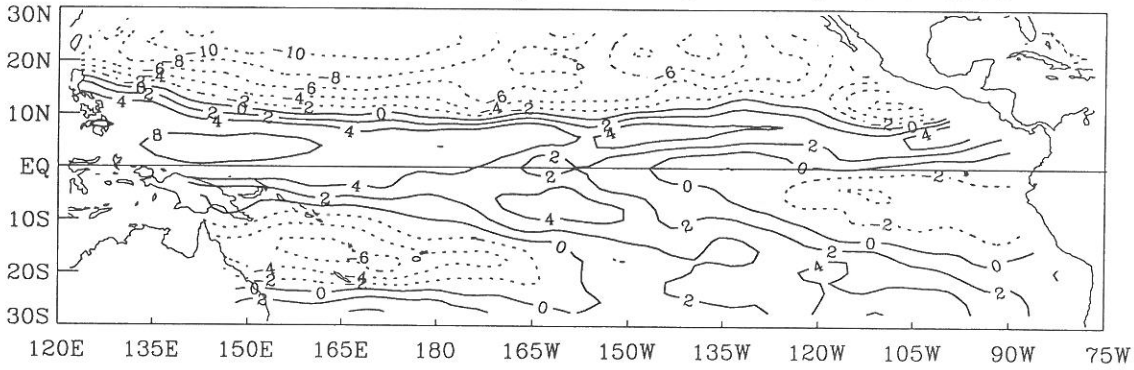


Monthly Climatologies

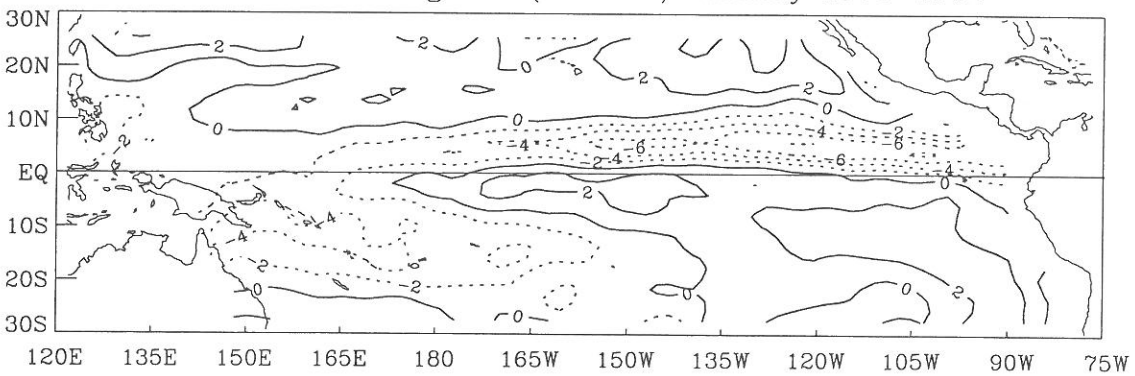
Mean Pseudo-stress ($M^2\ S^{-2}$) January 1966-1994



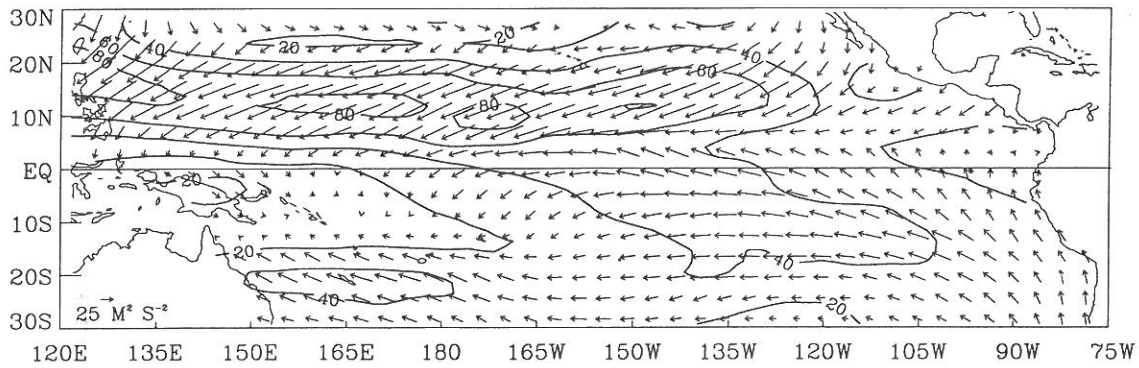
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) January 1966-1994



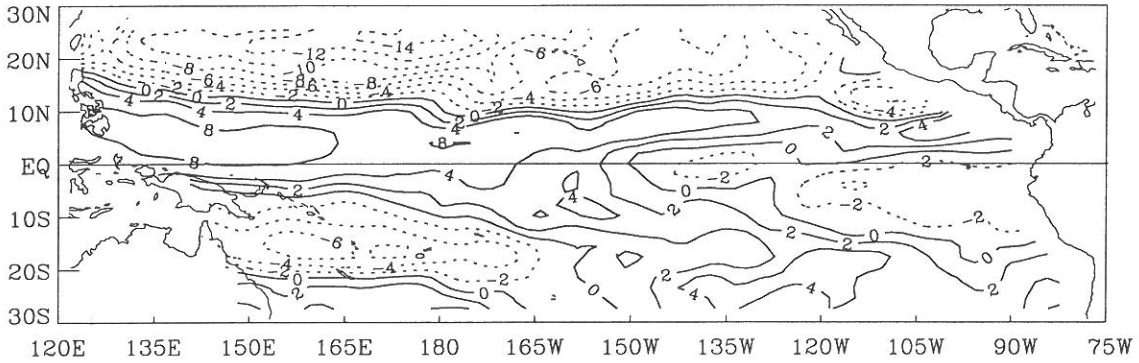
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) January 1966-1994



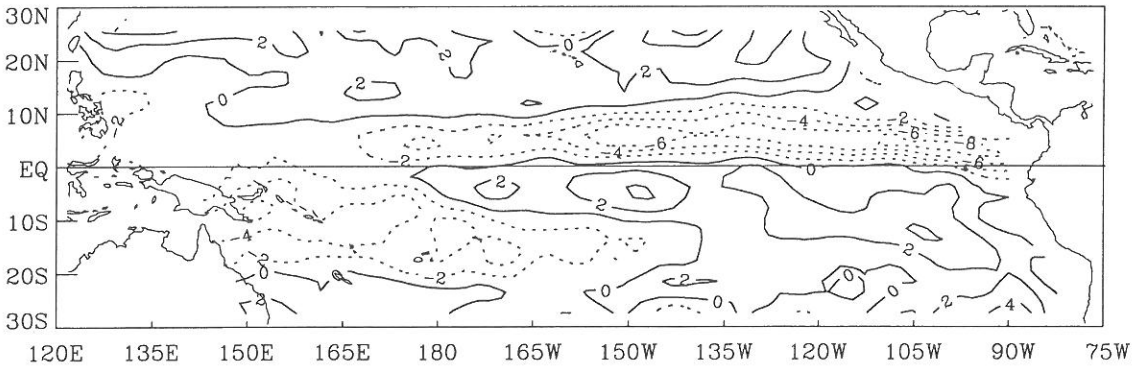
Mean Pseudo-stress ($M^2\ S^{-2}$) January 1985-1994



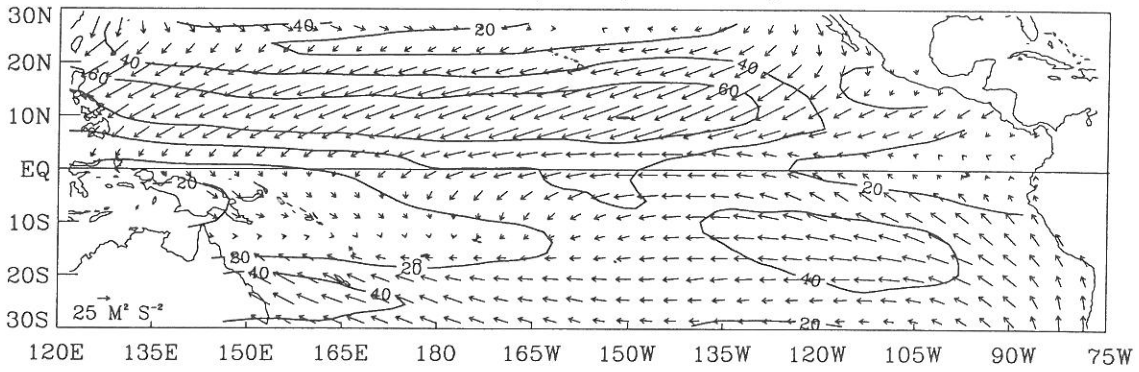
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) January 1985-1994



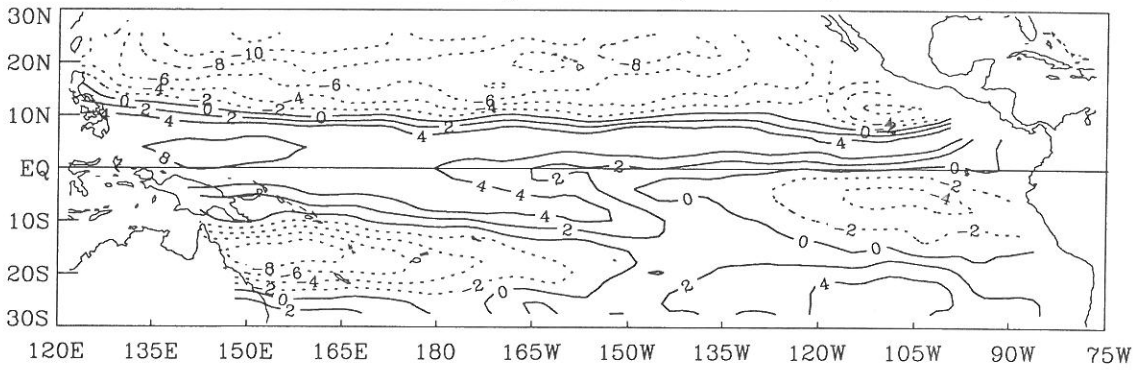
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) January 1985-1994



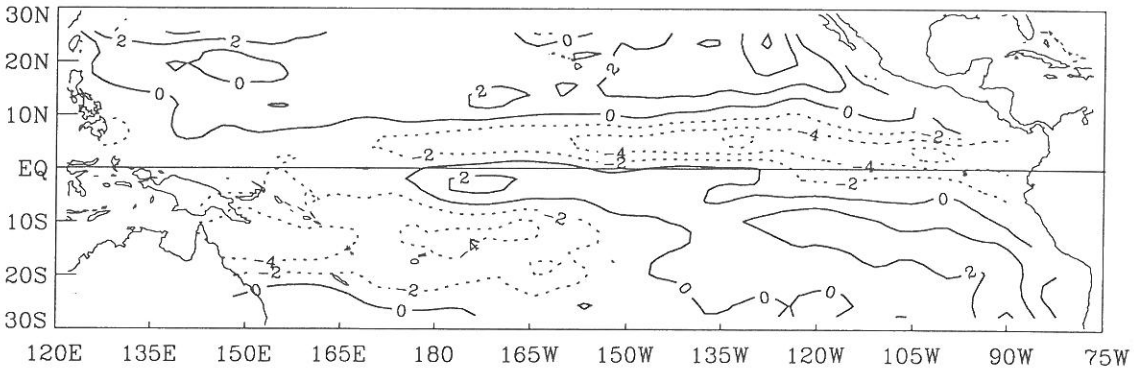
Mean Pseudo-stress ($M^2\ S^{-2}$) February 1966-1994



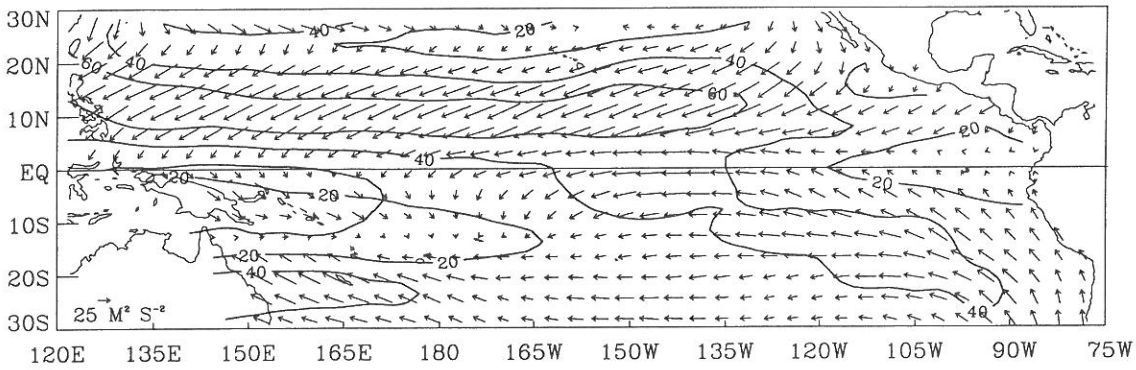
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) February 1966-1994



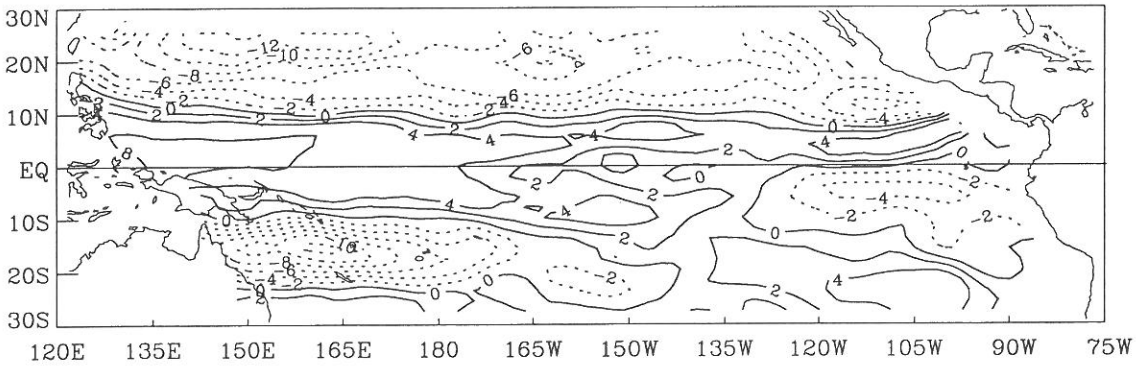
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) February 1966-1994



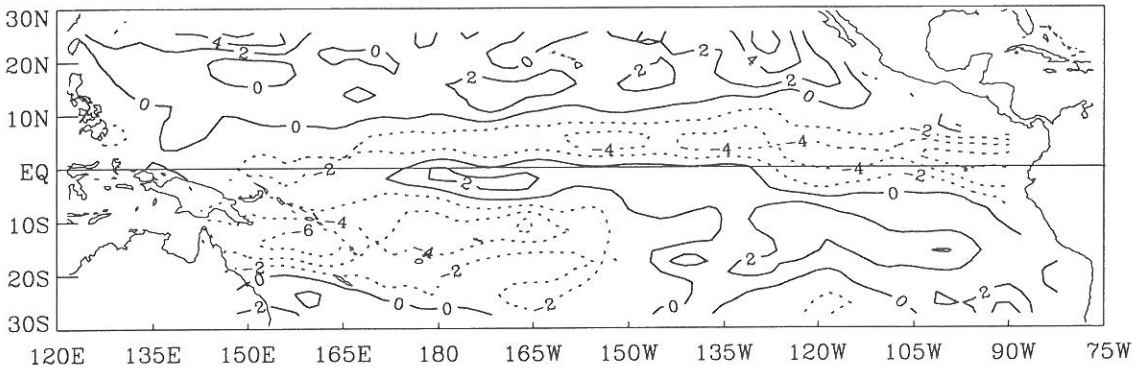
Mean Pseudo-stress ($M^2\ S^{-2}$) February 1985-1994



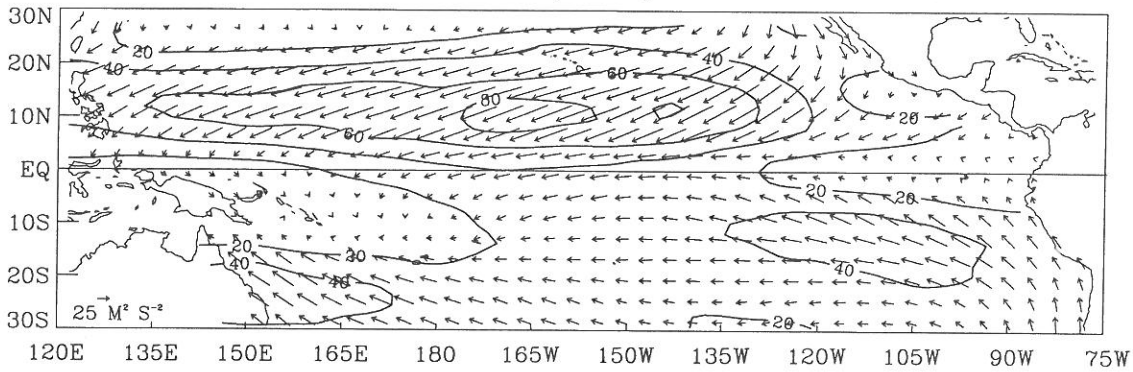
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) February 1985-1994



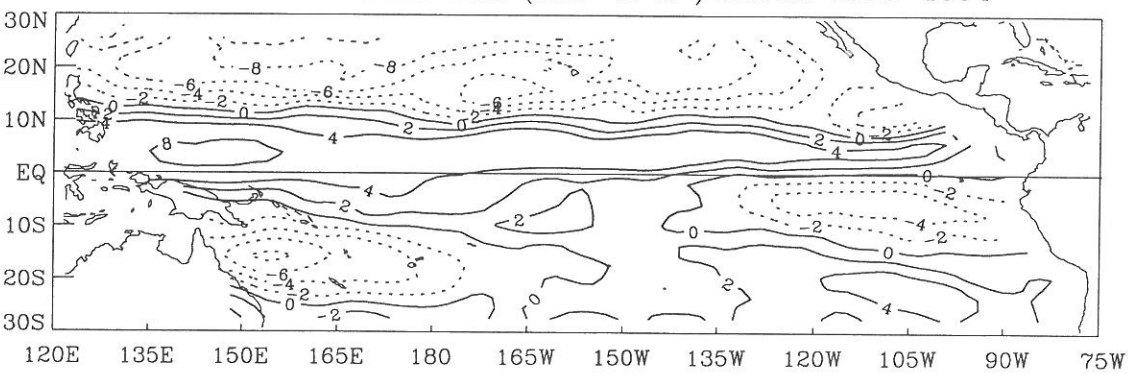
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) February 1985-1994



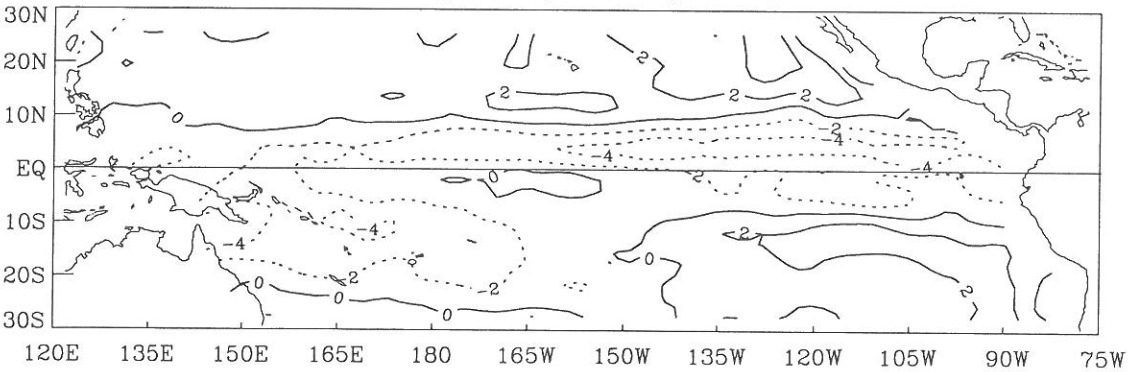
Mean Pseudo-stress ($M^2\ S^{-2}$) March 1966-1994



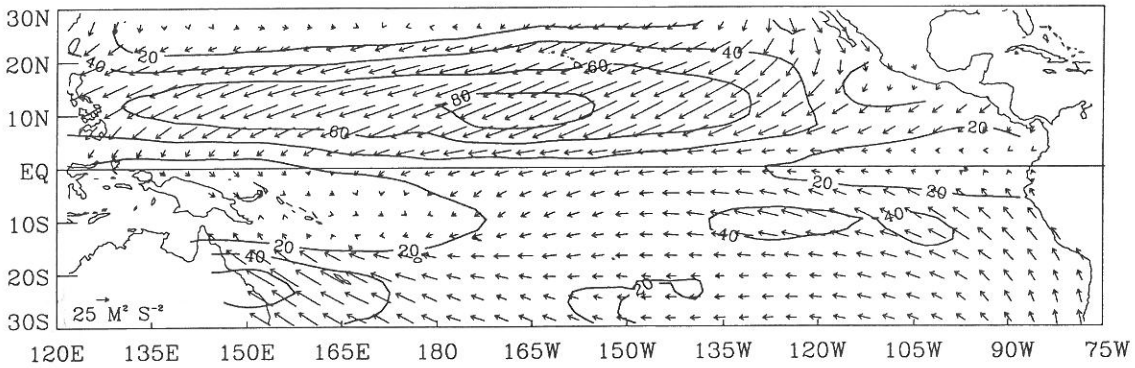
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) March 1966-1994



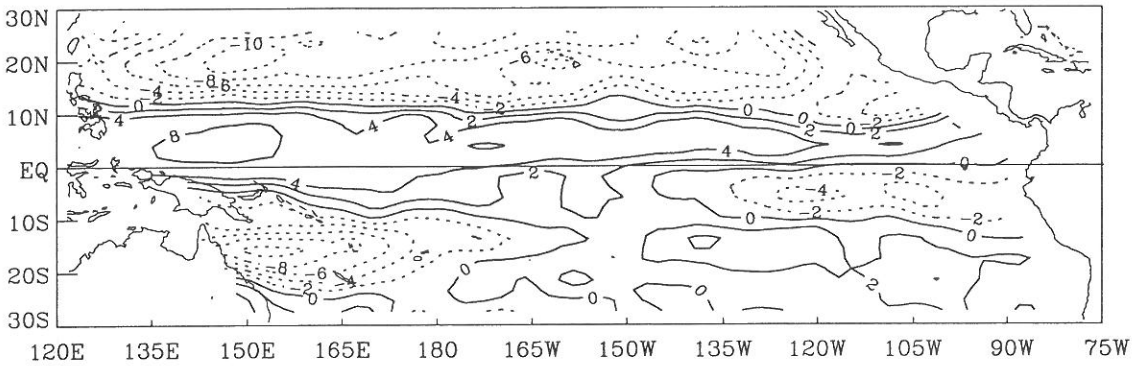
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) March 1966-1994



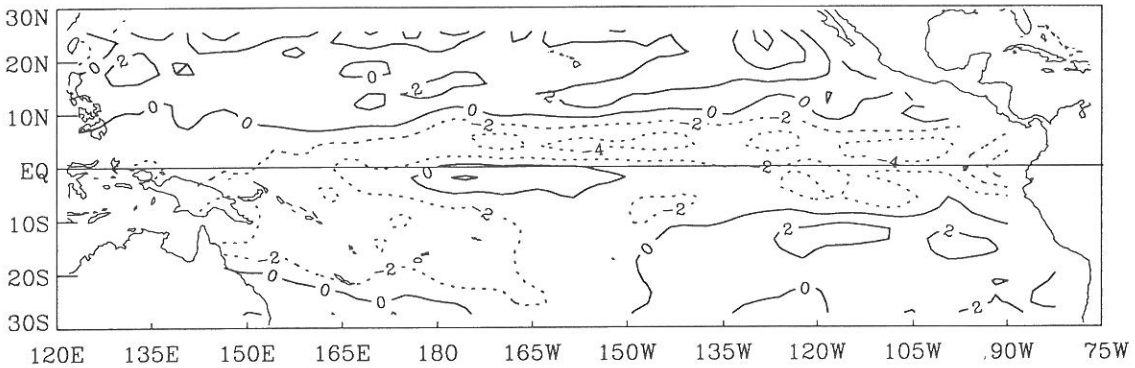
Mean Pseudo-stress ($M^2\ S^{-2}$) March 1985-1994



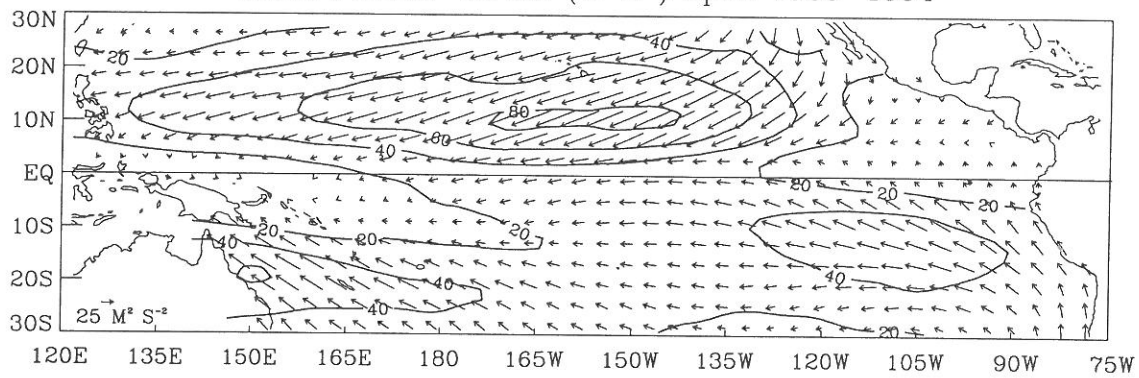
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) March 1985-1994



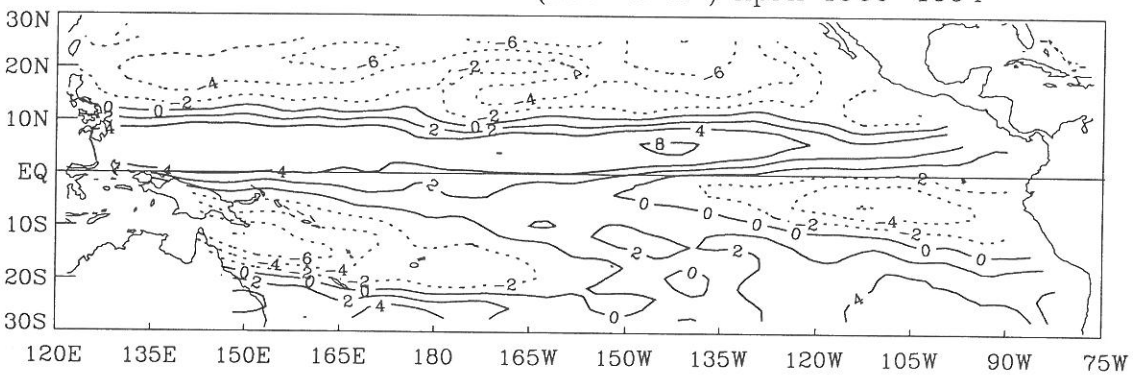
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) March 1985-1994



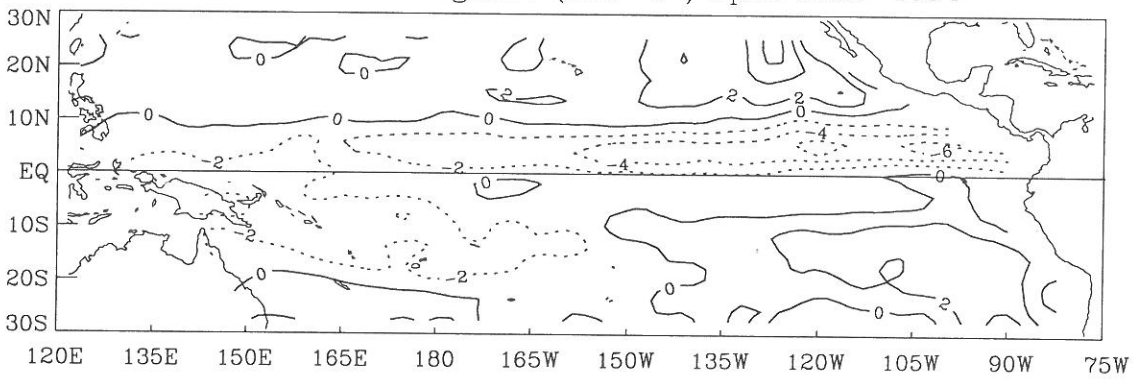
Mean Pseudo-stress ($M^2\ S^{-2}$) April 1966-1994



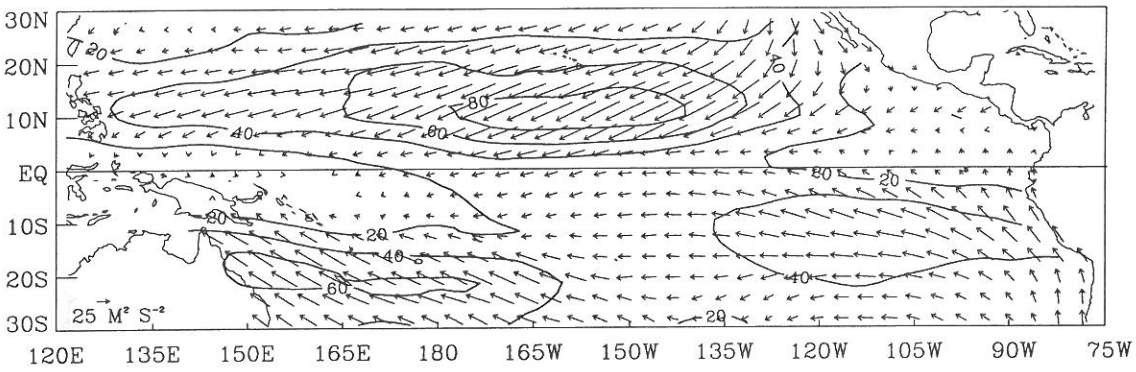
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) April 1966-1994



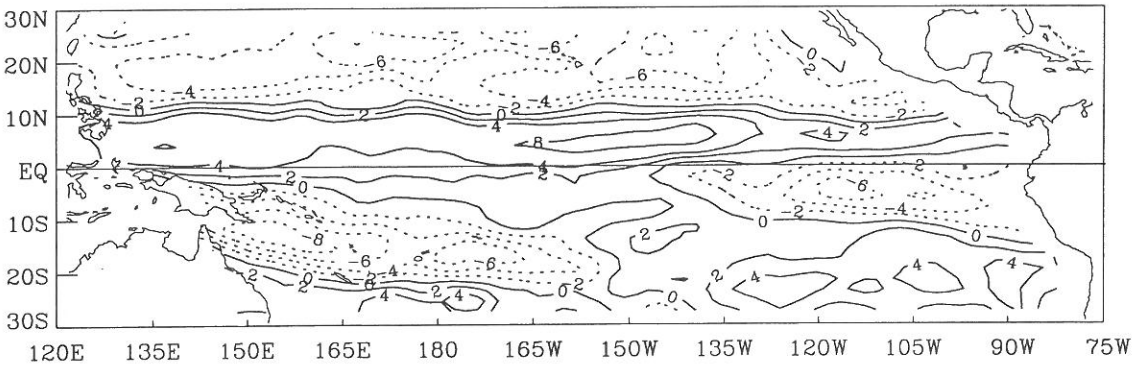
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) April 1966-1994



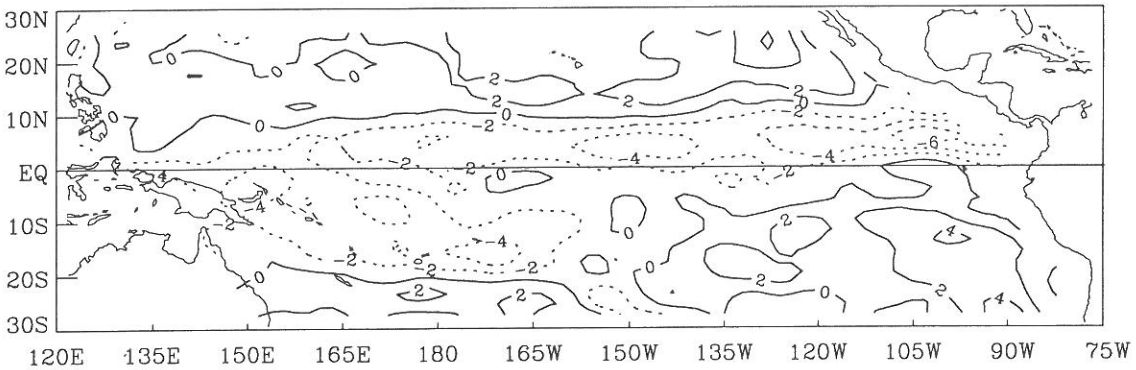
Mean Pseudo-stress ($M^2\ S^{-2}$) April 1985-1994



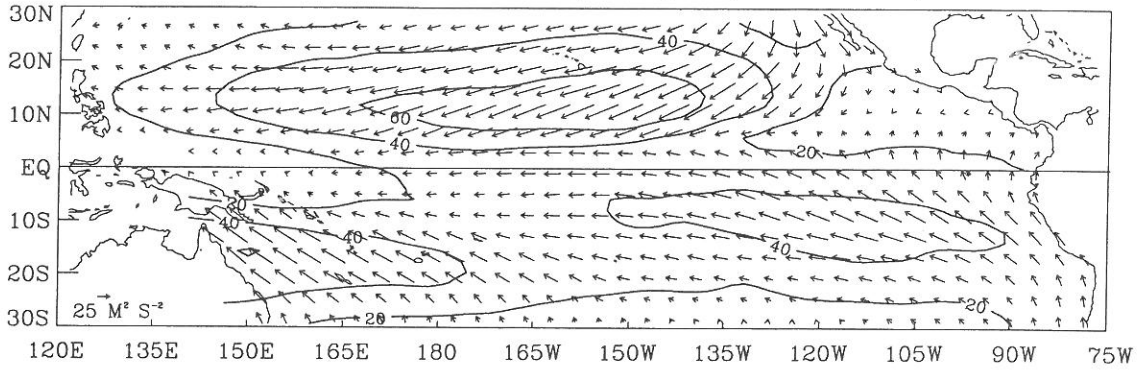
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) April 1985-1994



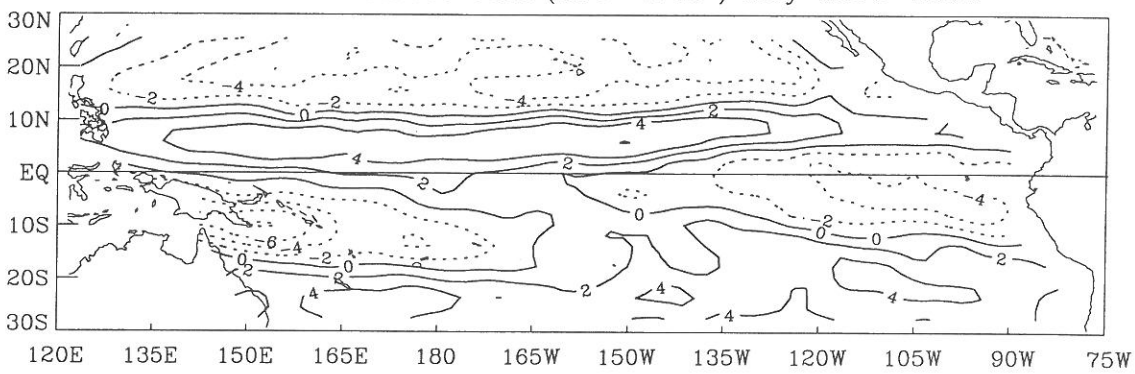
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) April 1985-1994



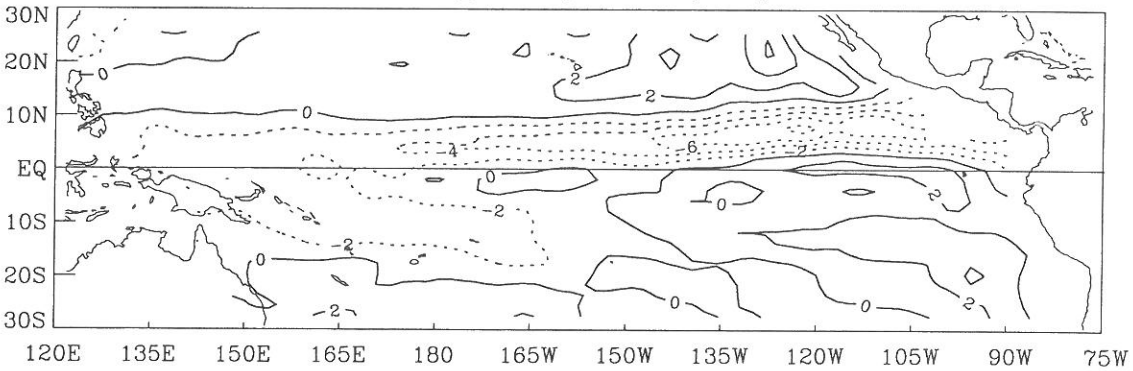
Mean Pseudo-stress ($M^2\ S^{-2}$) May 1966-1994



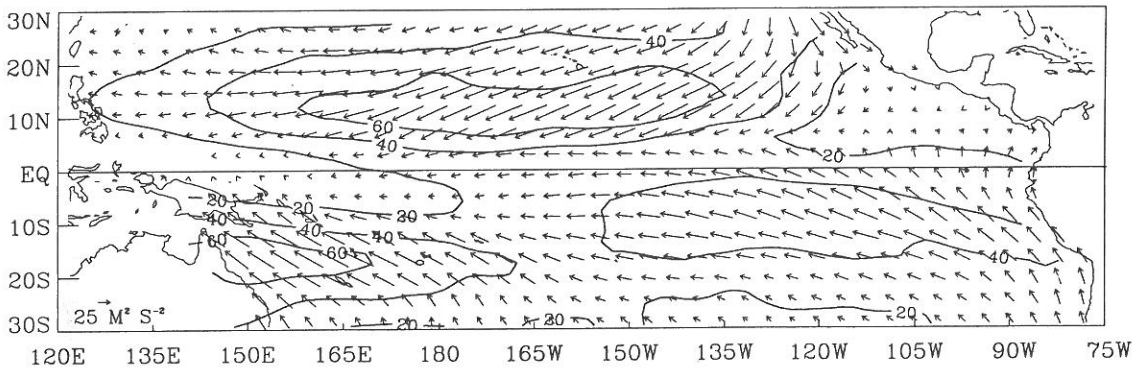
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) May 1966-1994



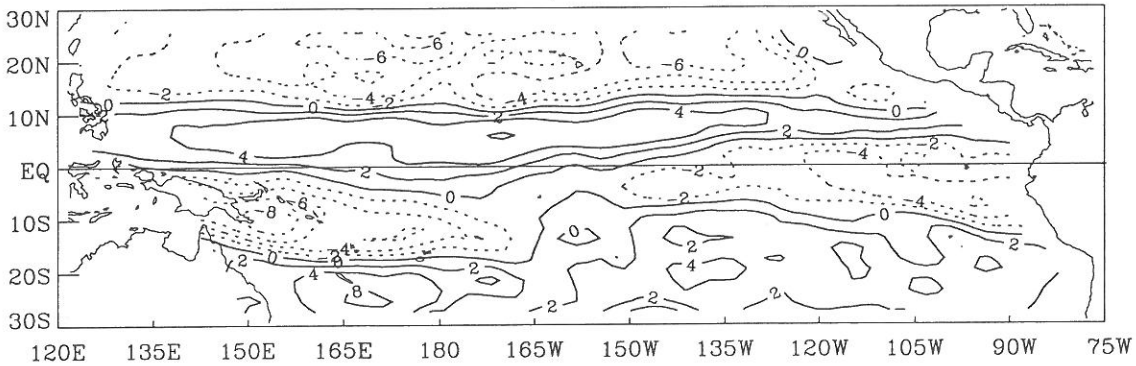
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) May 1966-1994



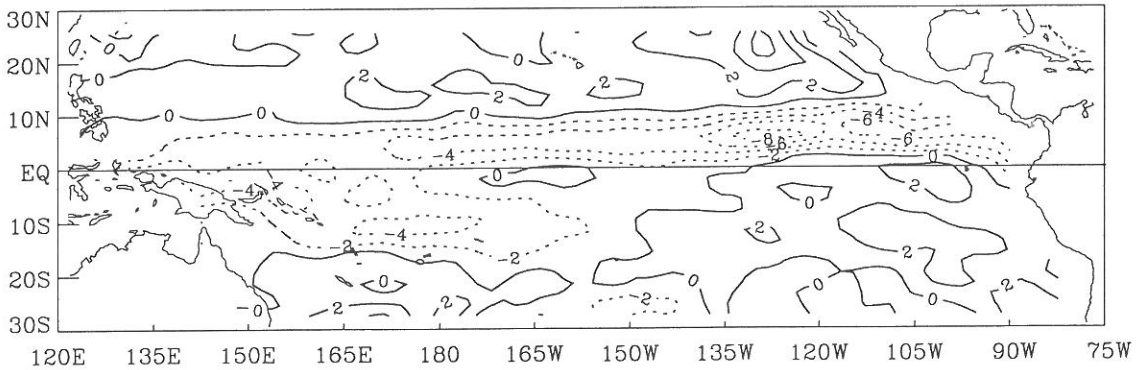
Mean Pseudo-stress ($M^2 S^{-2}$) May 1985-1994



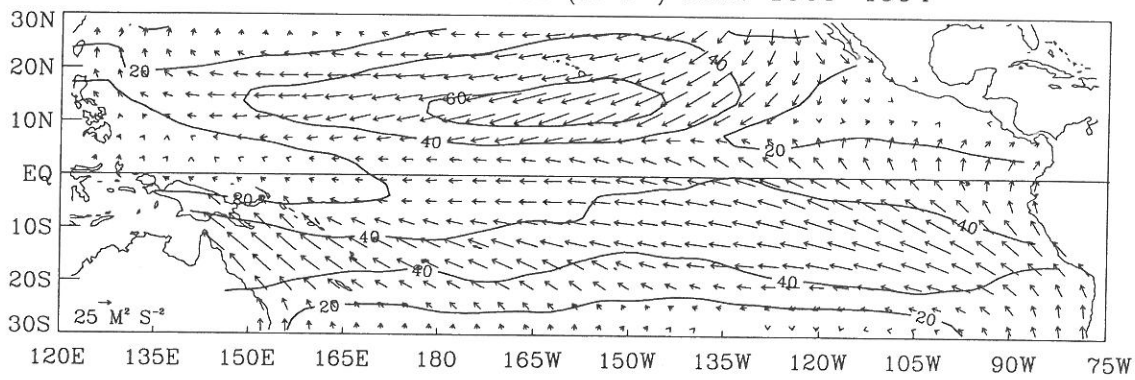
Mean Wind Stress Curl ($x10^{-8}$ N M^{-3}) May 1985-1994



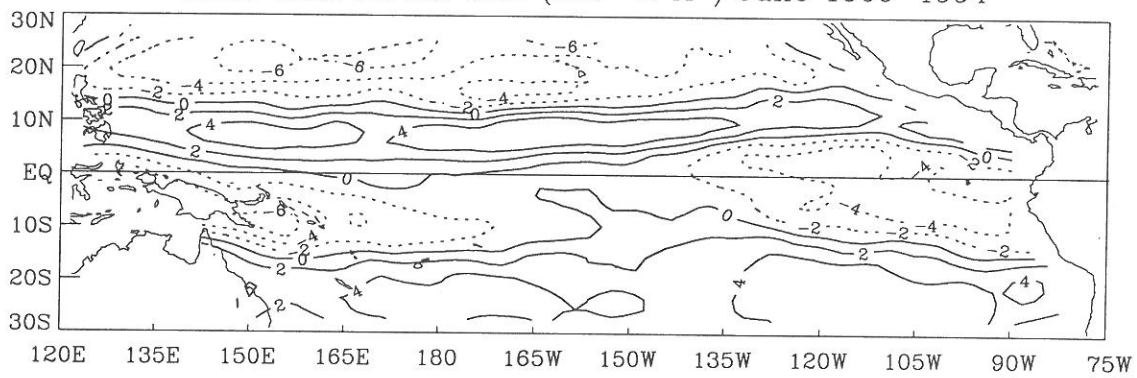
Mean Wind Divergence ($x10^{-6}$ s^{-1}) May 1985-1994



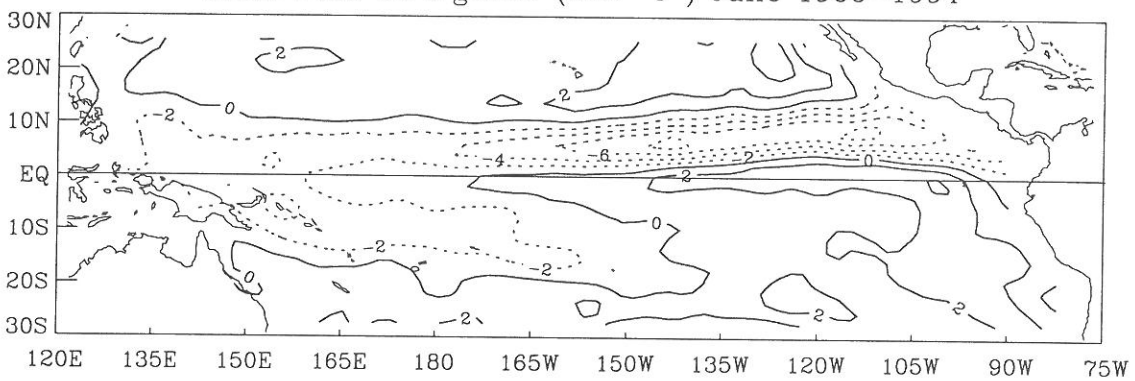
Mean Pseudo-stress ($M^2\ S^{-2}$) June 1966-1994



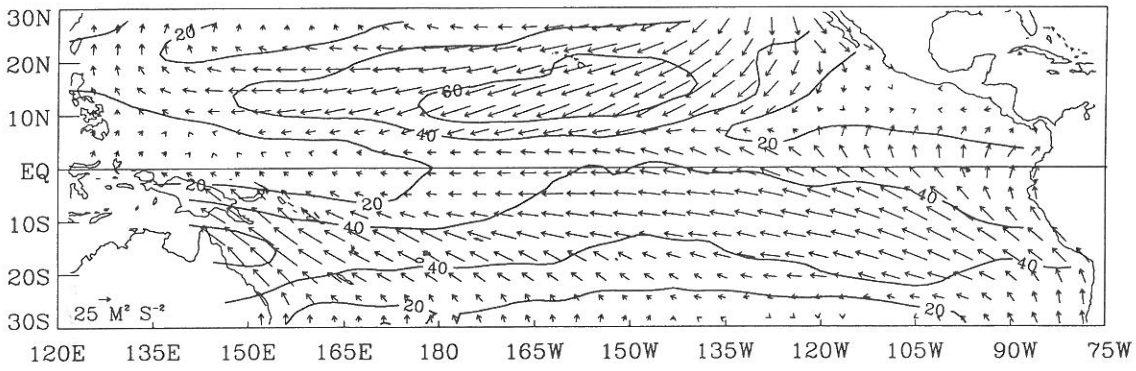
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) June 1966-1994



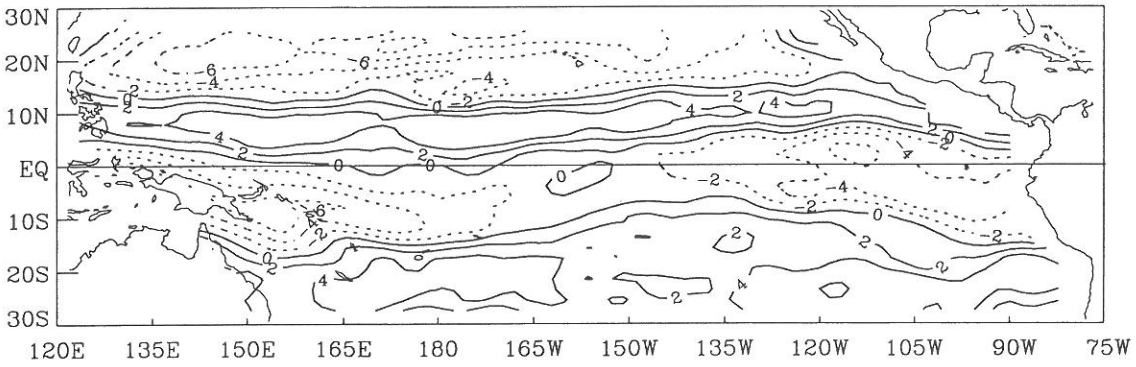
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) June 1966-1994



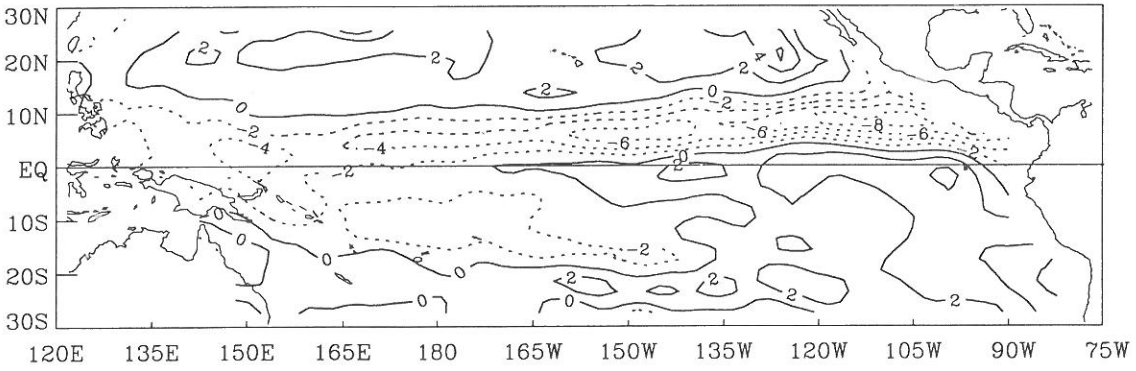
Mean Pseudo-stress ($M^2\ S^{-2}$) June 1985-1994



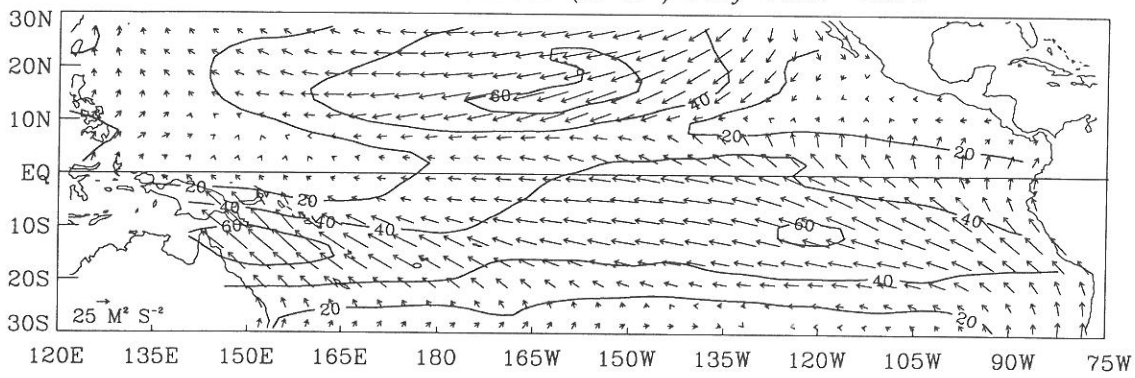
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) June 1985-1994



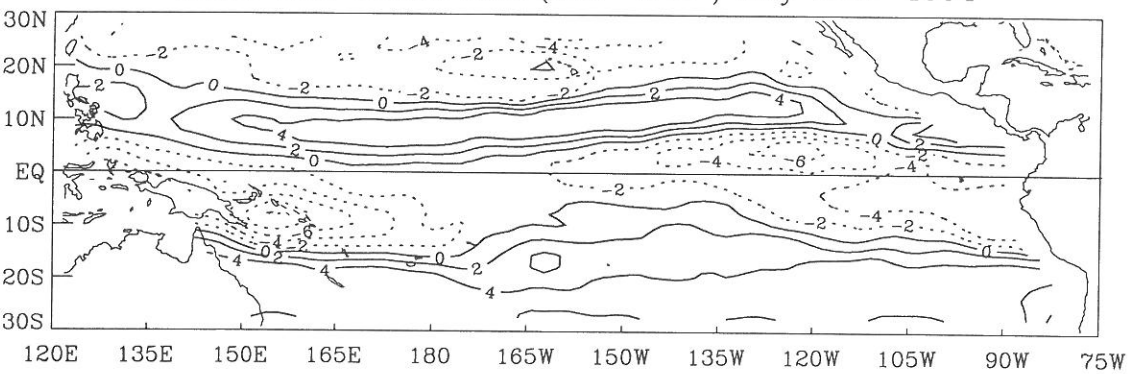
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) June 1985-1994



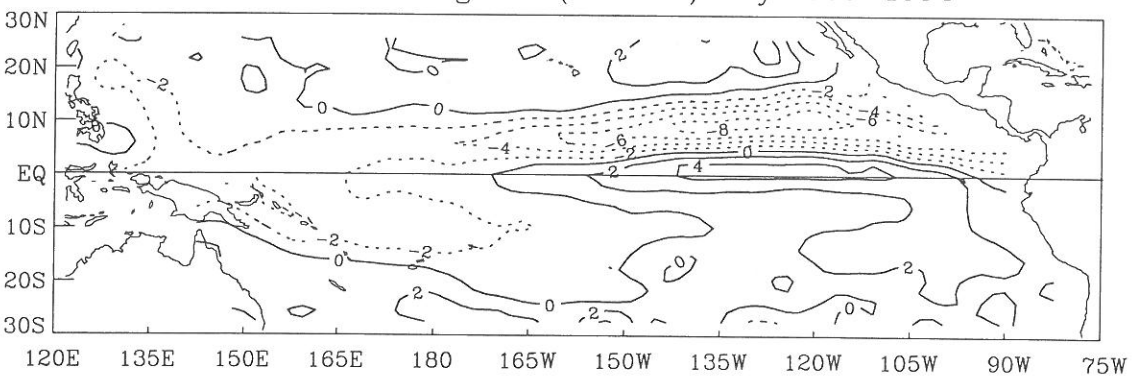
Mean Pseudo-stress ($M^2\ S^{-2}$) July 1966-1994



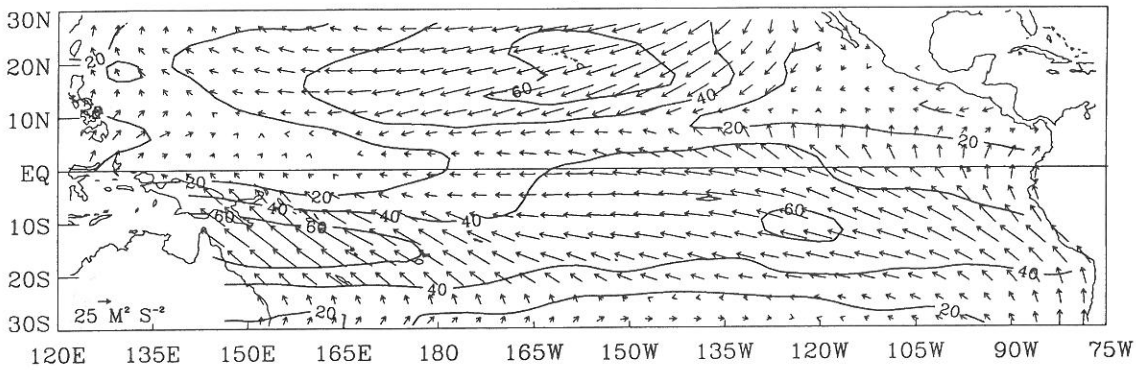
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) July 1966-1994



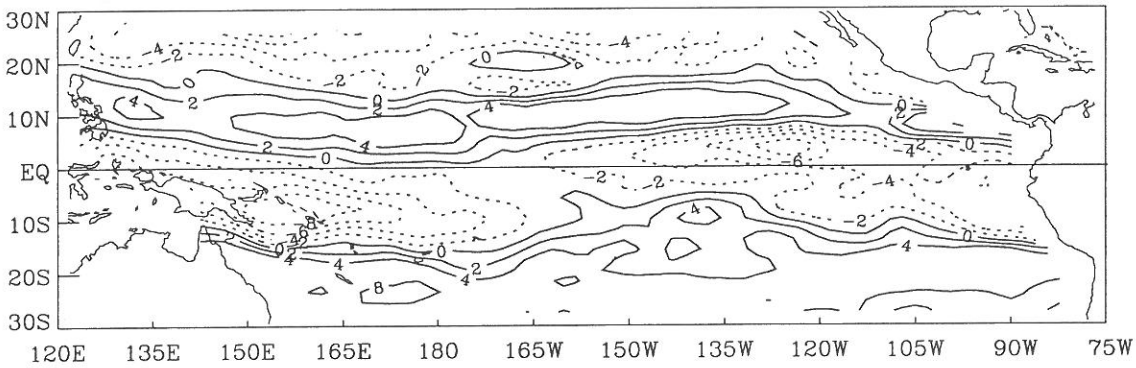
Mean Wind Divergence ($x10^{-8}\ s^{-1}$) July 1966-1994



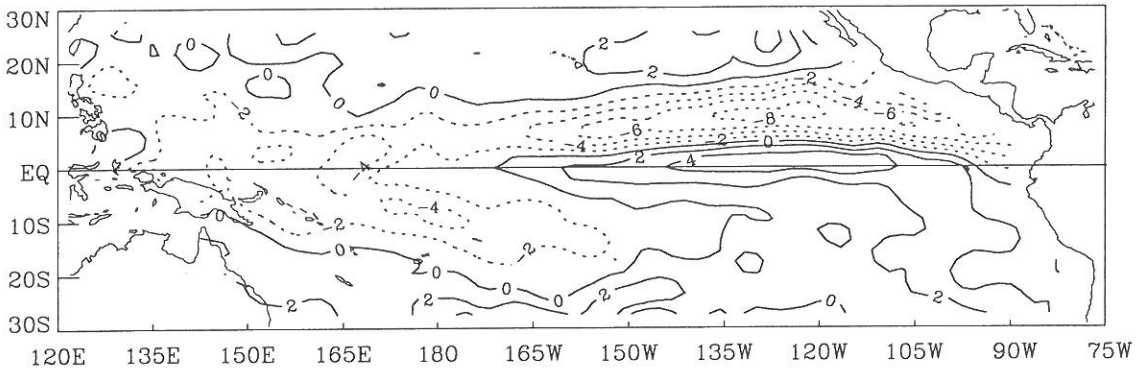
Mean Pseudo-stress ($M^2\ S^{-2}$) July 1985-1994



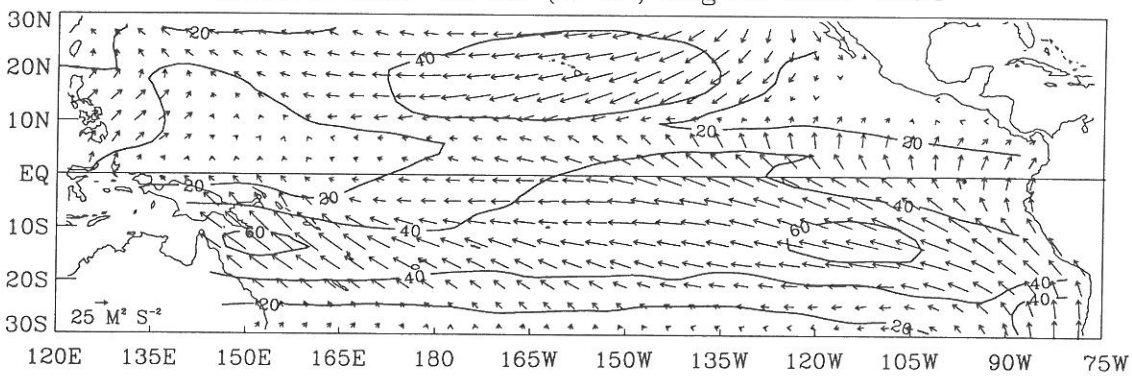
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) July 1985-1994



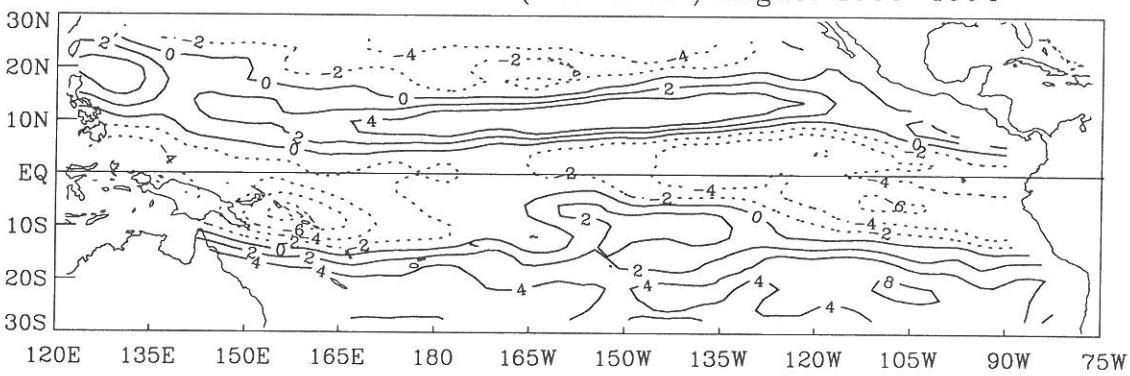
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) July 1985-1994



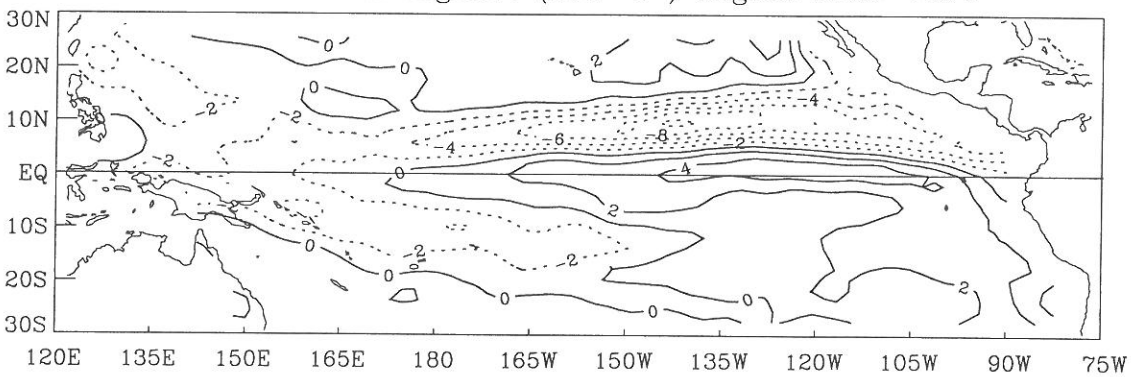
Mean Pseudo-stress ($M^2\ S^{-2}$) August 1966-1994



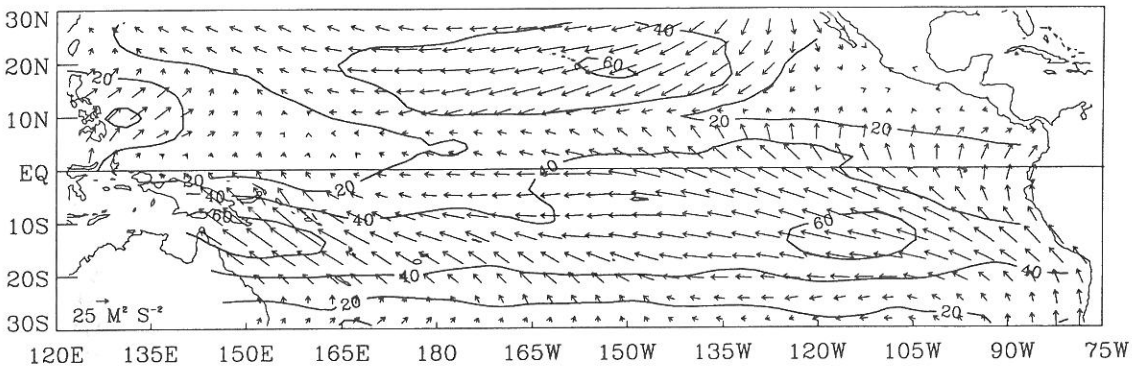
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) August 1966-1994



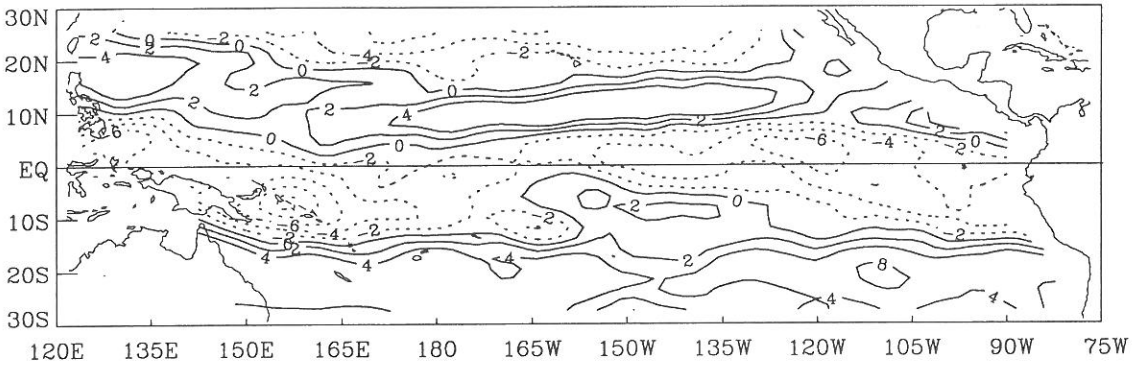
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) August 1966-1994



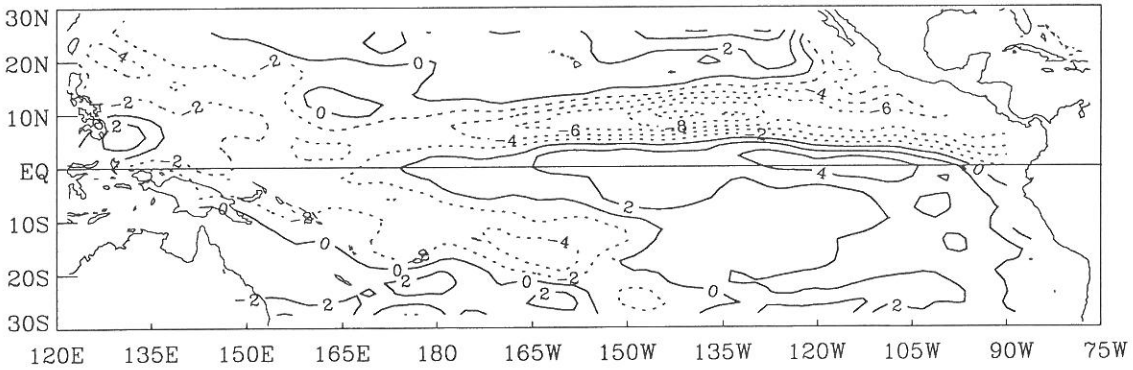
Mean Pseudo-stress (M^2 S^{-2}) August 1985-1994



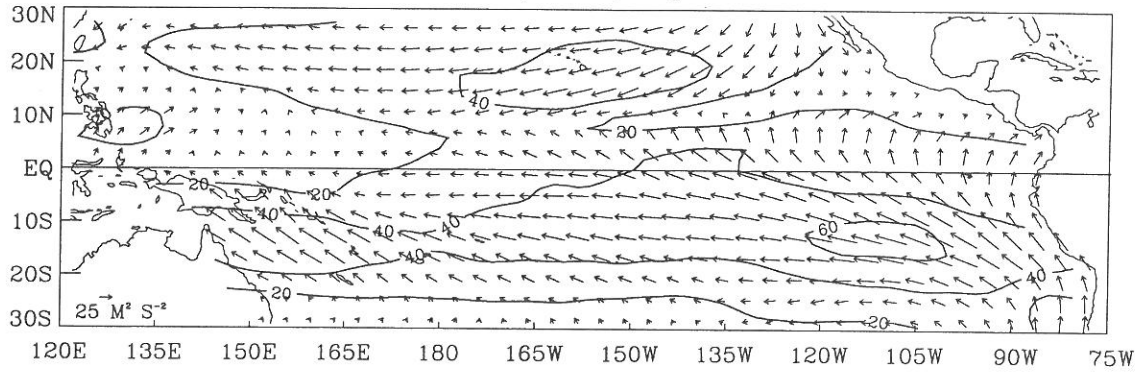
Mean Wind Stress Curl ($x10^{-8}$ N M^{-3}) August 1985-1994



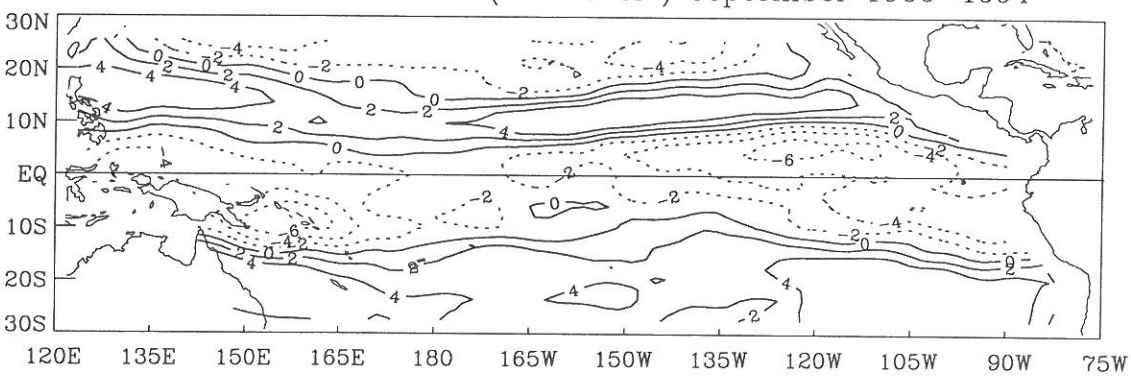
Mean Wind Divergence ($x10^{-6}$ s^{-1}) August 1985-1994



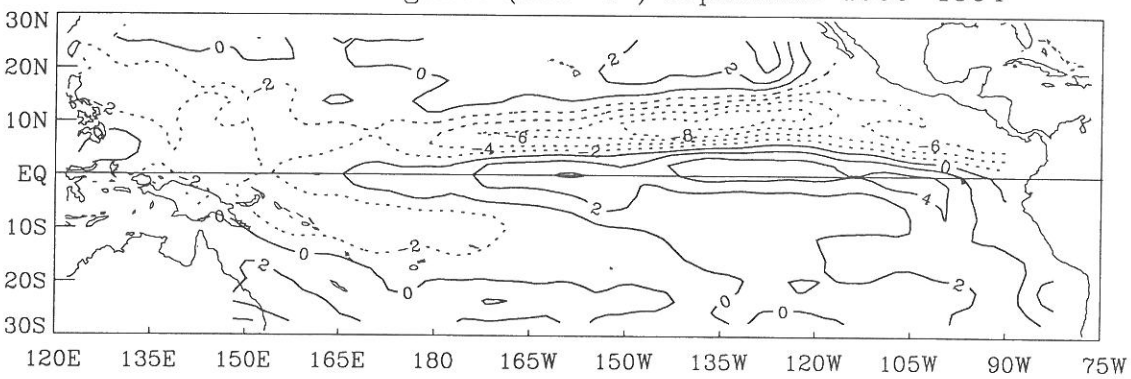
Mean Pseudo-stress ($M^2\ S^{-2}$) September 1966-1994



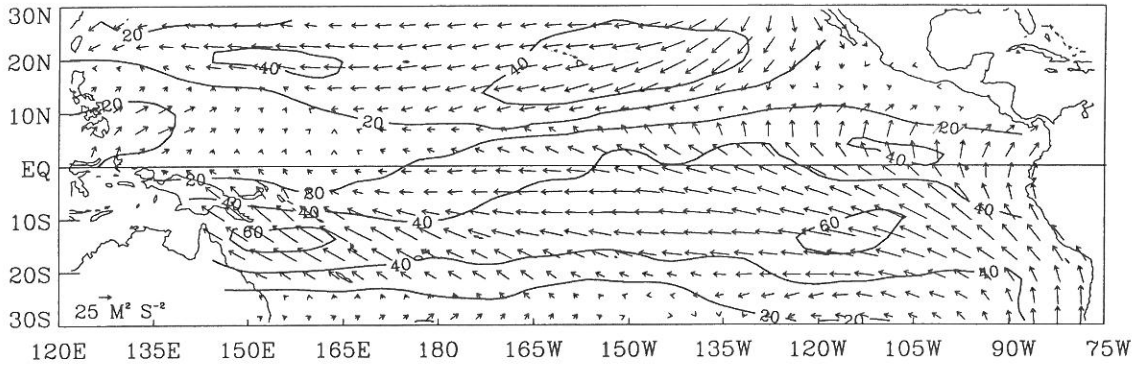
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) September 1966-1994



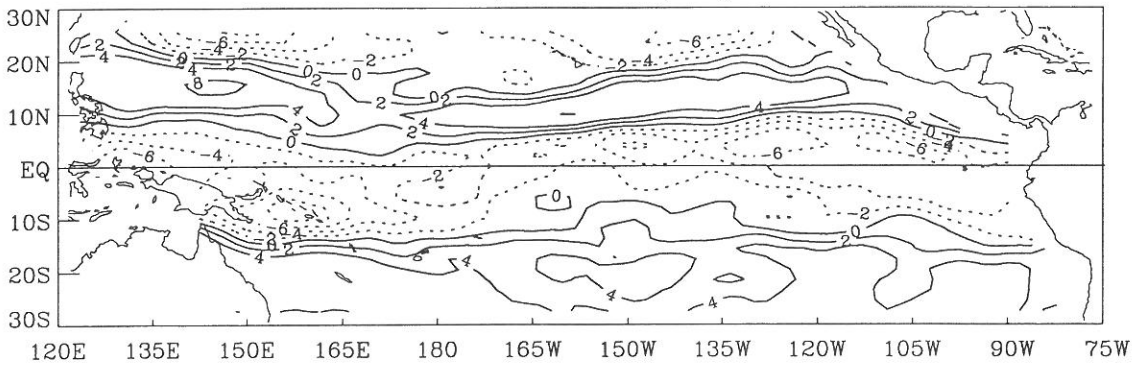
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) September 1966-1994



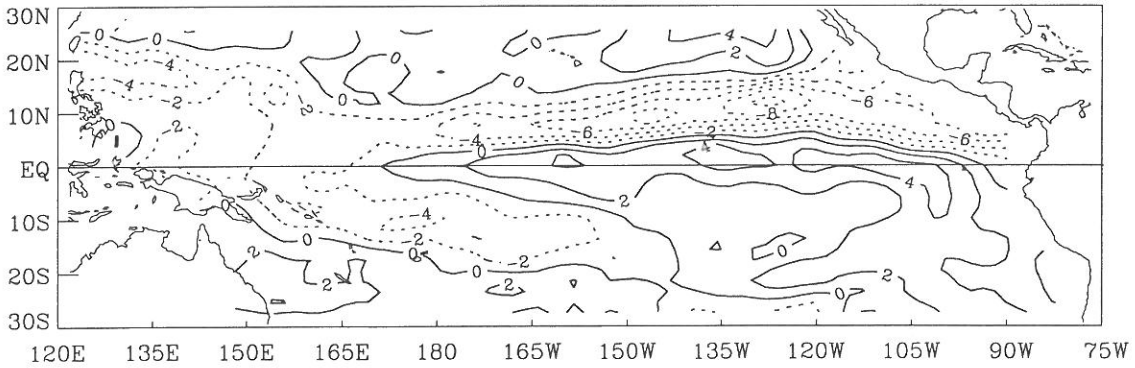
Mean Pseudo-stress ($M^2\ S^{-2}$) September 1985-1994



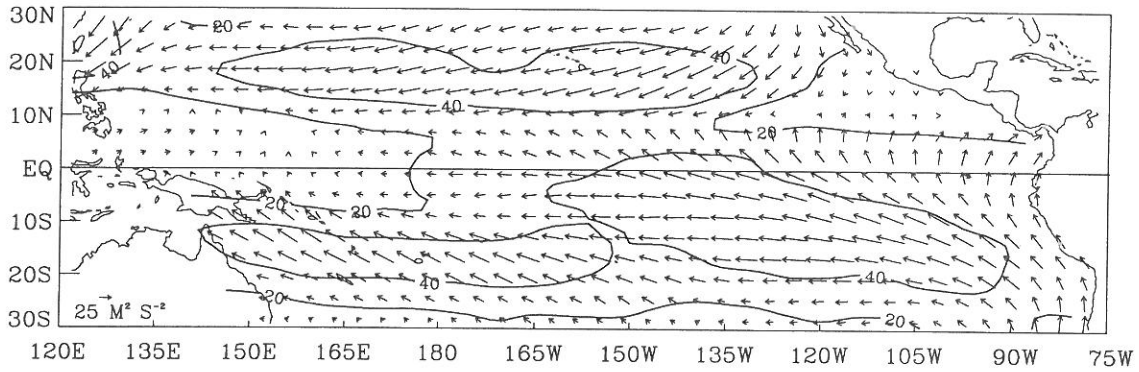
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) September 1985-1994



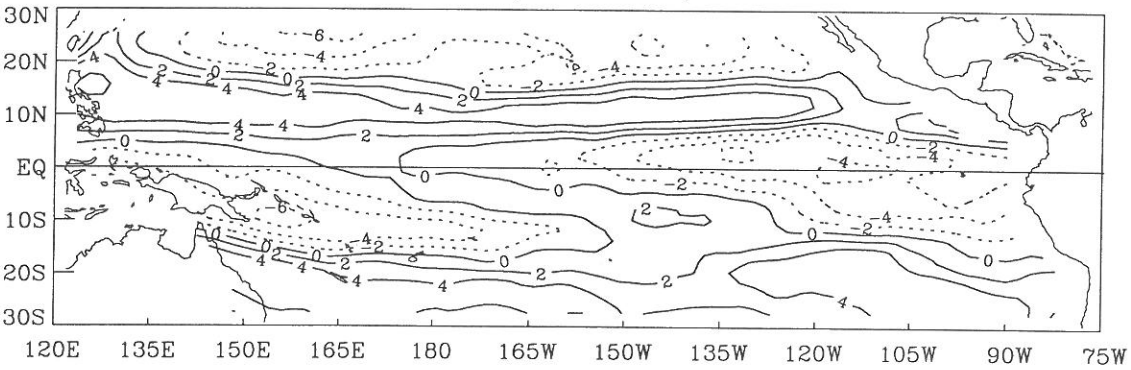
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) September 1985-1994



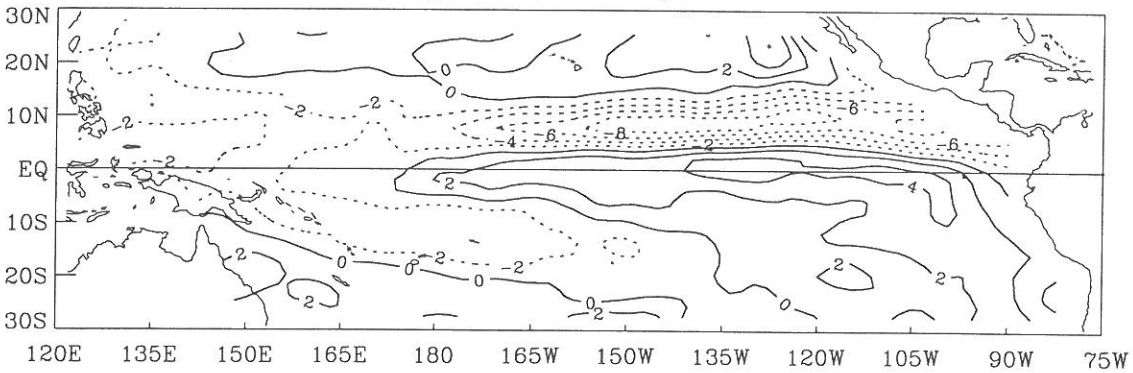
Mean Pseudo-stress ($M^2\ S^{-2}$) October 1966-1994



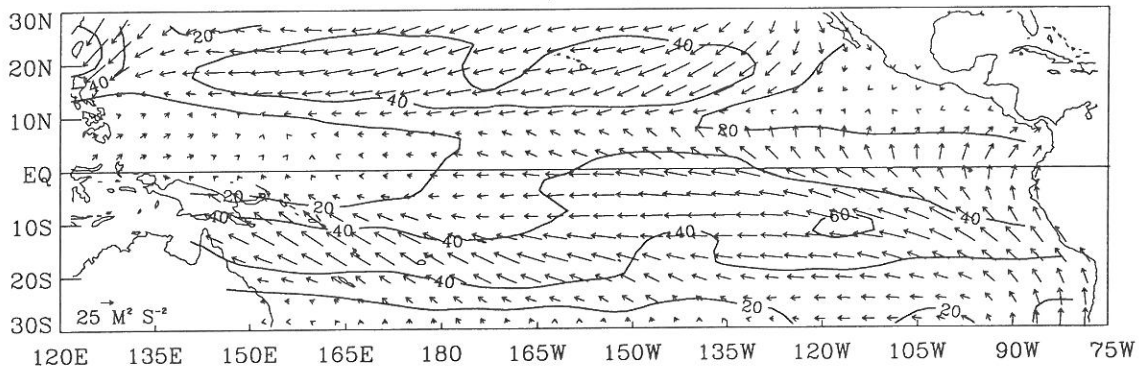
Mean Wind Stress Curl ($x10^{-8}$ N M^{-3}) October 1966-1994



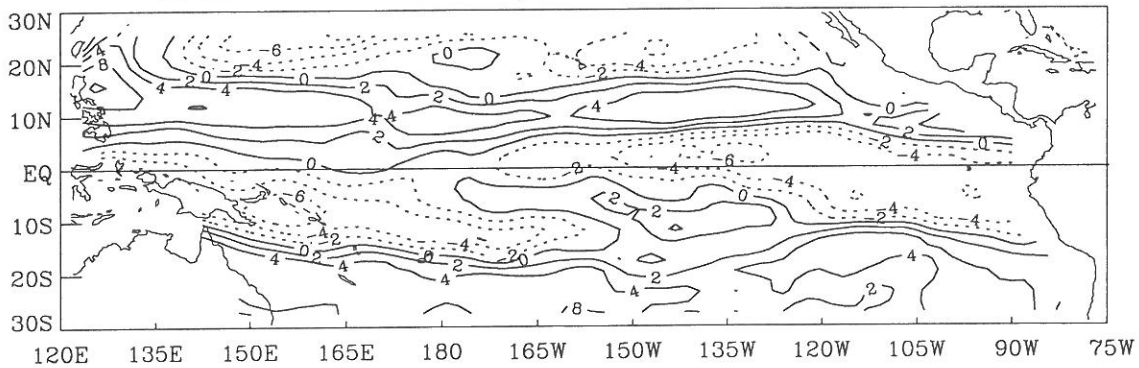
Mean Wind Divergence ($x10^{-6}$ s^{-1}) October 1966-1994



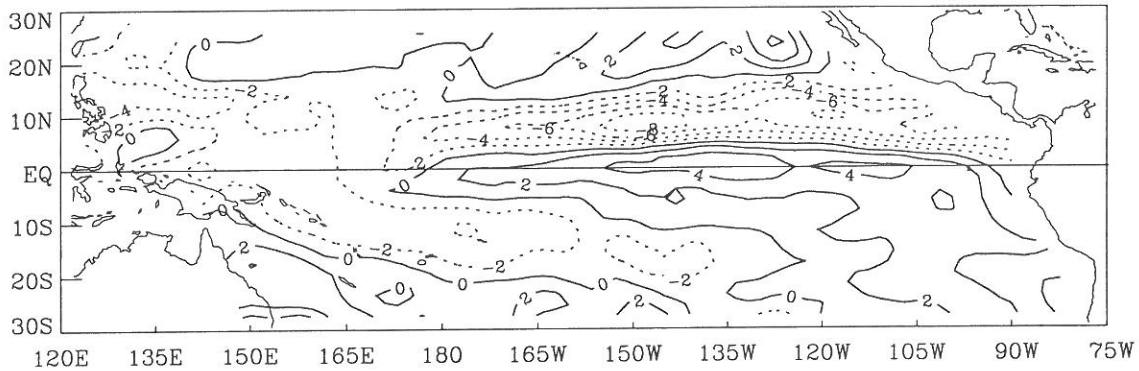
Mean Pseudo-stress ($M^2\ S^{-2}$) October 1985-1994



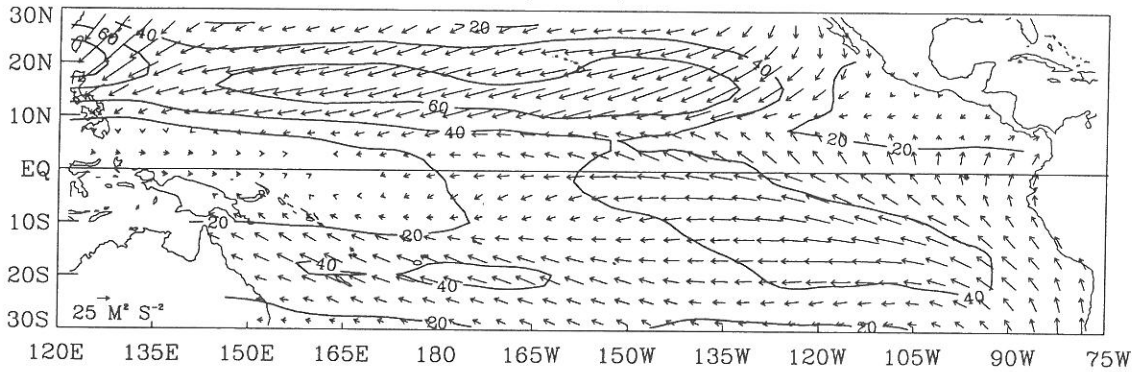
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) October 1985-1994



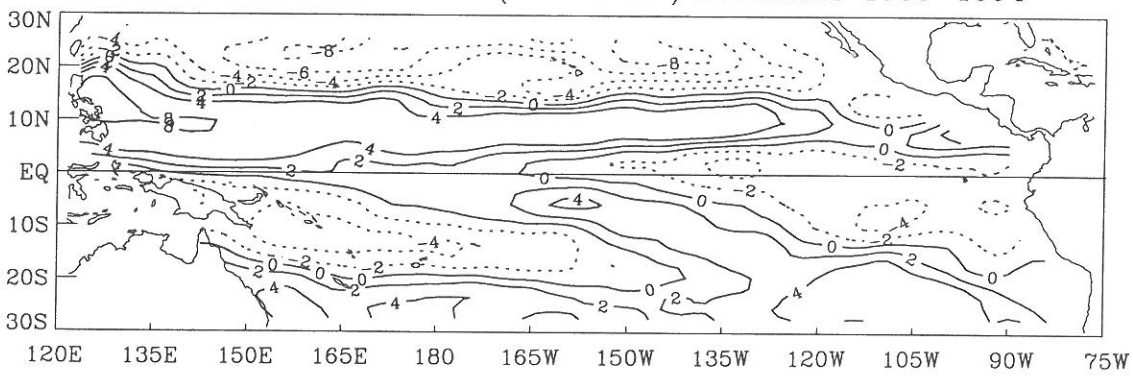
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) October 1985-1994



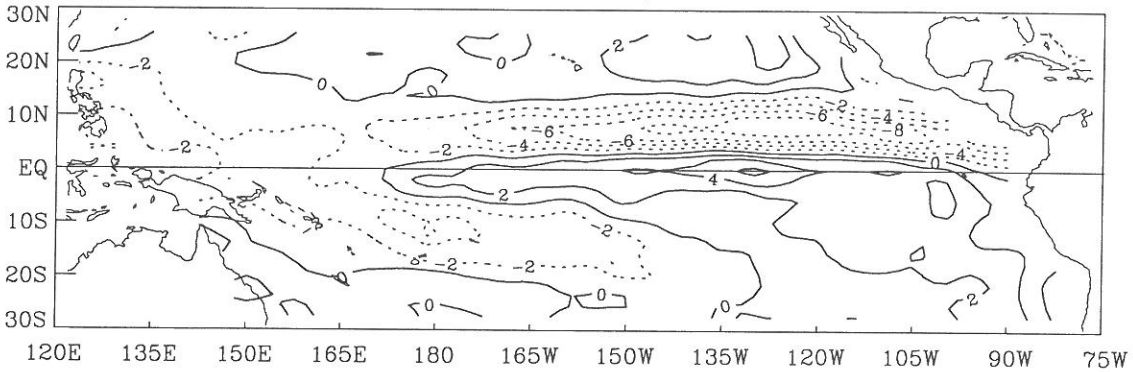
Mean Pseudo-stress ($M^2\ S^{-2}$) November 1966-1994



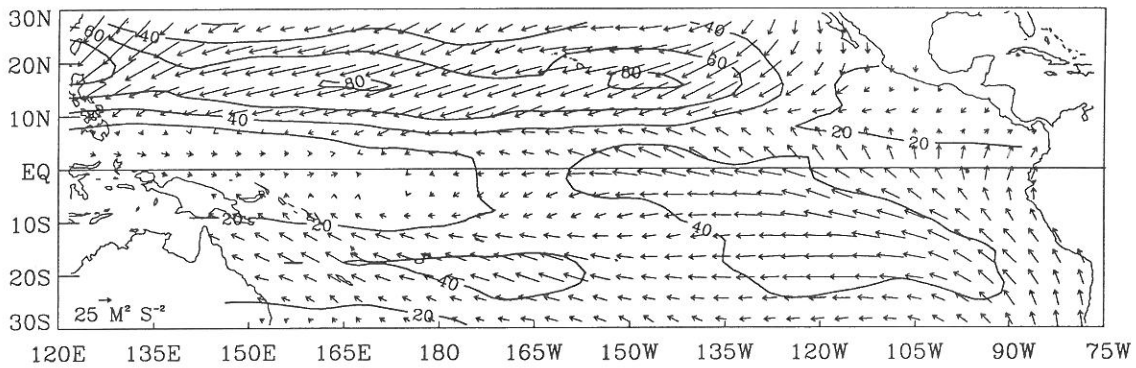
Mean Wind Stress Curl ($x10^{-8}$ N M^{-3}) November 1966-1994



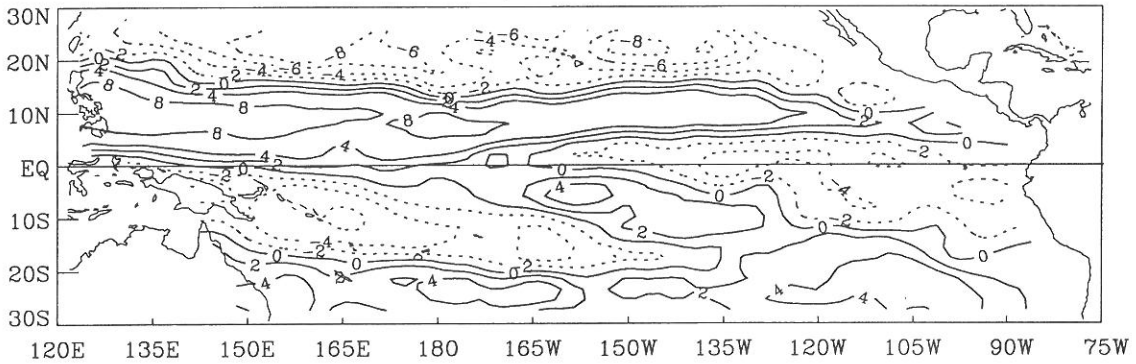
Mean Wind Divergence ($x10^{-6}$ s^{-1}) November 1966-1994



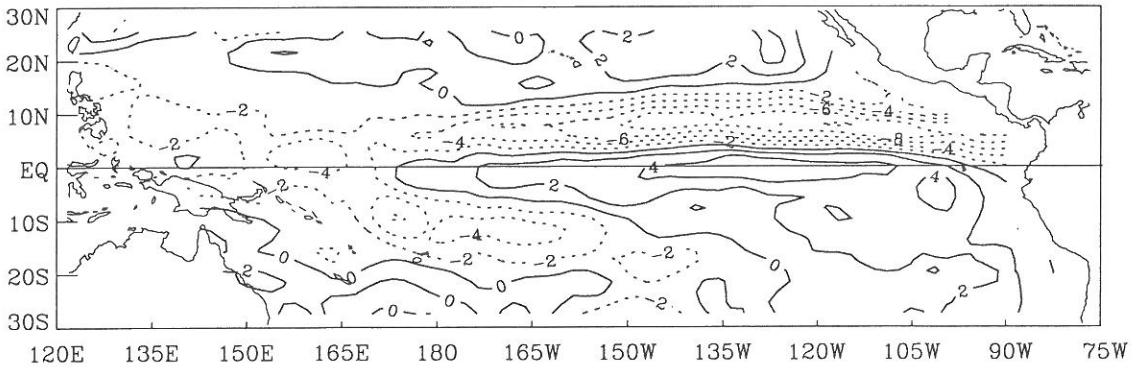
Mean Pseudo-stress ($M^2\ S^{-2}$) November 1985-1994



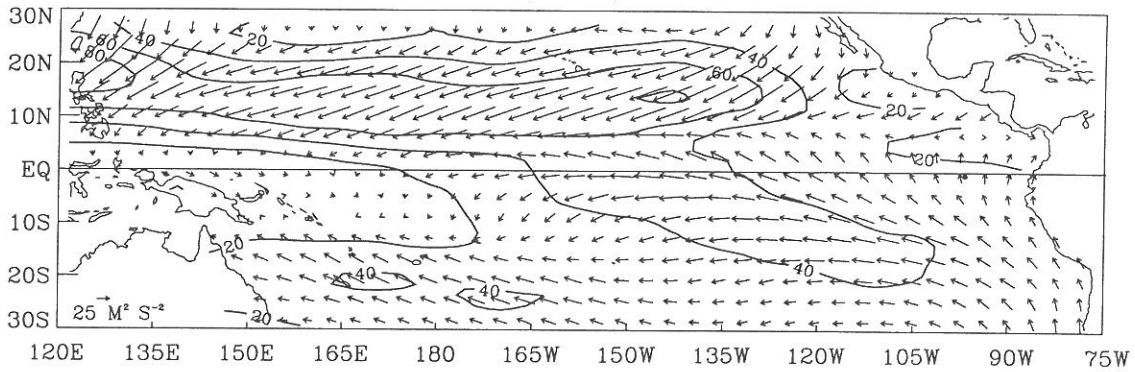
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) November 1985-1994



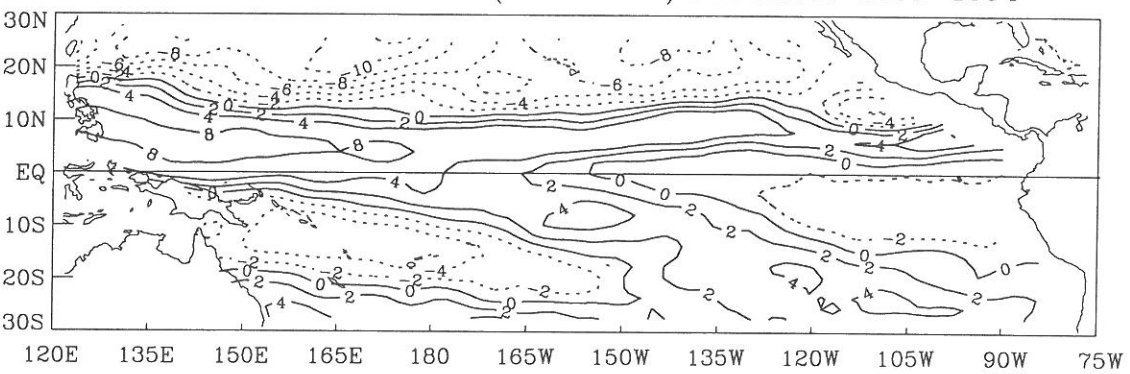
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) November 1985-1994



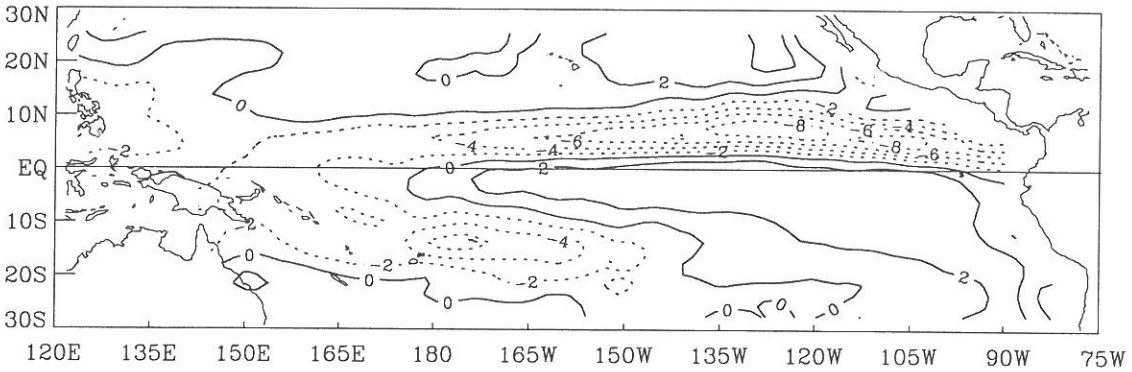
Mean Pseudo-stress ($M^2\ S^{-2}$) December 1966-1994



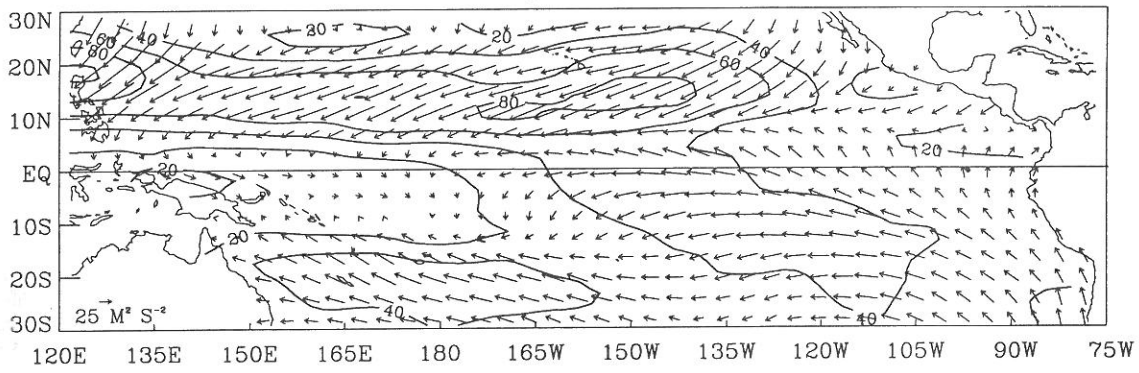
Mean Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) December 1966-1994



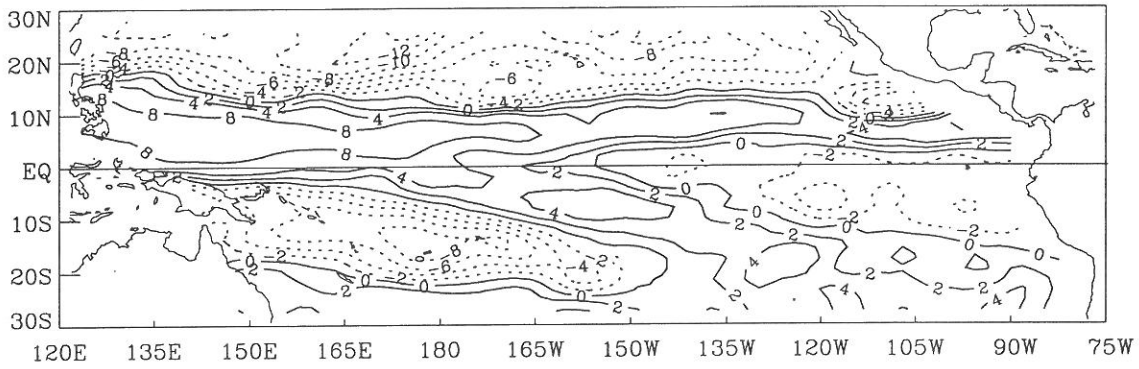
Mean Wind Divergence ($x10^{-6}\ s^{-1}$) December 1966-1994



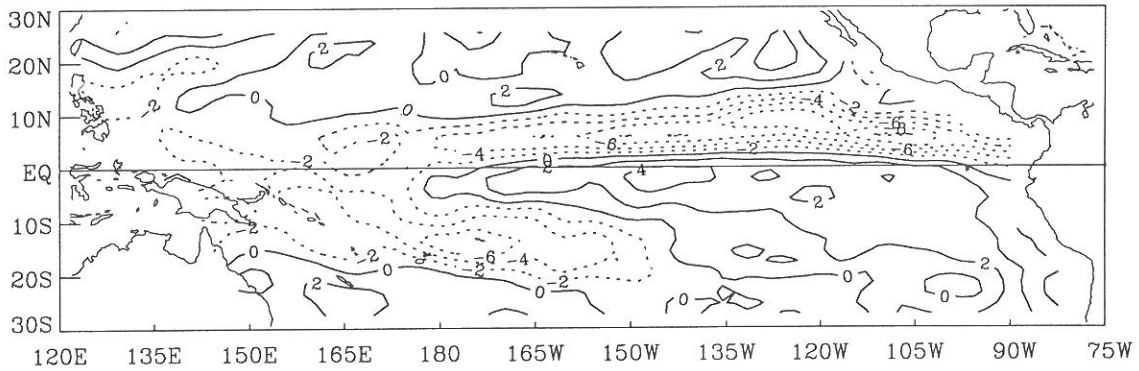
Mean Pseudo-stress ($M^2\ S^{-2}$) December 1985-1994



Mean Wind Stress Curl ($x10^{-8}$ N M^{-3}) December 1985-1994

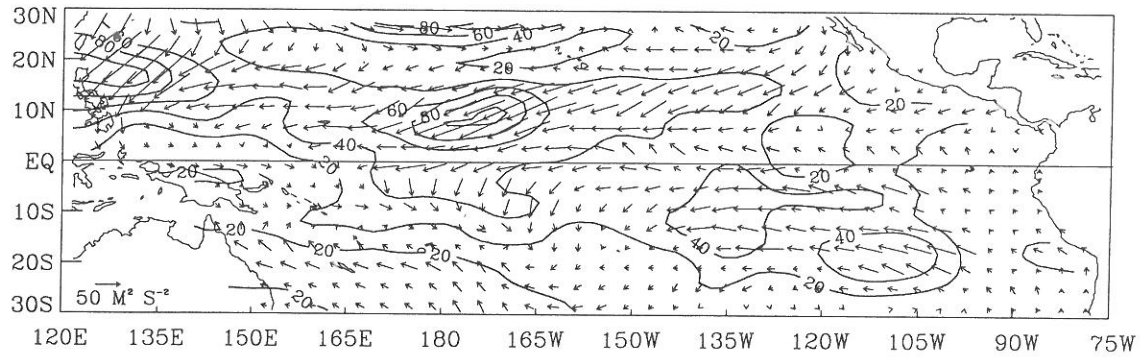


Mean Wind Divergence ($x10^{-6}\ s^{-1}$) December 1985-1994

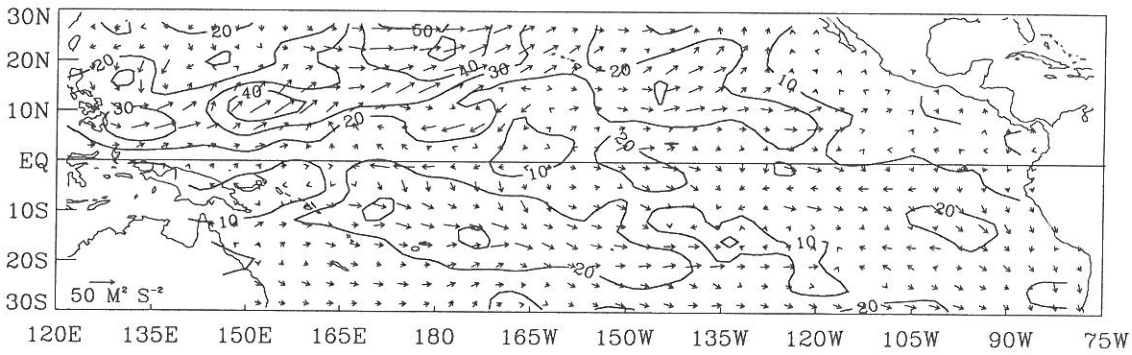


1985-94
Monthly Fields

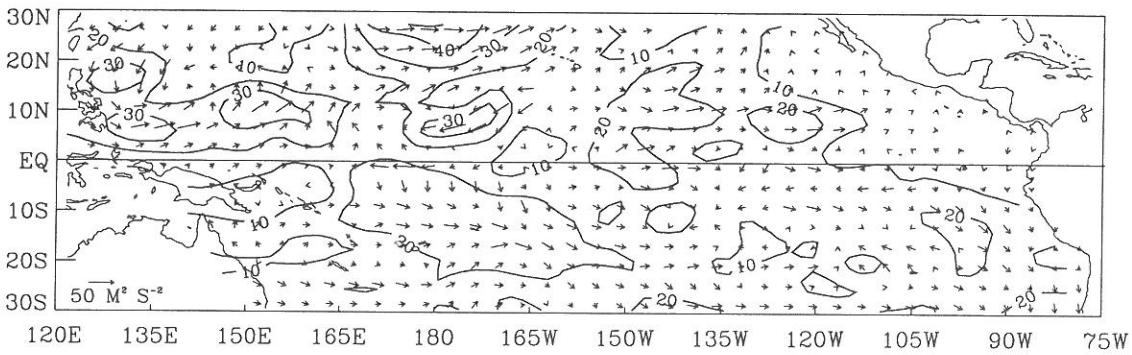
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) January 1985



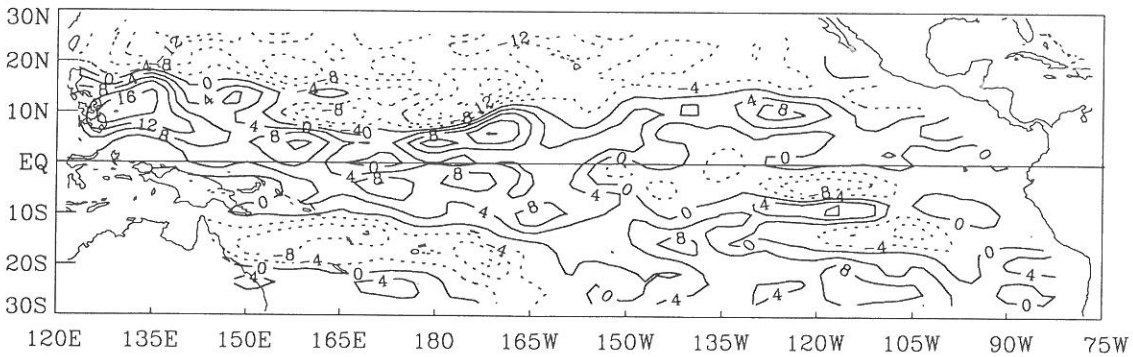
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) January 1985



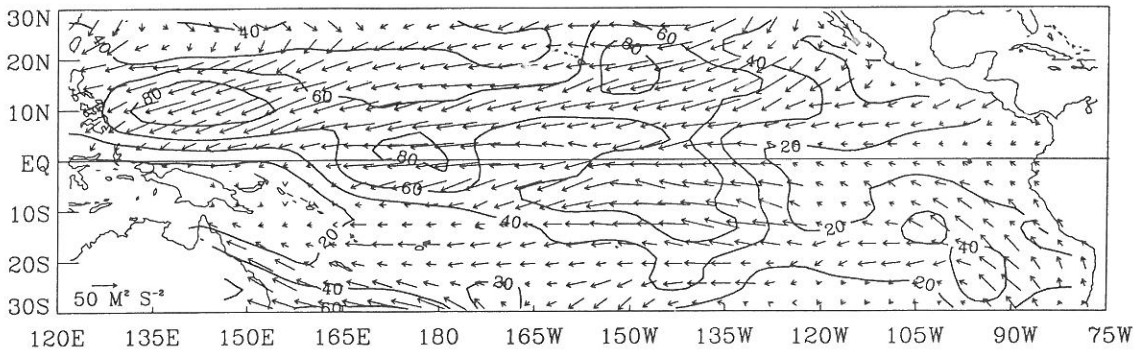
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) January 1985



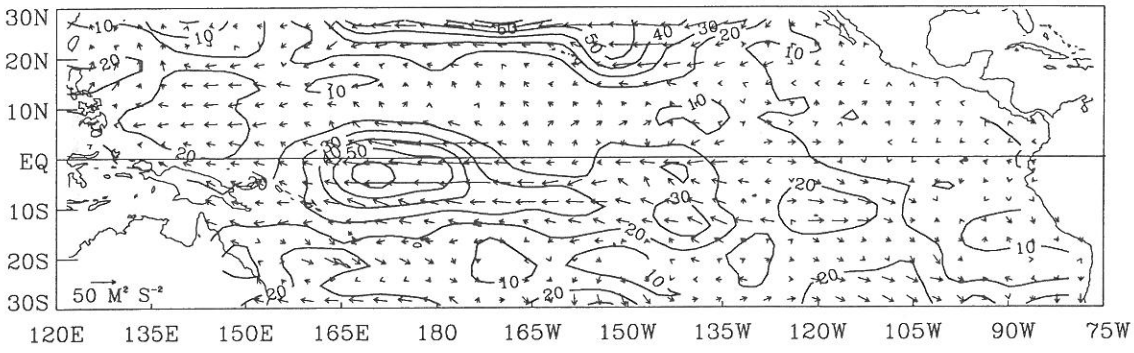
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) January 1985



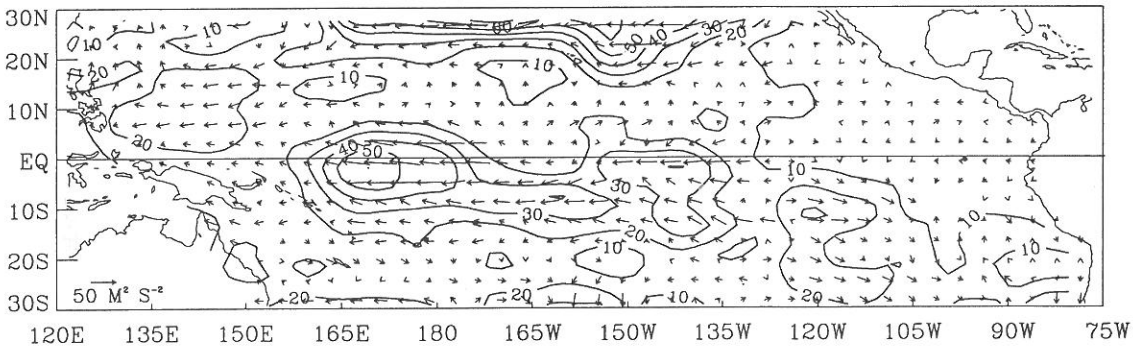
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) February 1985



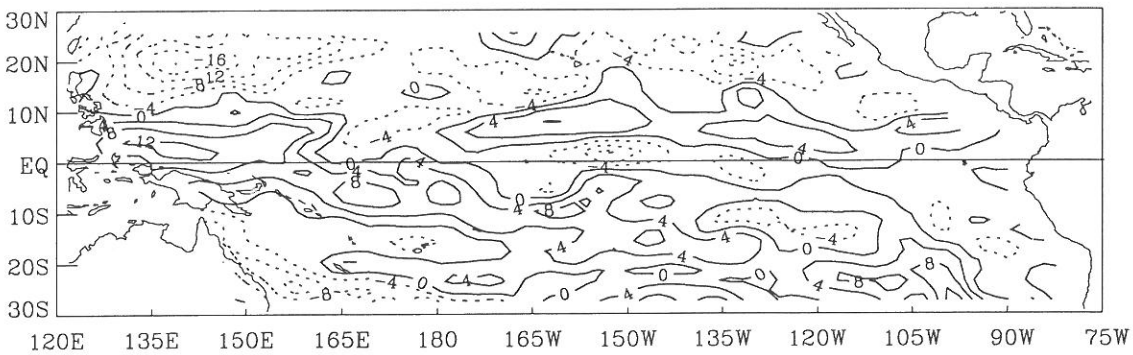
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) February 1985



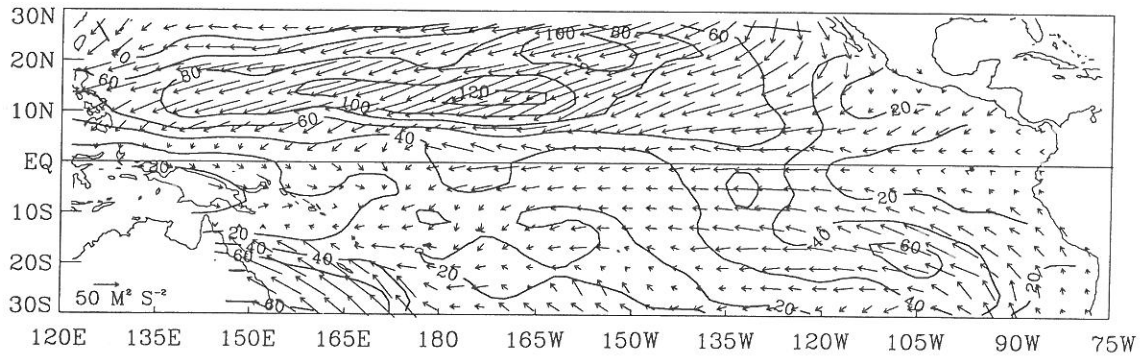
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) February 1985



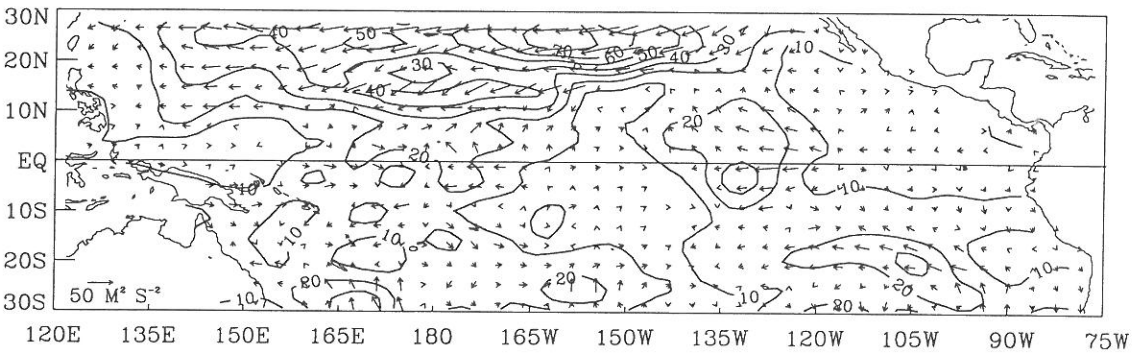
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) February 1985



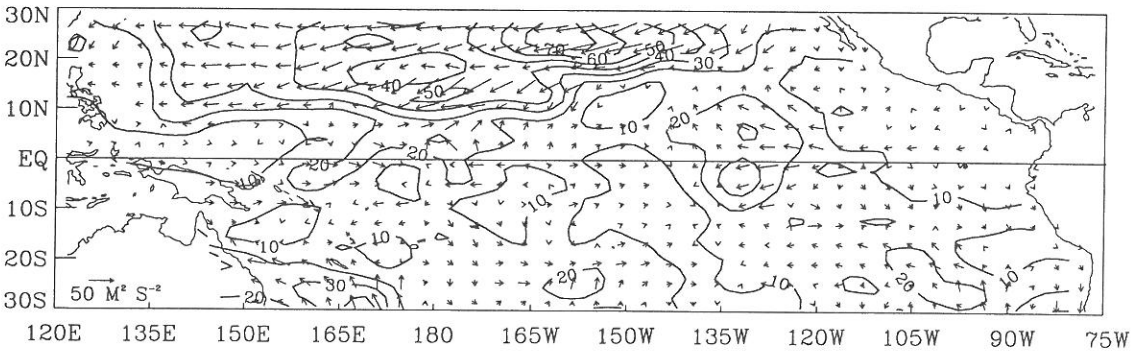
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) March 1985



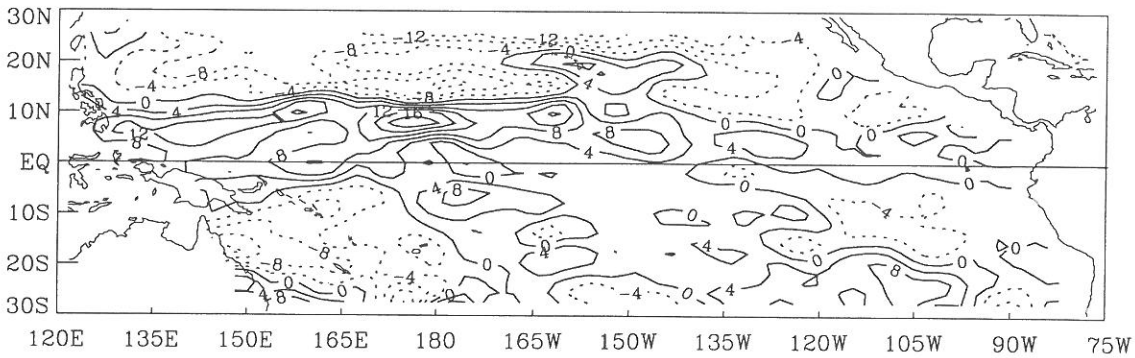
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) March 1985



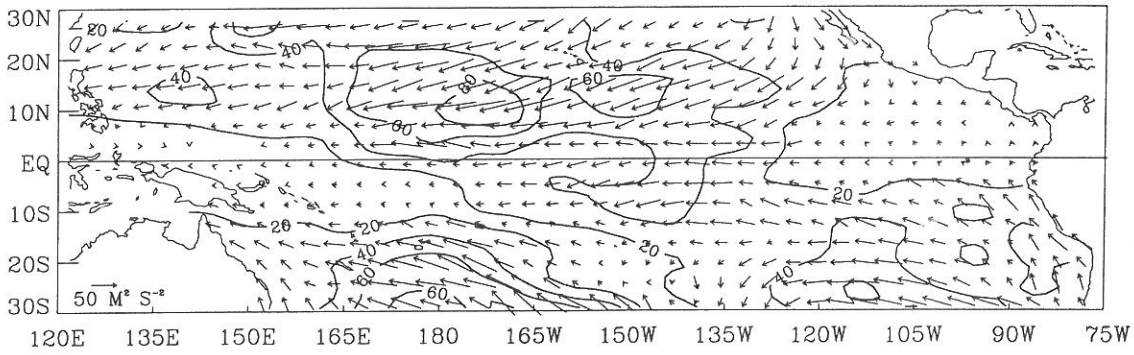
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) March 1985



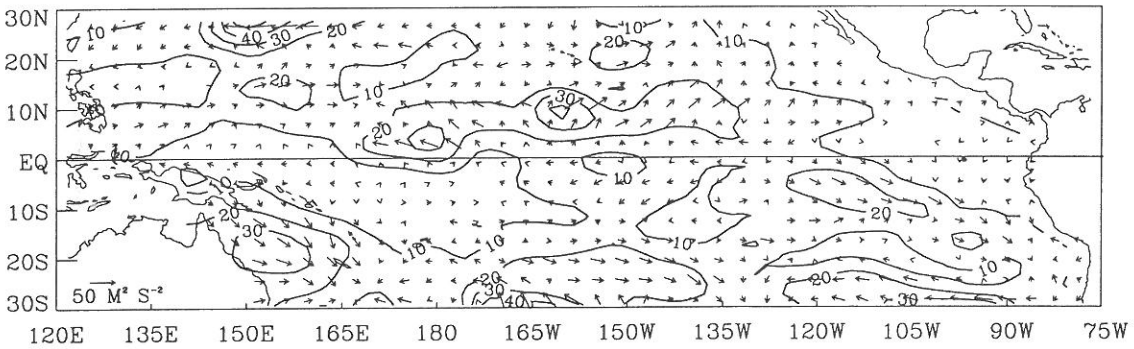
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) March 1985



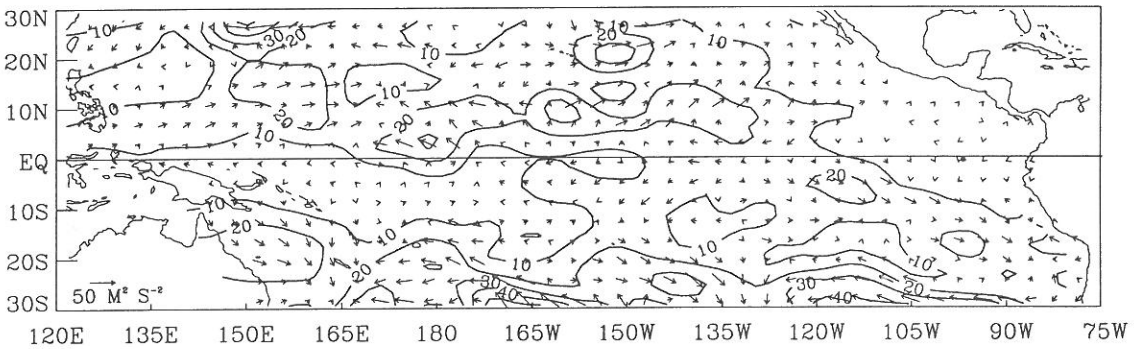
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) April 1985



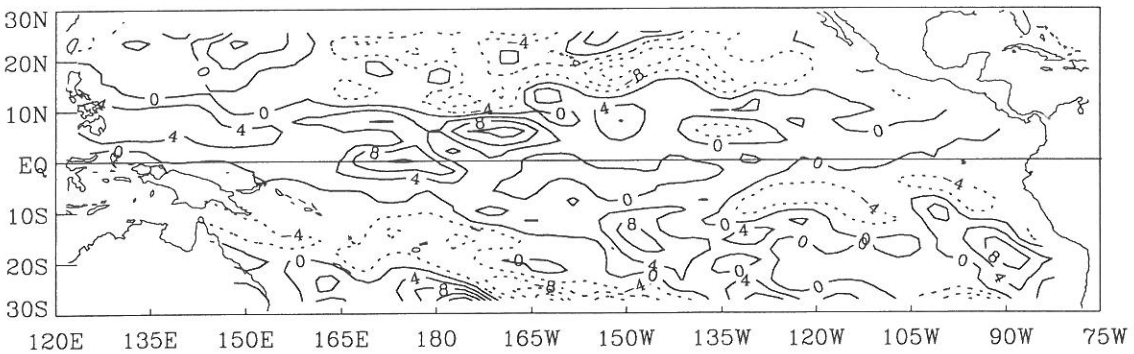
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) April 1985



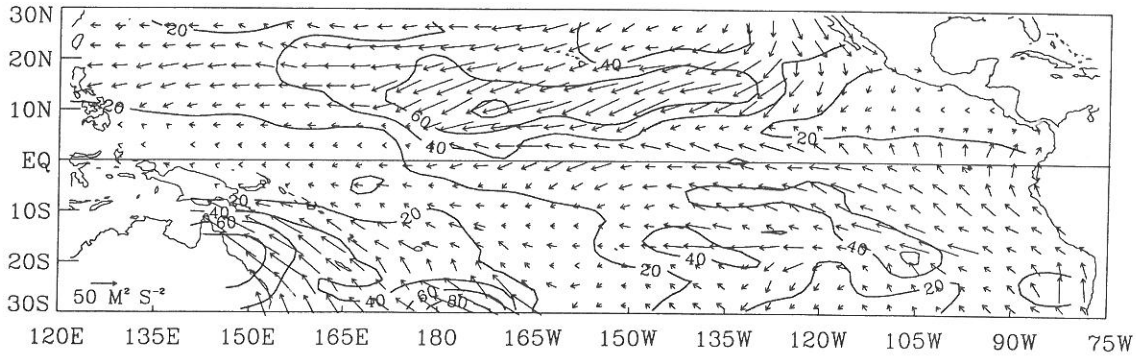
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) April 1985



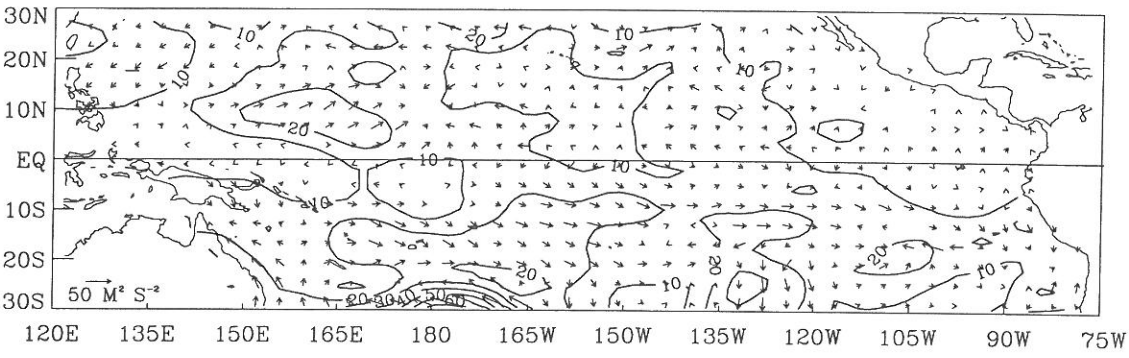
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) April 1985



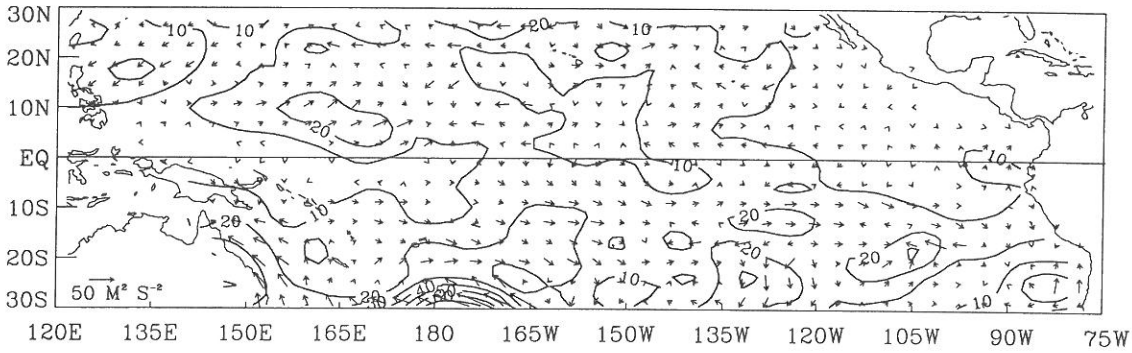
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) May 1985



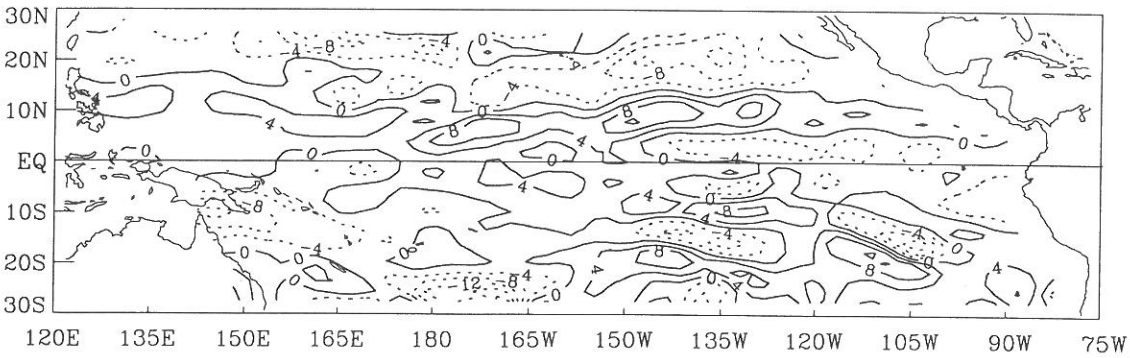
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) May 1985



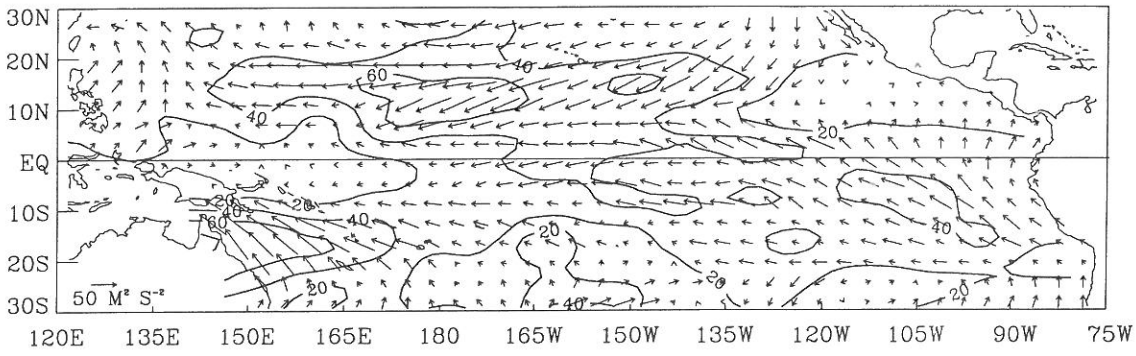
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) May 1985



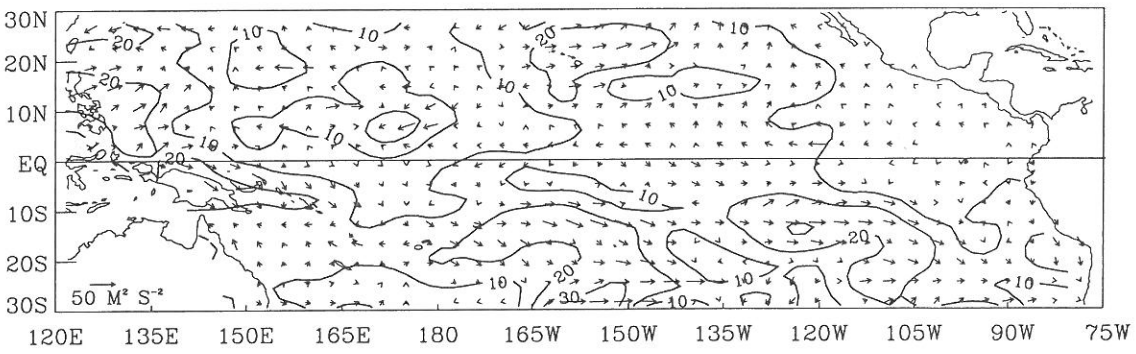
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) May 1985



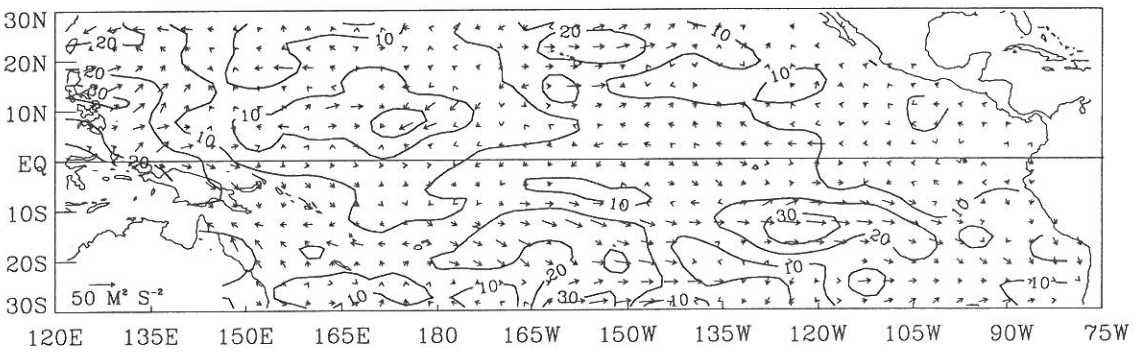
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) June 1985



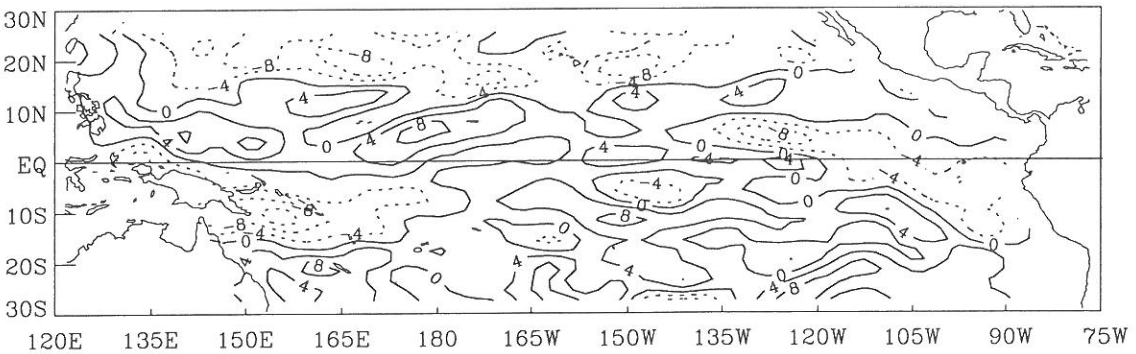
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) June 1985



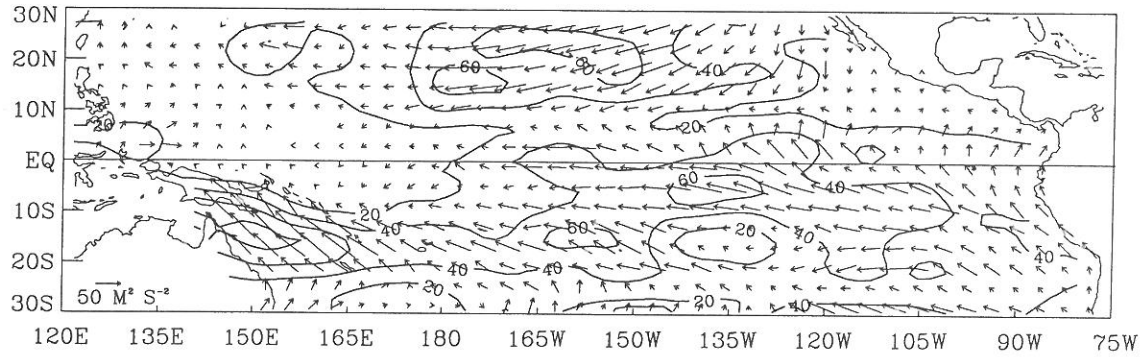
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) June 1985



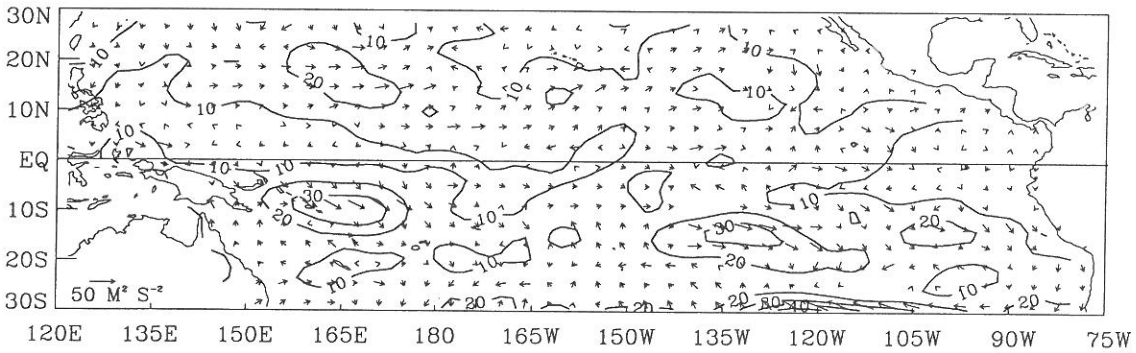
Wind Stress Curl ($x10^{-8}$ N M^{-3}) June 1985



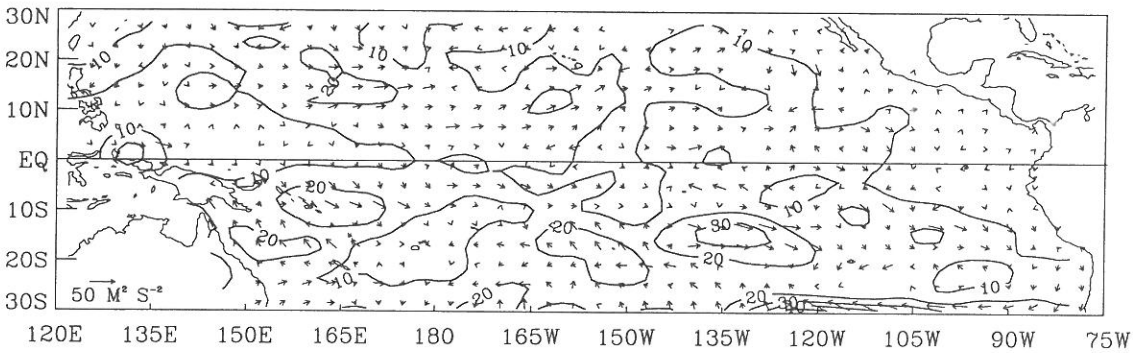
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) July 1985



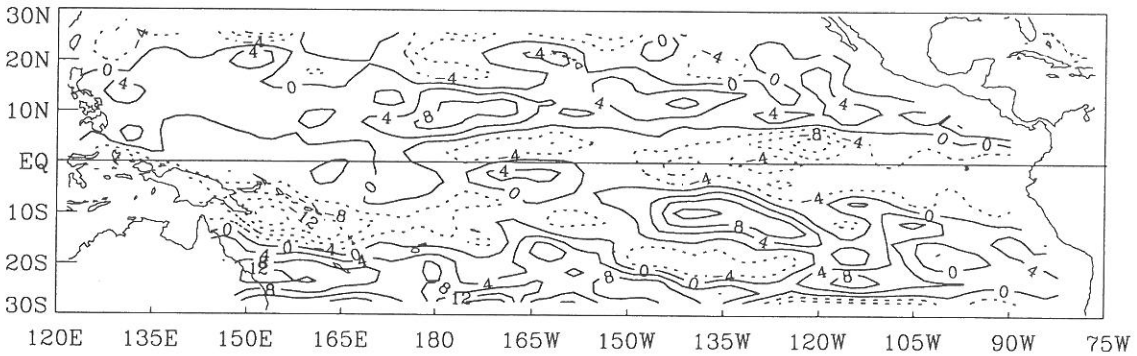
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) July 1985



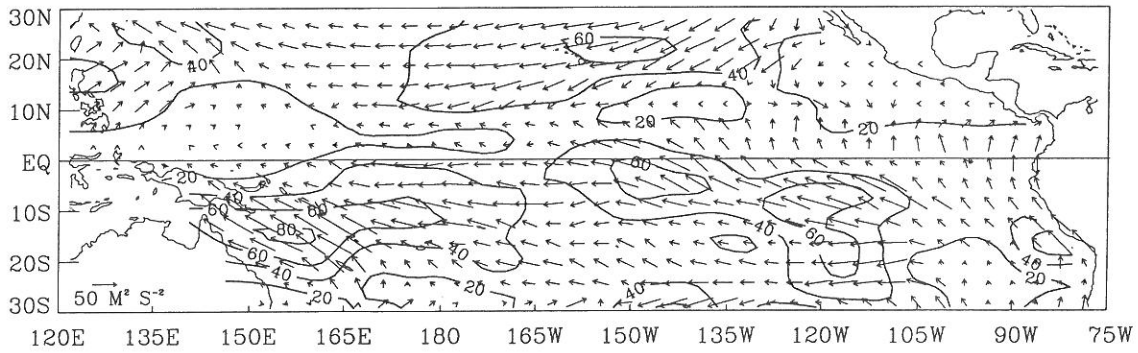
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) July 1985



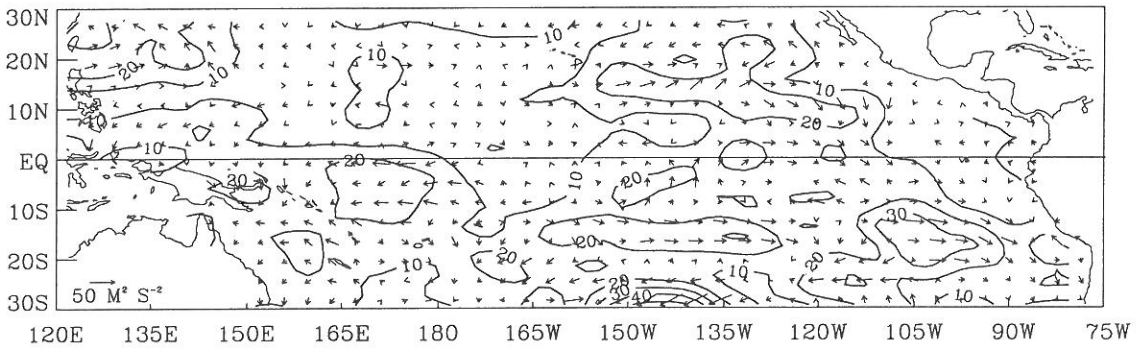
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) July 1985



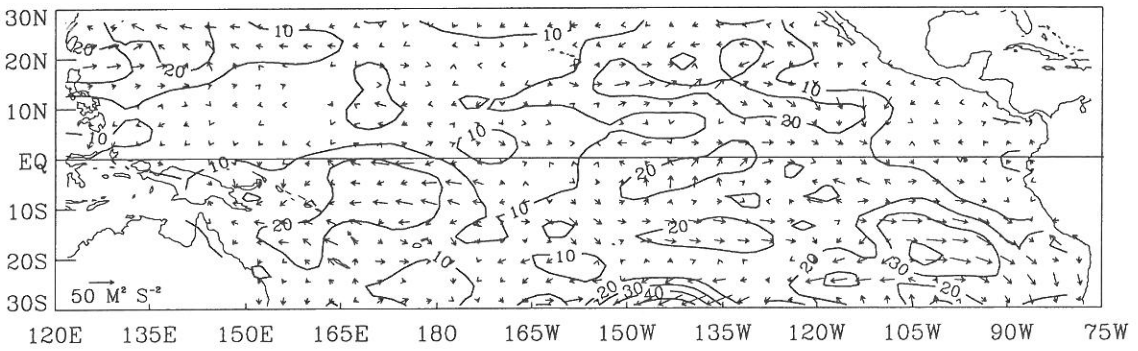
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) August 1985



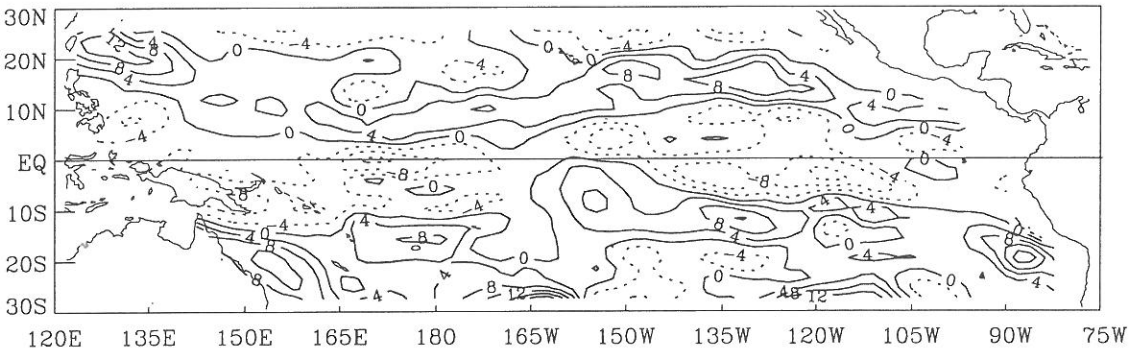
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) August 1985



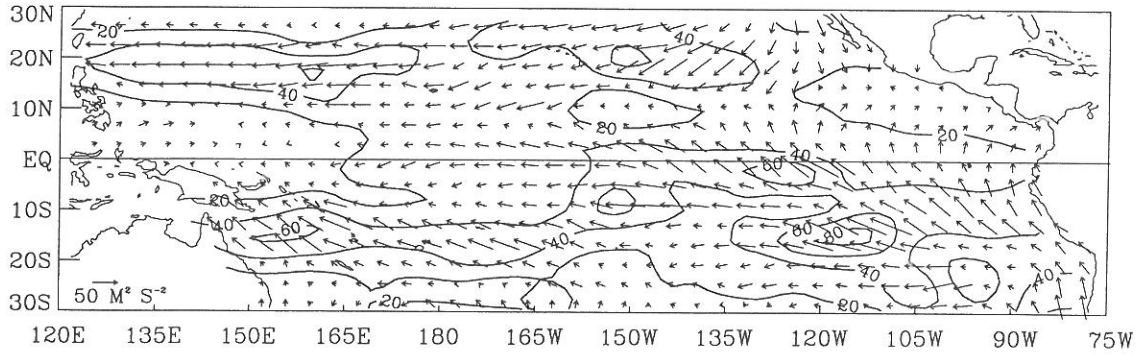
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) August 1985



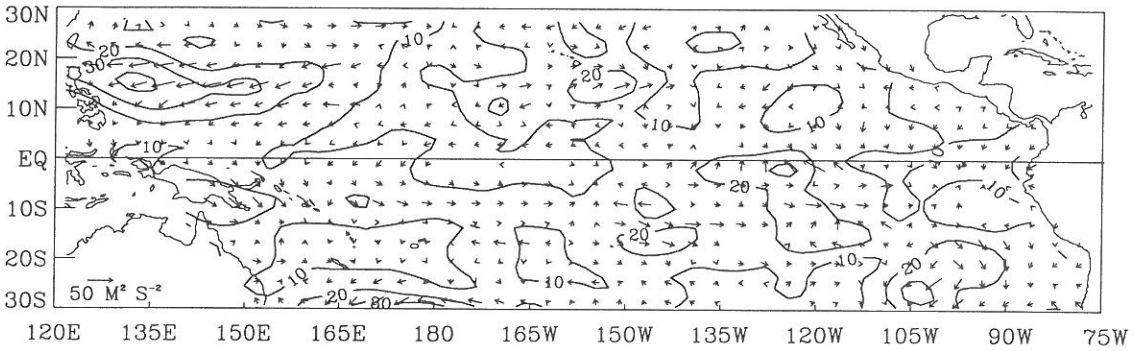
Wind Stress Curl ($x10^{-8}$ N M^{-3}) August 1985



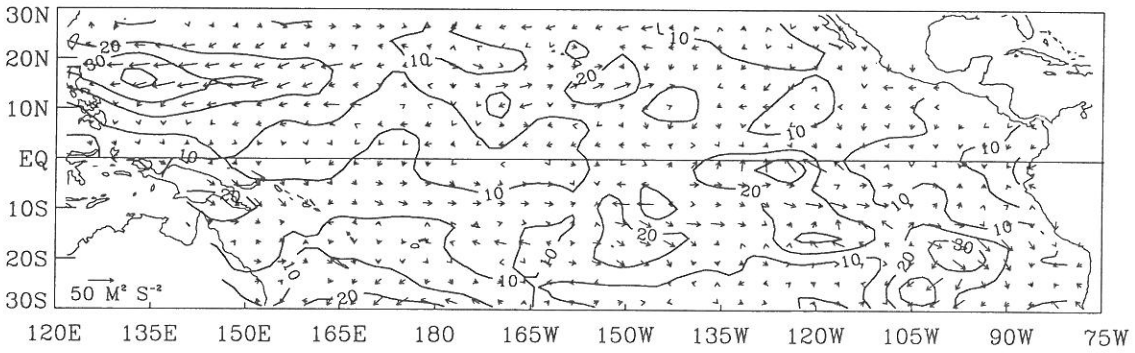
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) September 1985



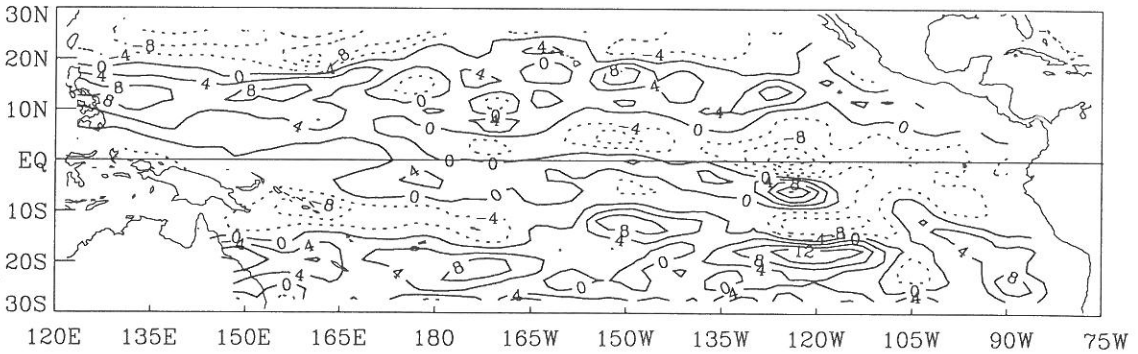
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) September 1985



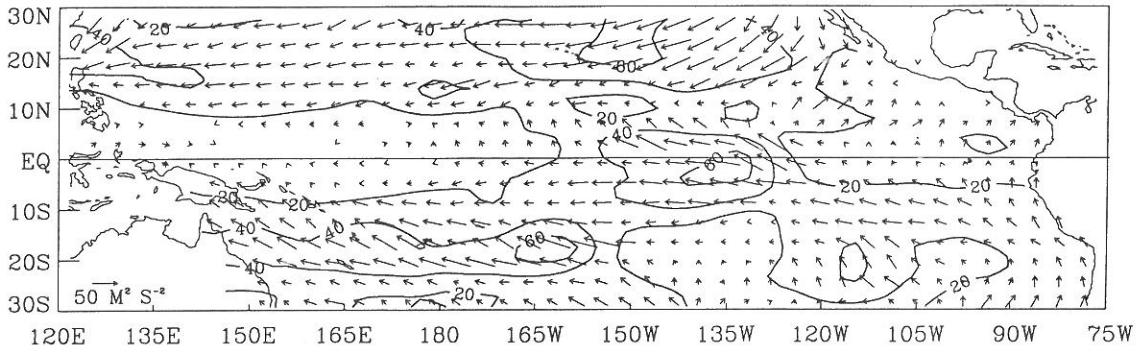
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) September 1985



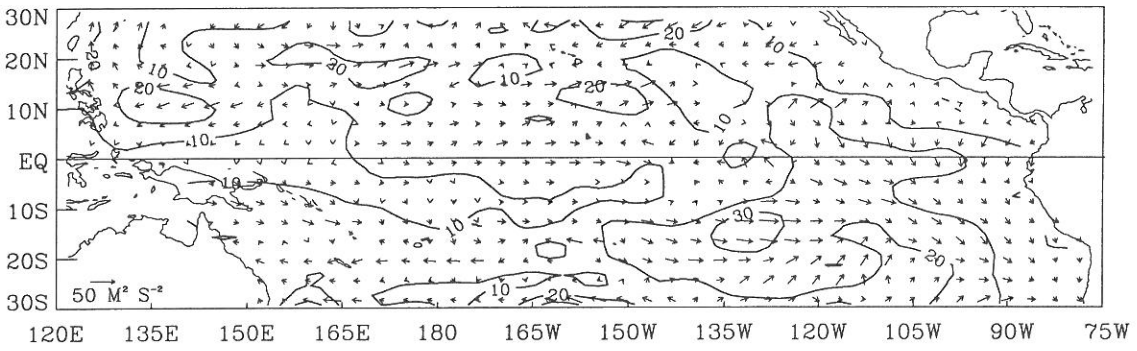
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) September 1985



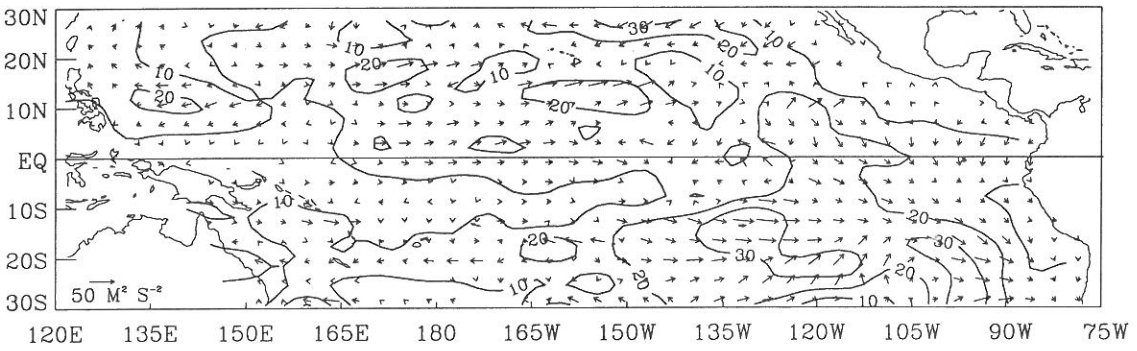
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) October 1985



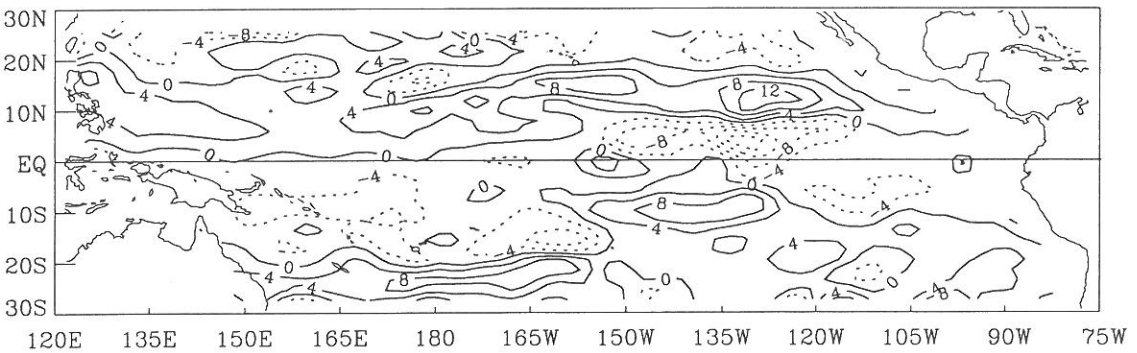
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) October 1985



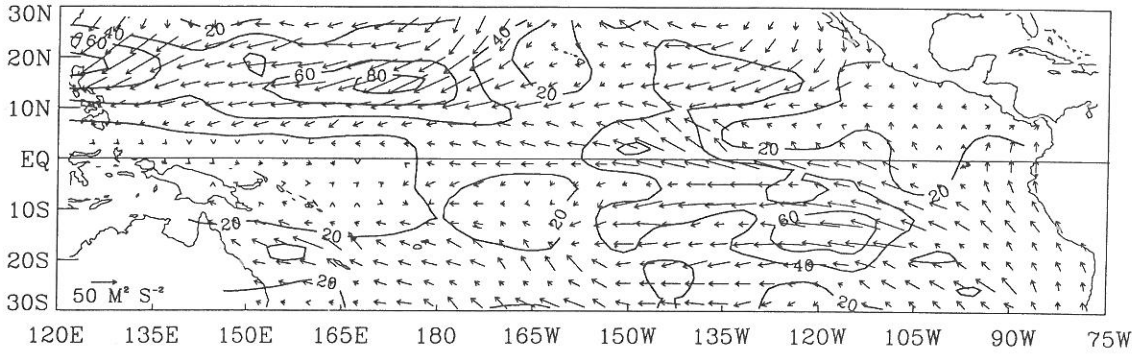
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) October 1985



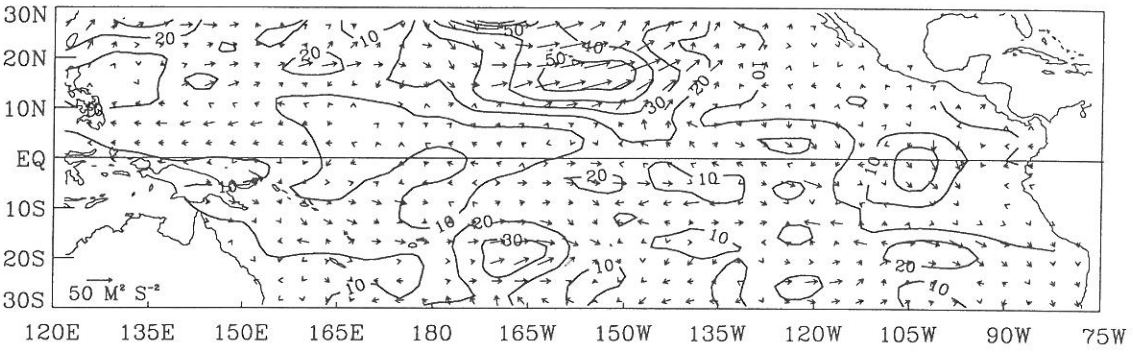
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) October 1985



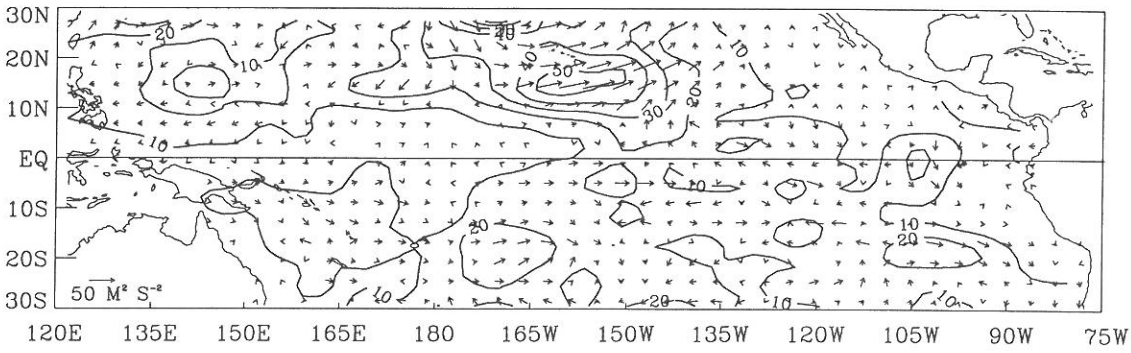
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) November 1985



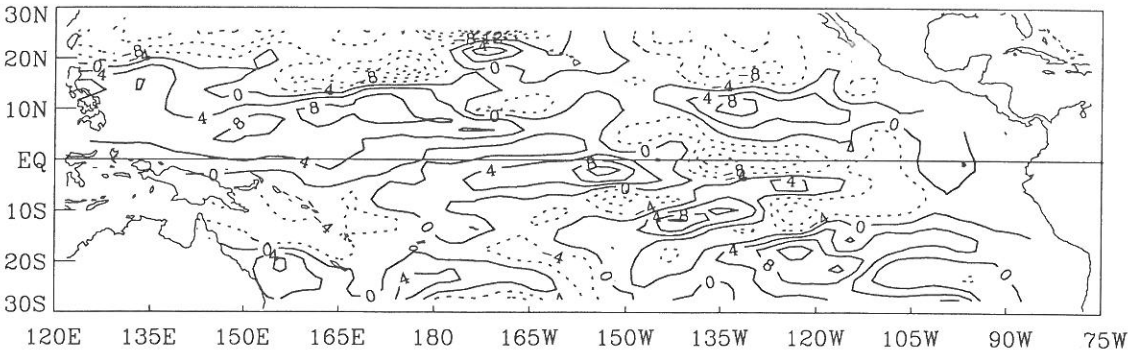
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) November 1985



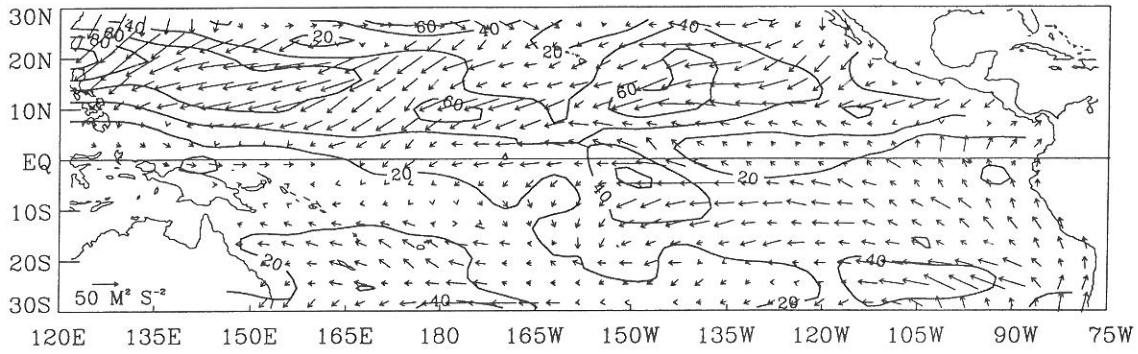
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) November 1985



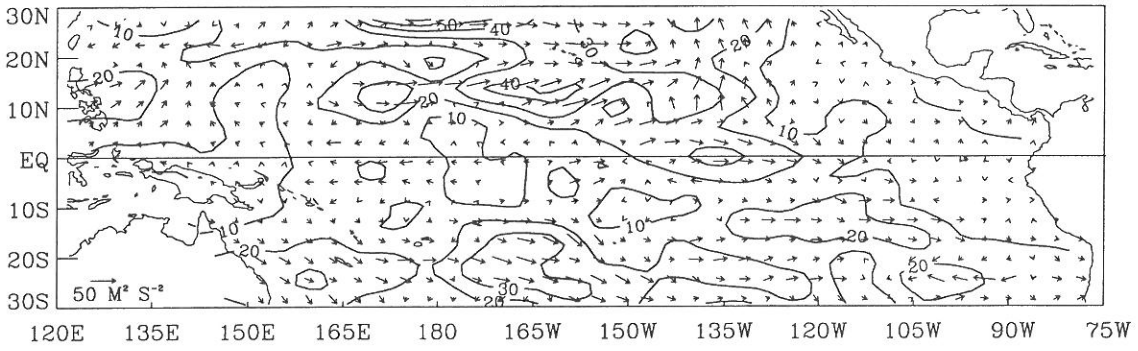
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) November 1985



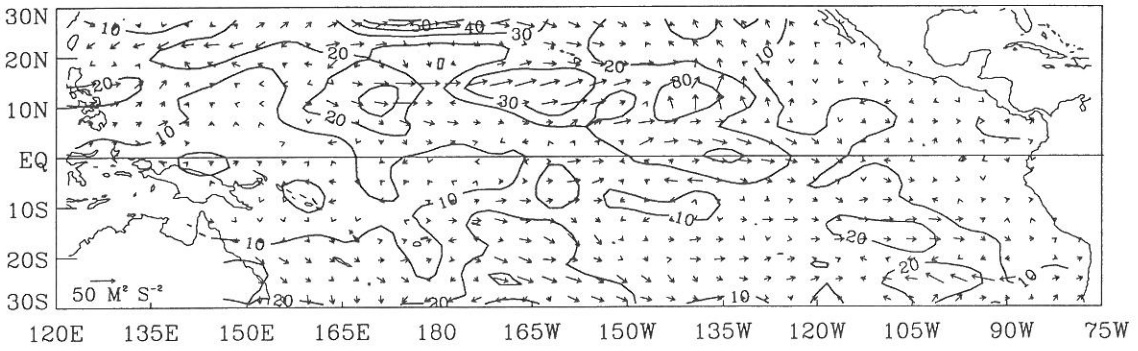
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) December 1985



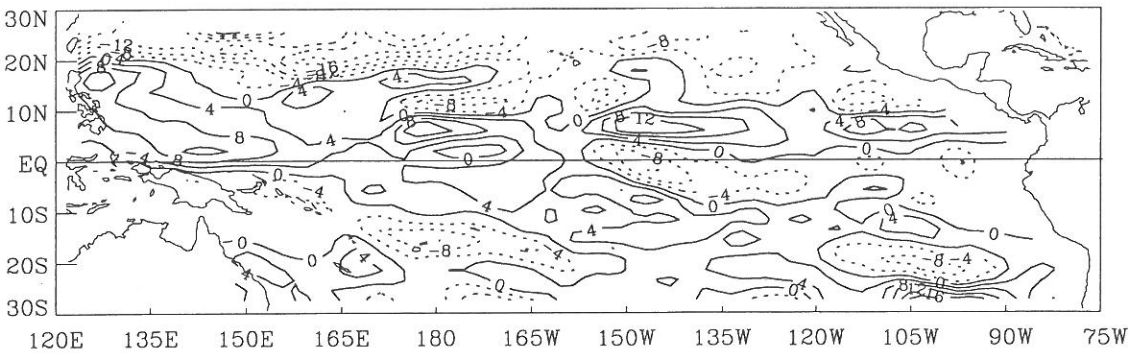
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) December 1985



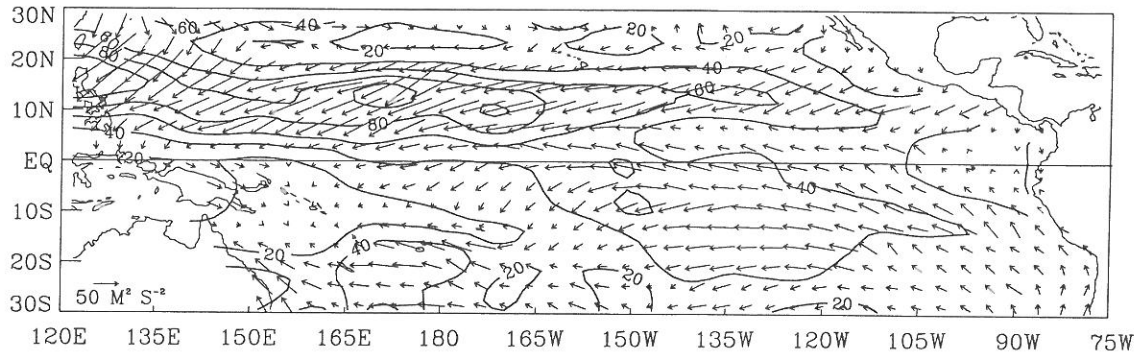
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) December 1985



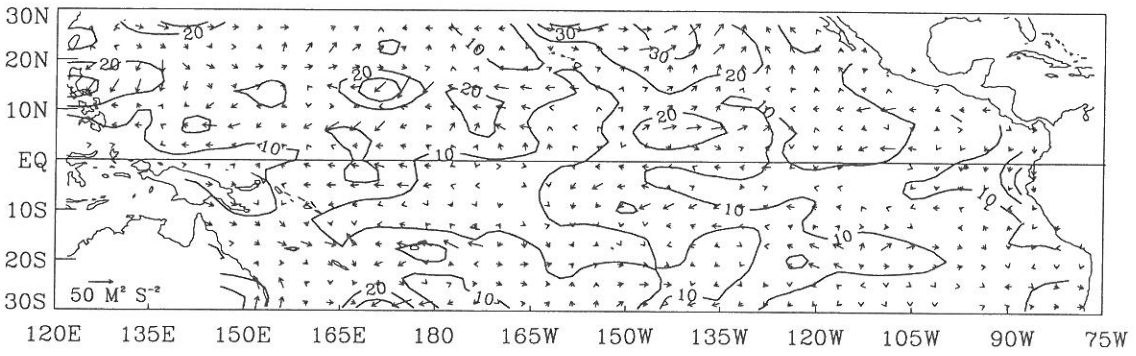
Wind Stress Curl ($x10^{-8}$ N M^{-3}) December 1985



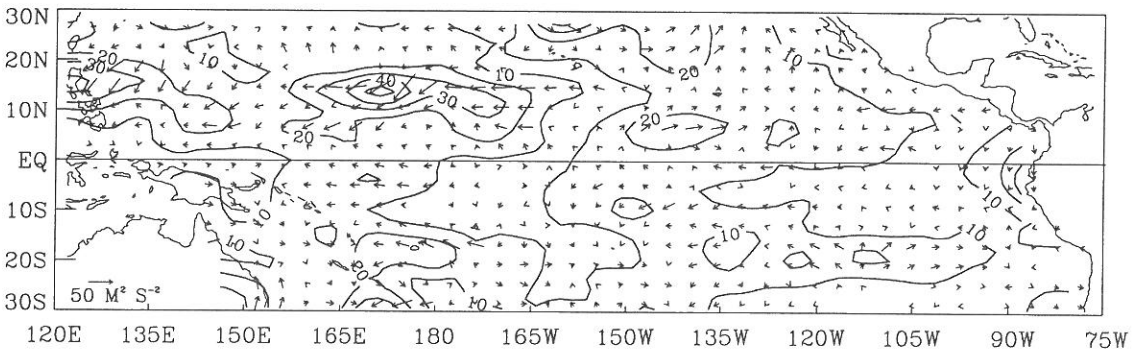
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) January 1986



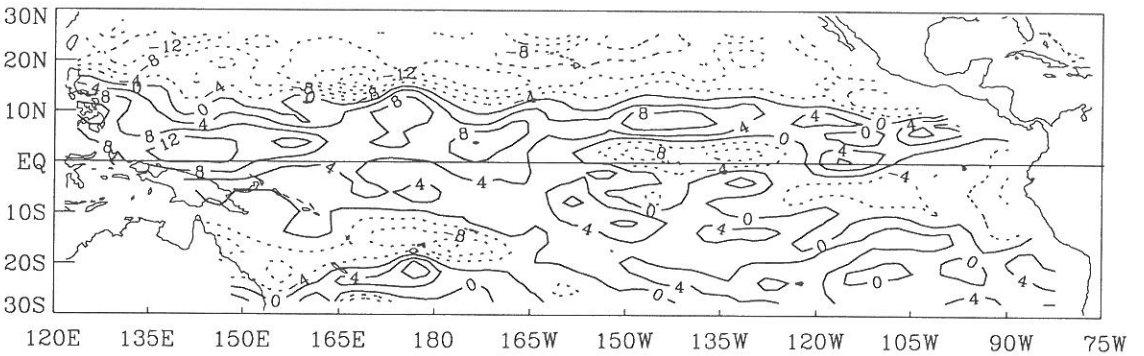
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) January 1986



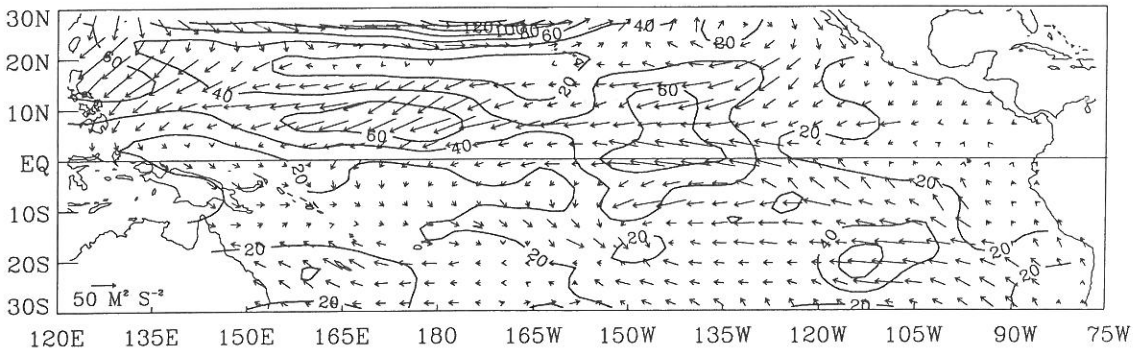
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) January 1986



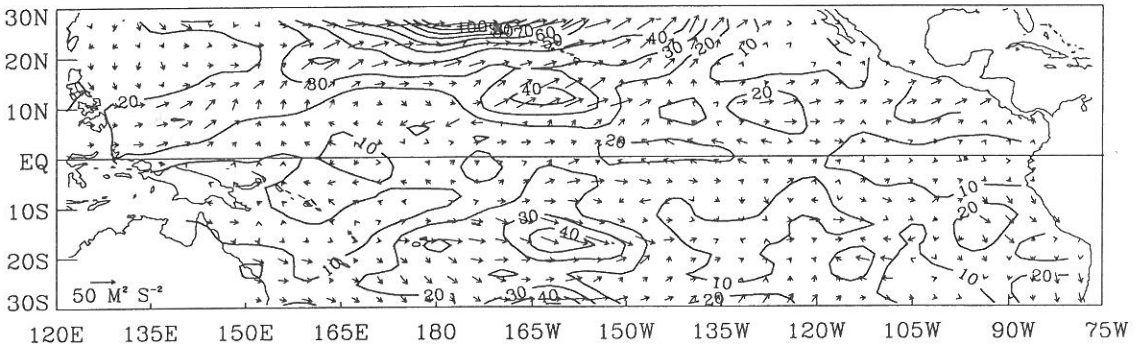
Wind Stress Curl ($x10^{-8}$ N M^{-3}) January 1986



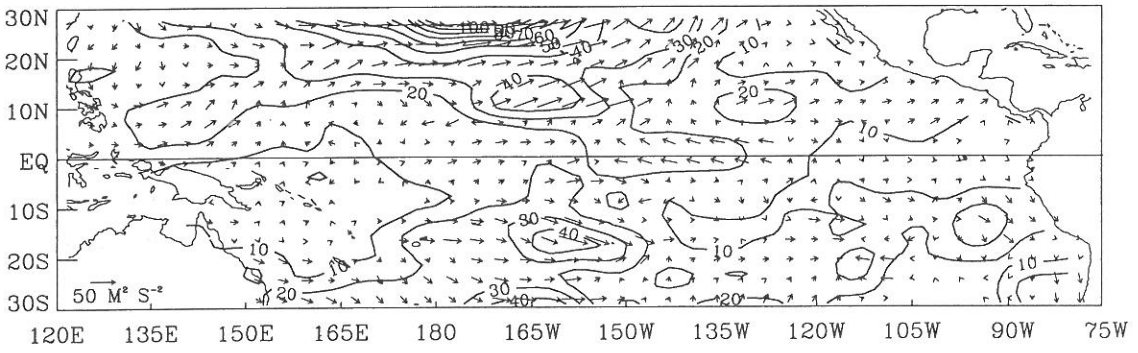
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) February 1986



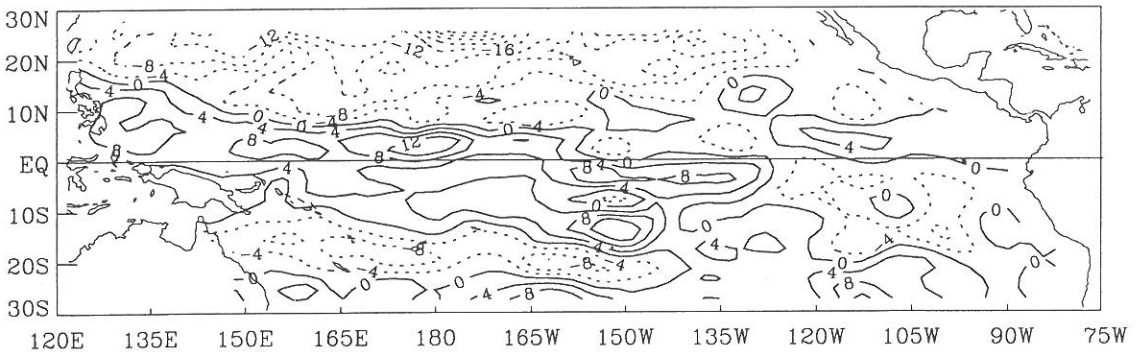
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) February 1986



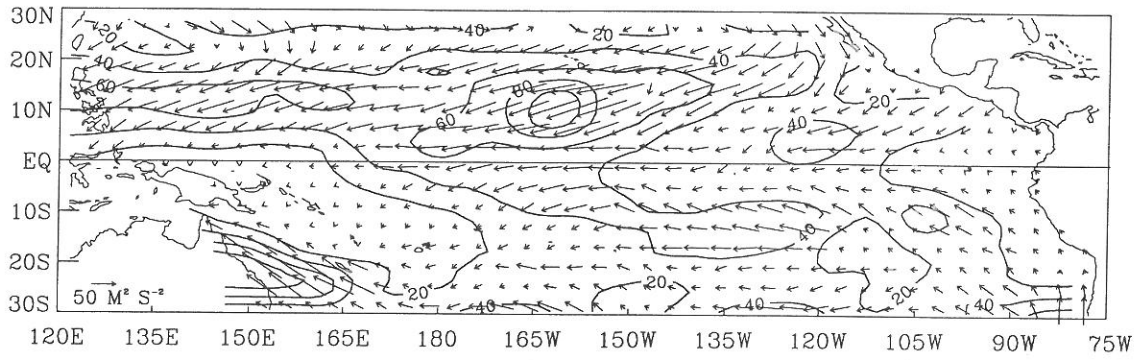
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) February 1986



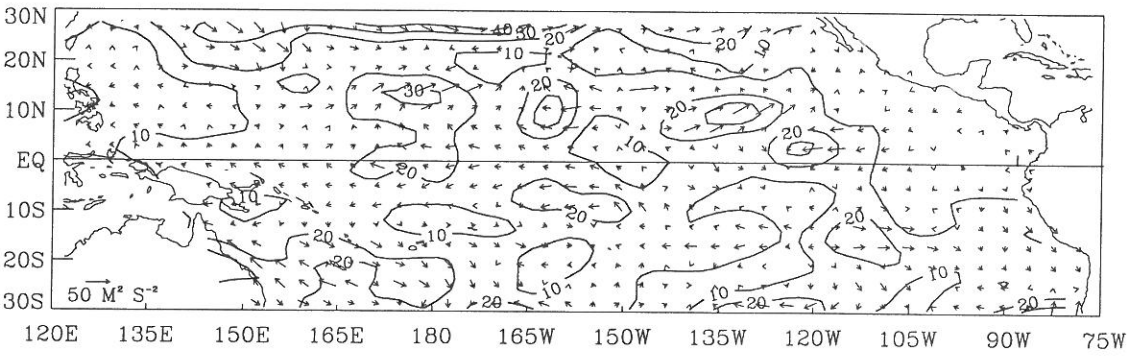
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) February 1986



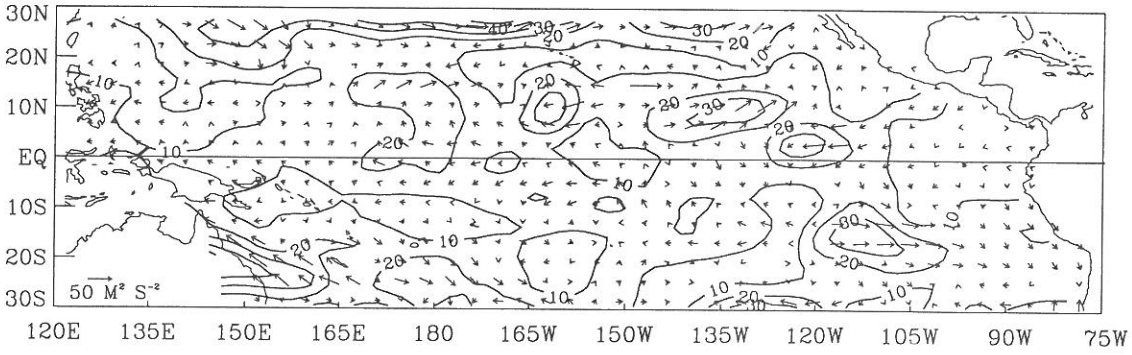
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) March 1986



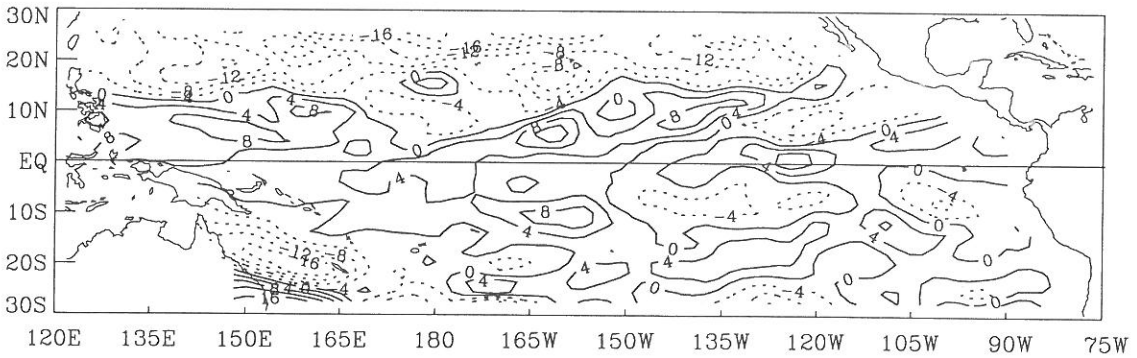
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) March 1986



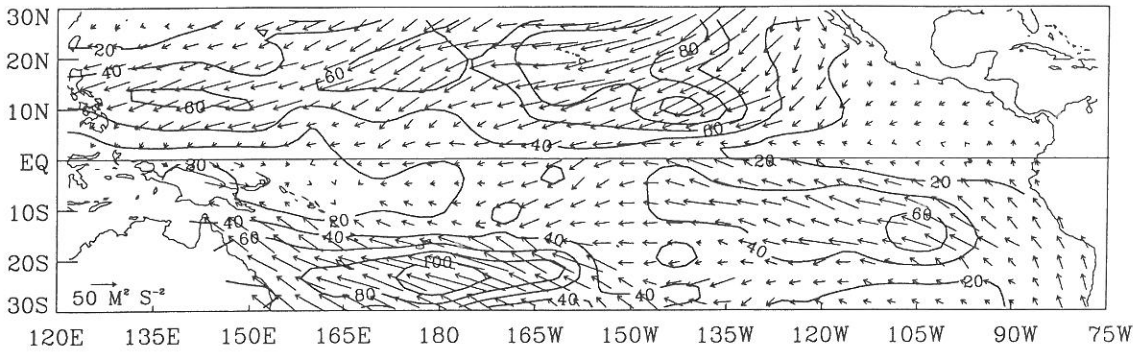
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) March 1986



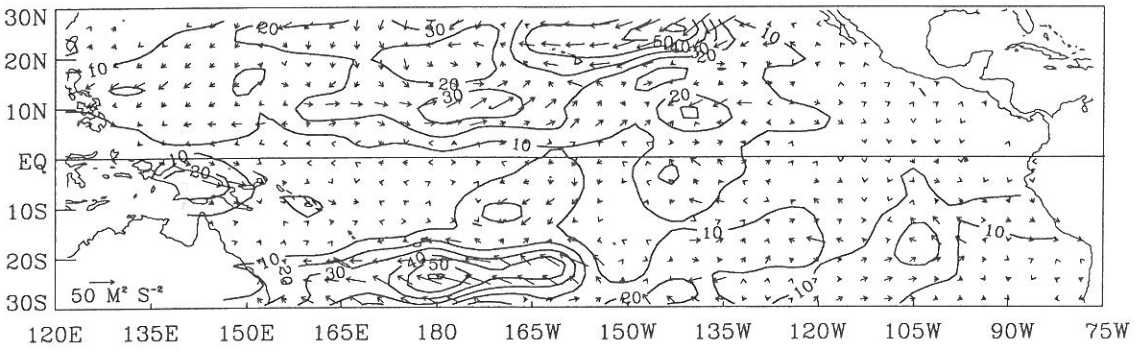
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) March 1986



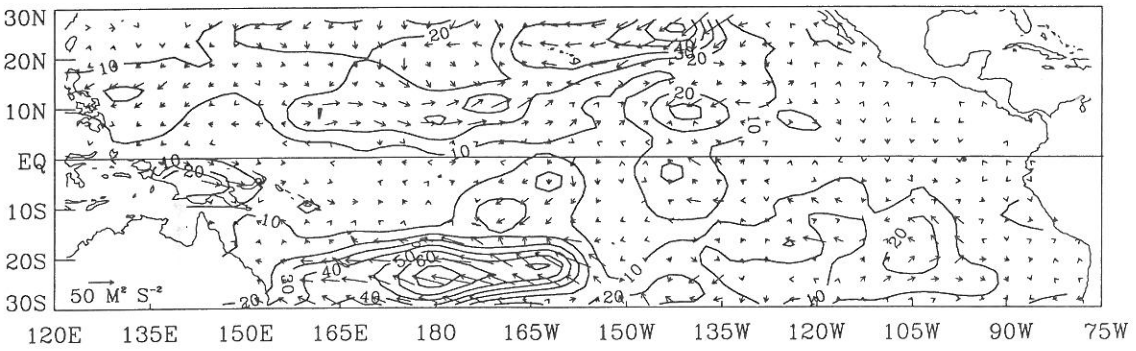
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) April 1986



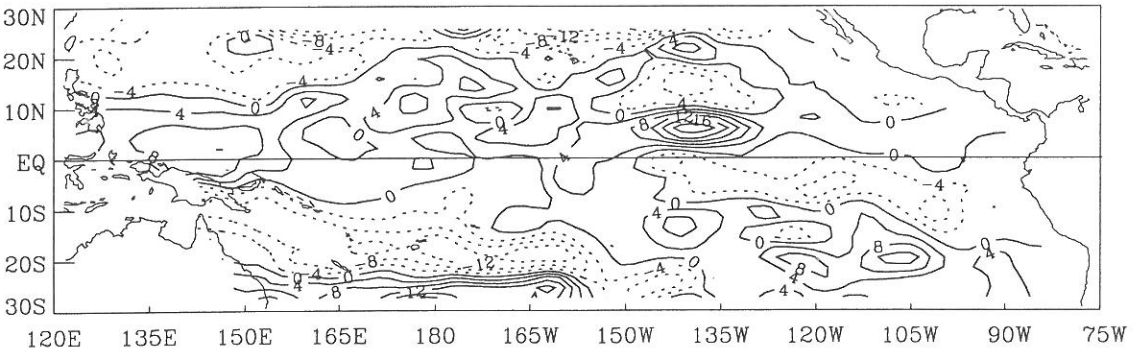
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) April 1986



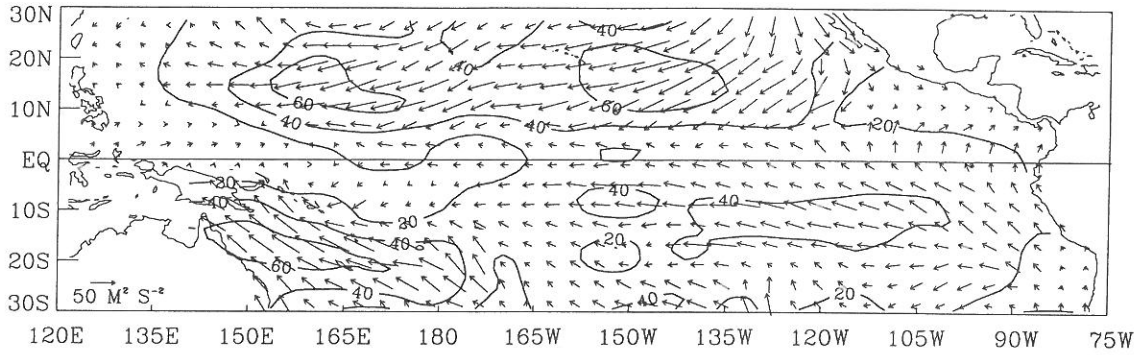
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) April 1986



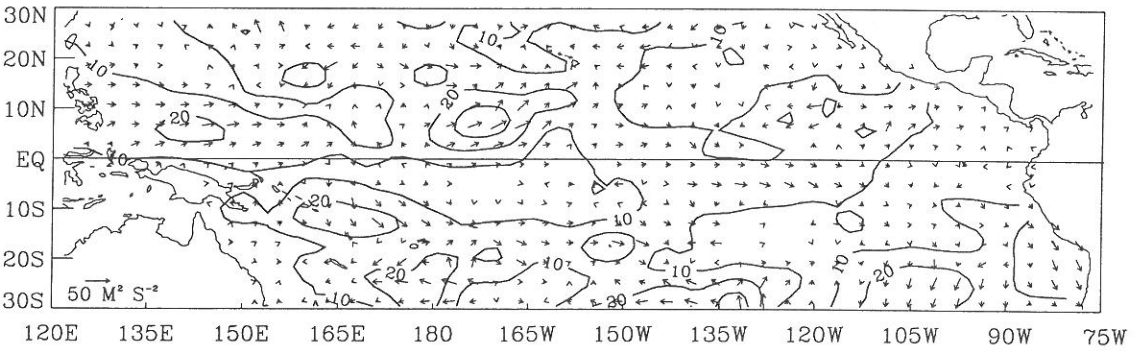
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) April 1986



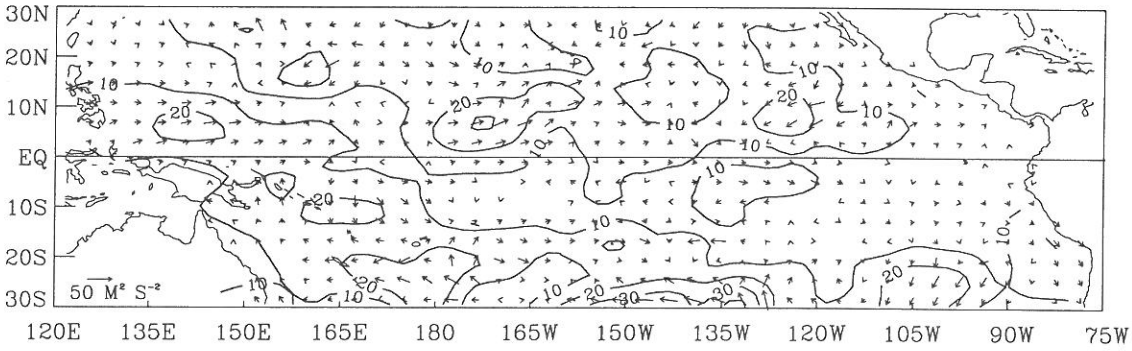
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) May 1986



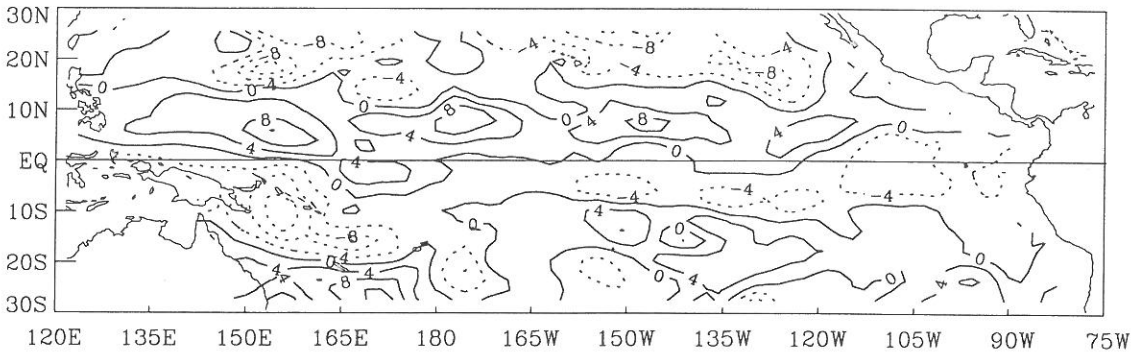
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) May 1986



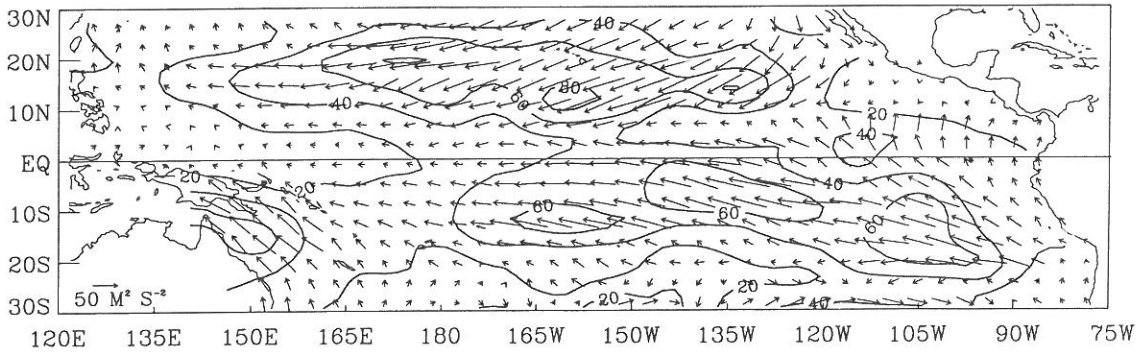
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) May 1986



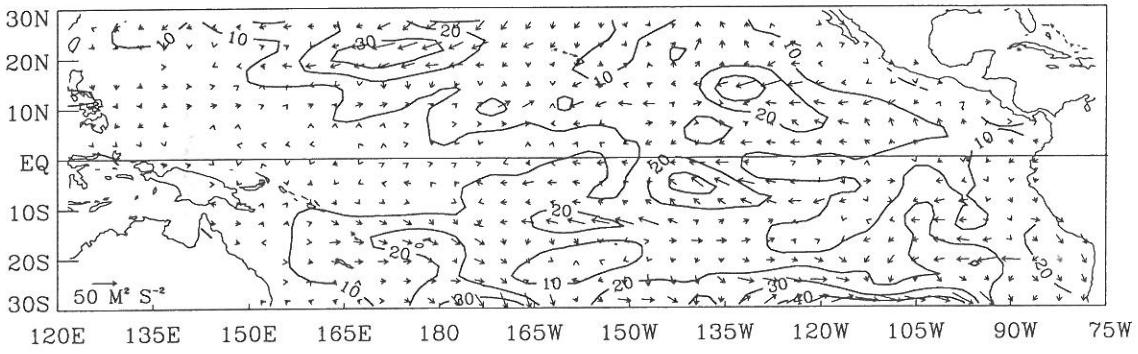
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) May 1986



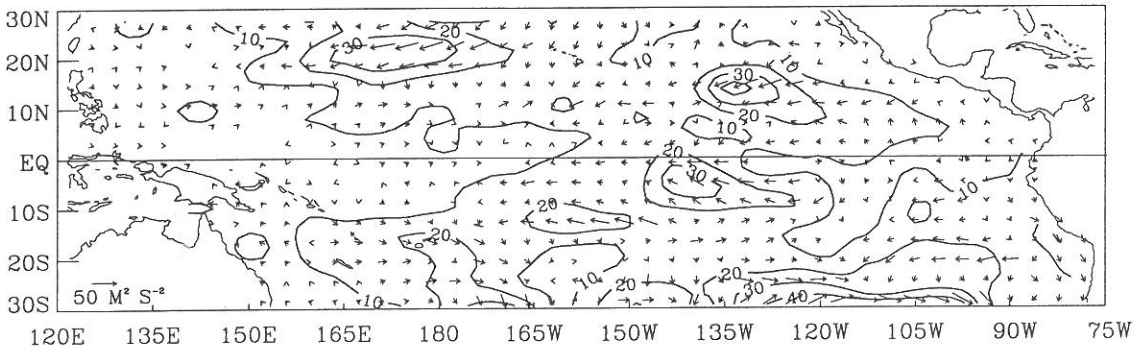
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) June 1986



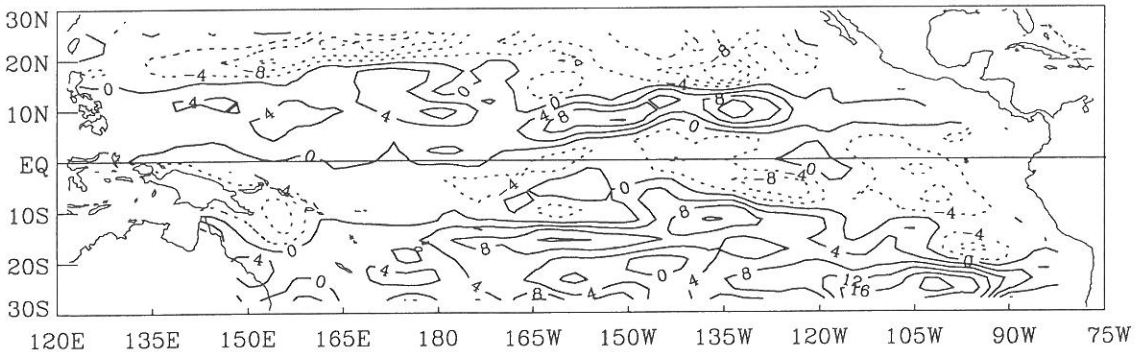
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) June 1986



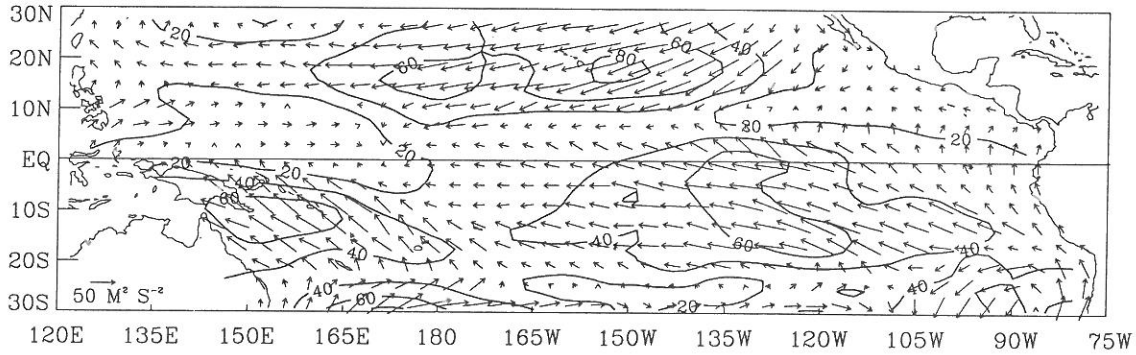
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) June 1986



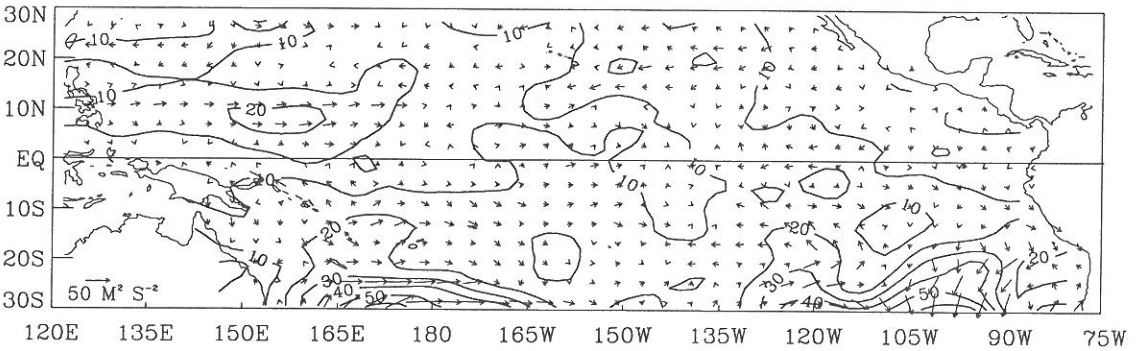
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) June 1986



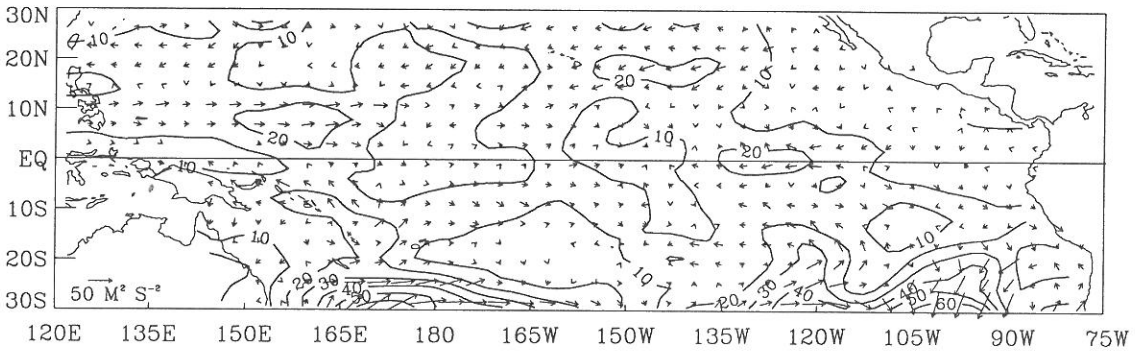
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) July 1986



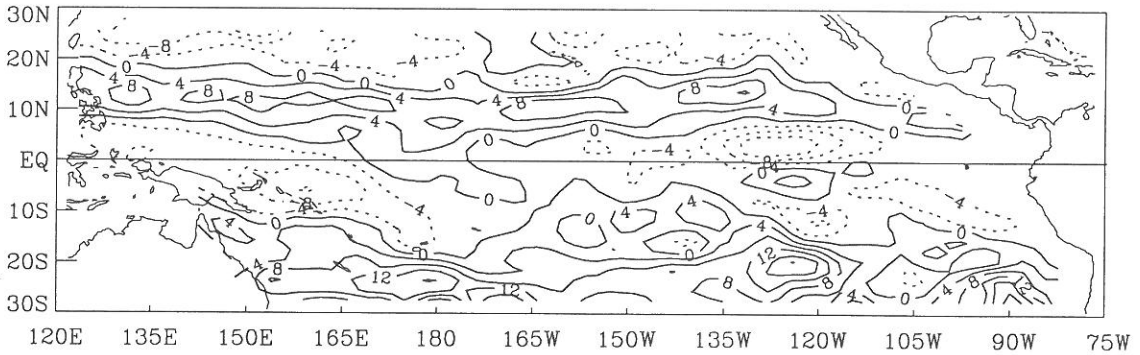
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) July 1986



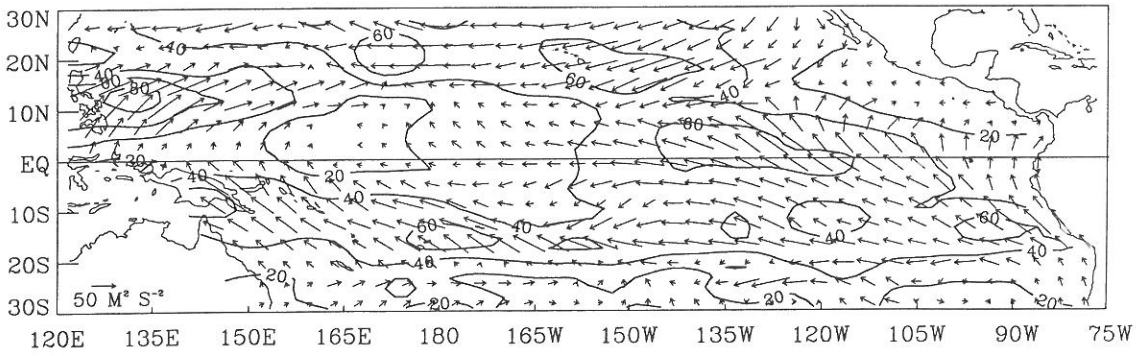
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) July 1986



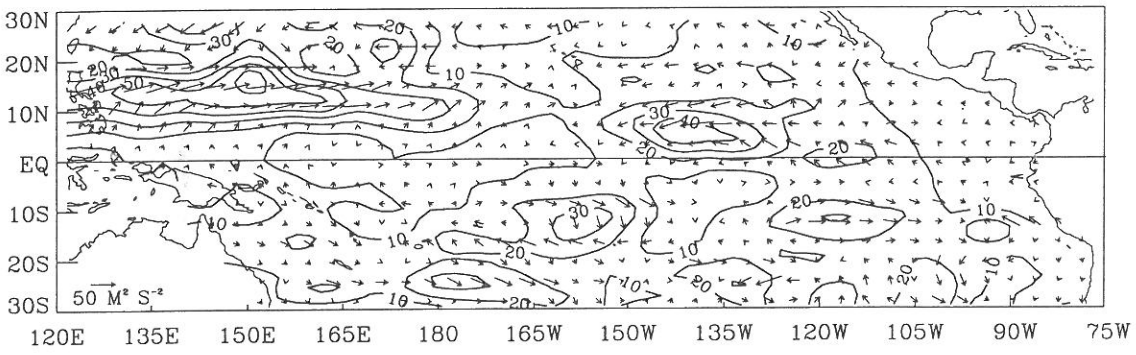
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) July 1986



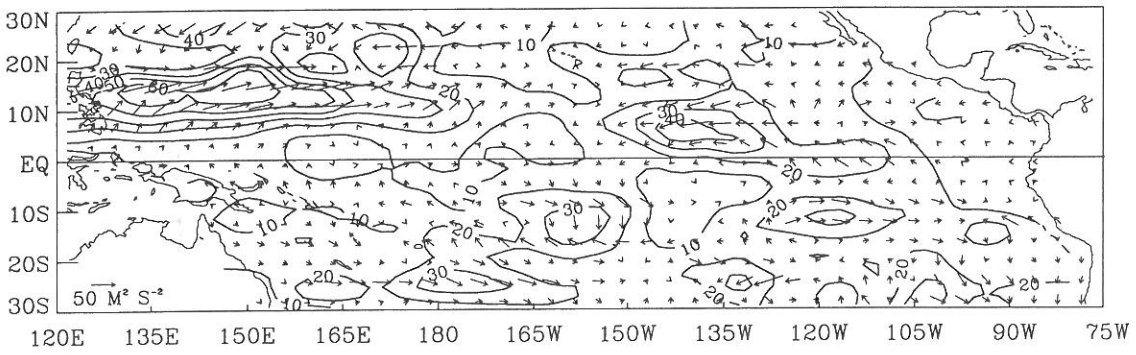
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) August 1986



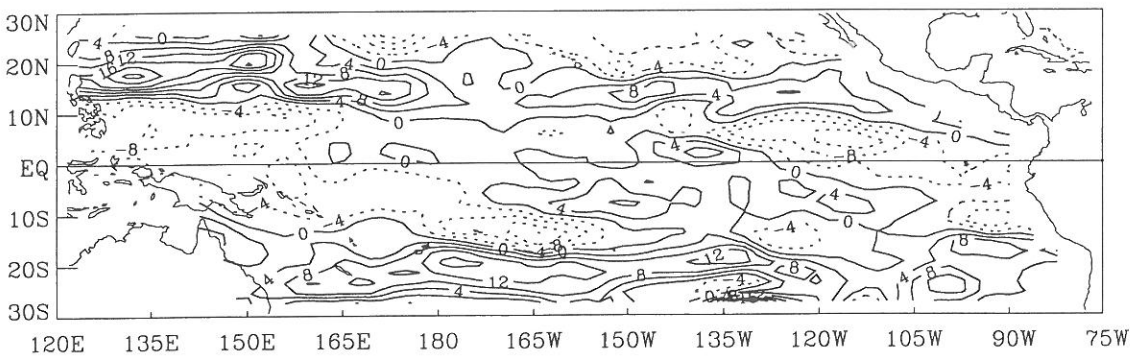
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) August 1986



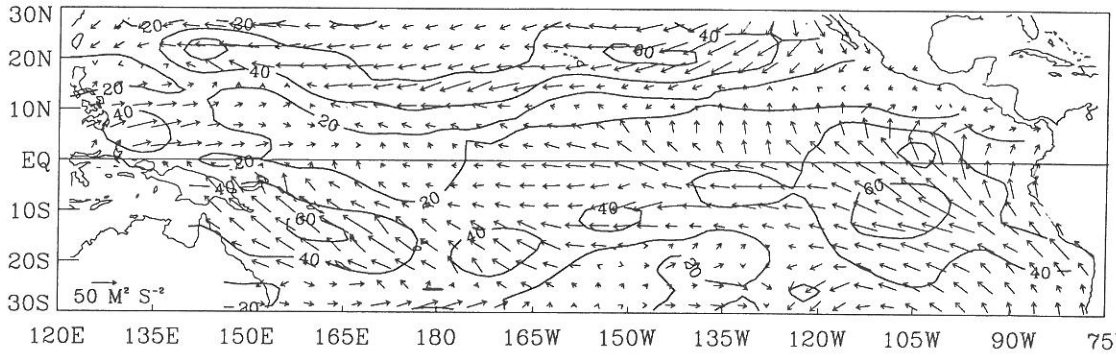
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) August 1986



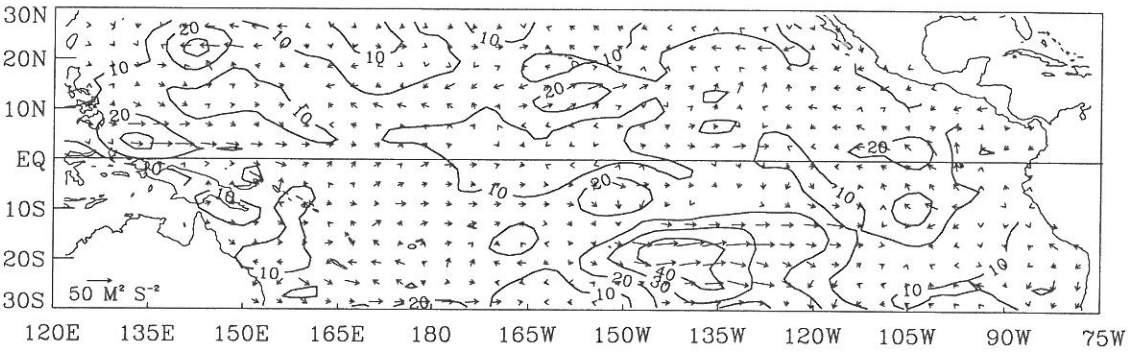
Wind Stress Curl ($x10^{-8}$ N M^{-3}) August 1986



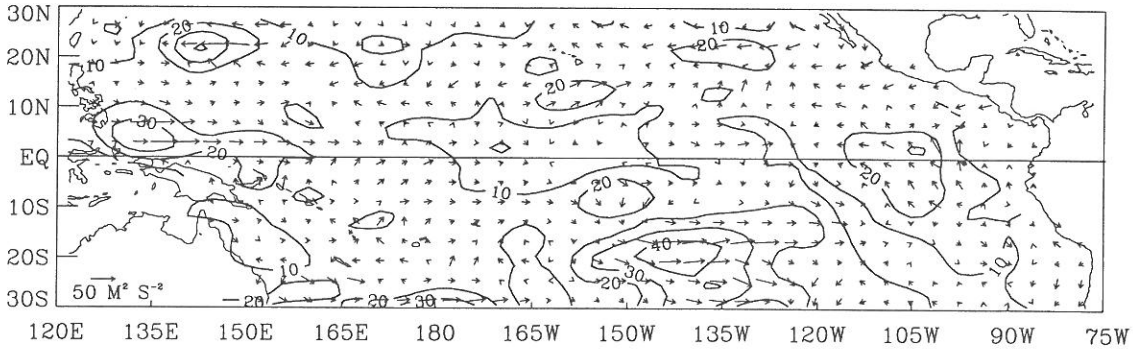
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) September 1986



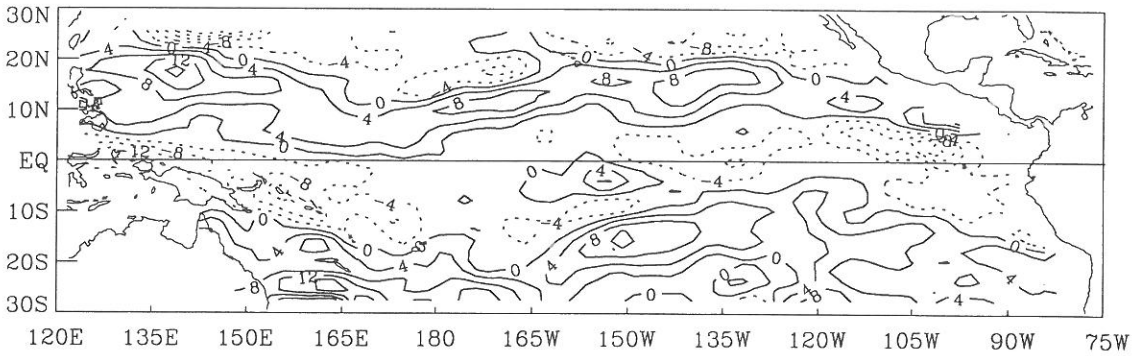
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) September 1986



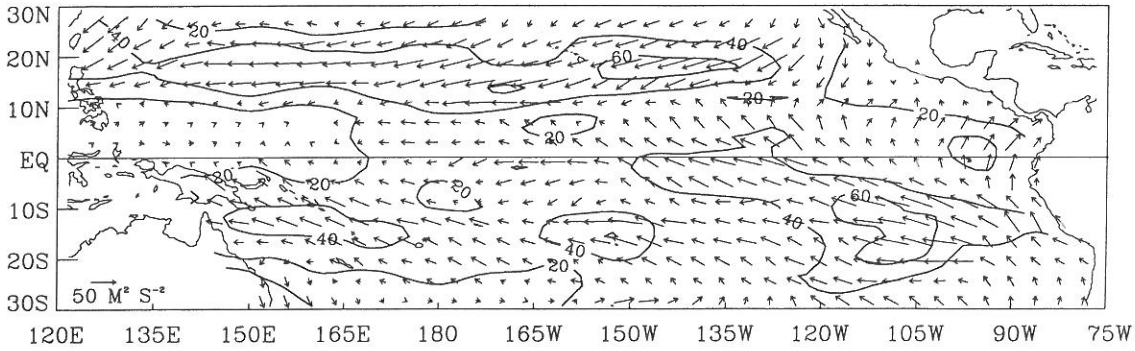
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) September 1986



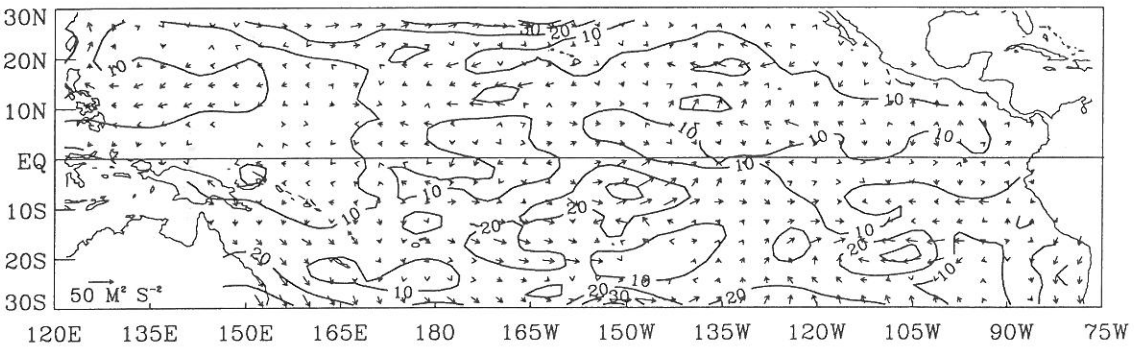
Wind Stress Curl ($x10^{-8}$ N M^{-3}) September 1986



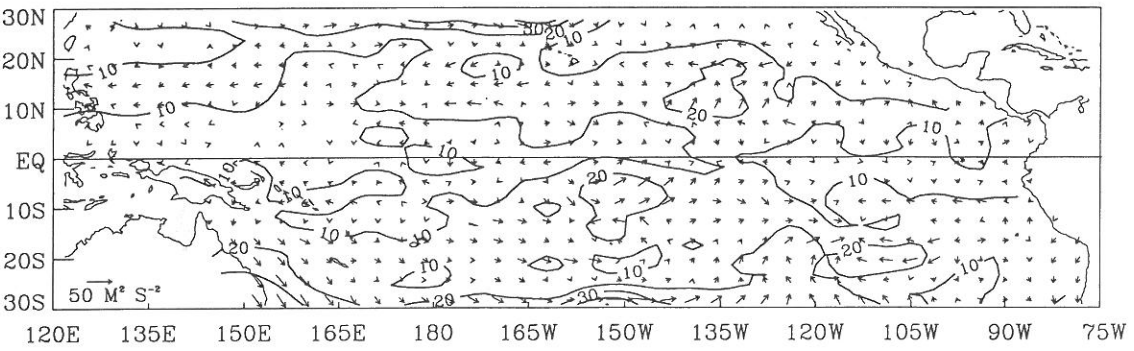
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) October 1986



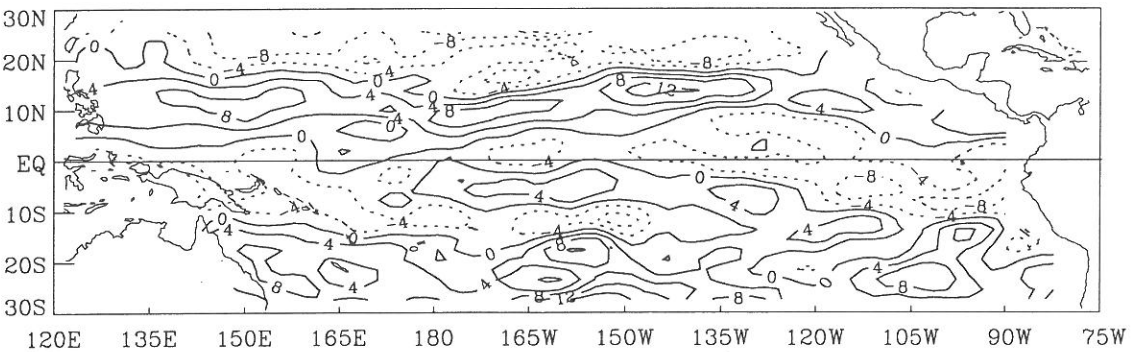
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) October 1986



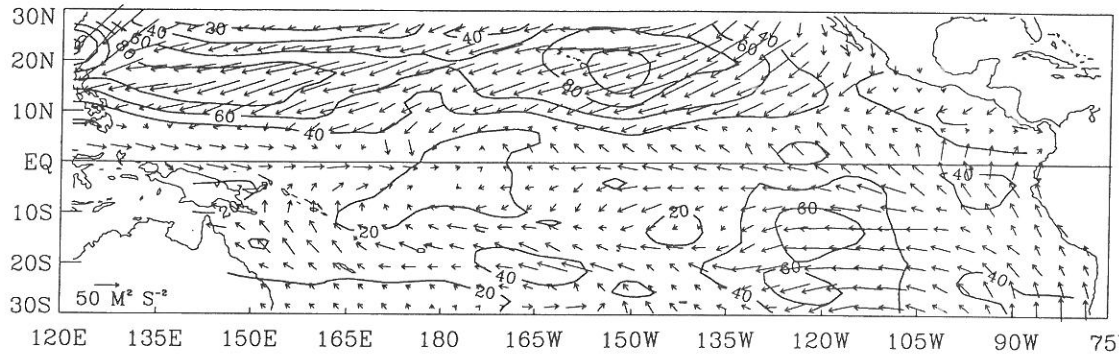
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) October 1986



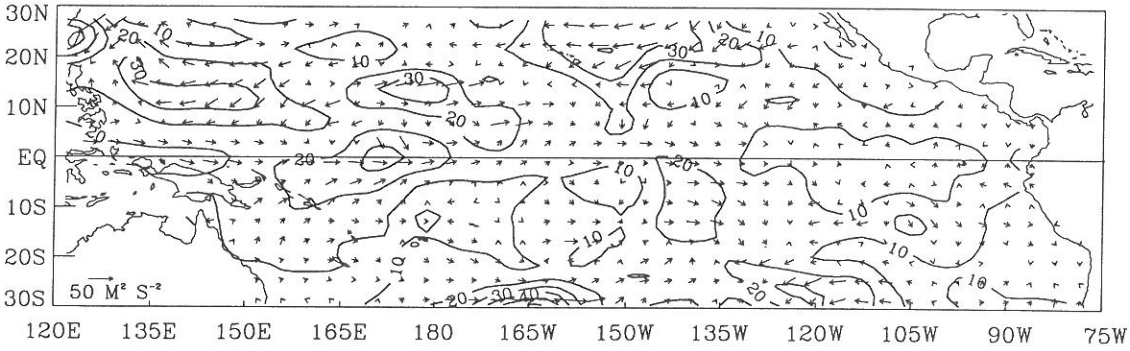
Wind Stress Curl ($x10^{-8}$ N M^{-3}) October 1986



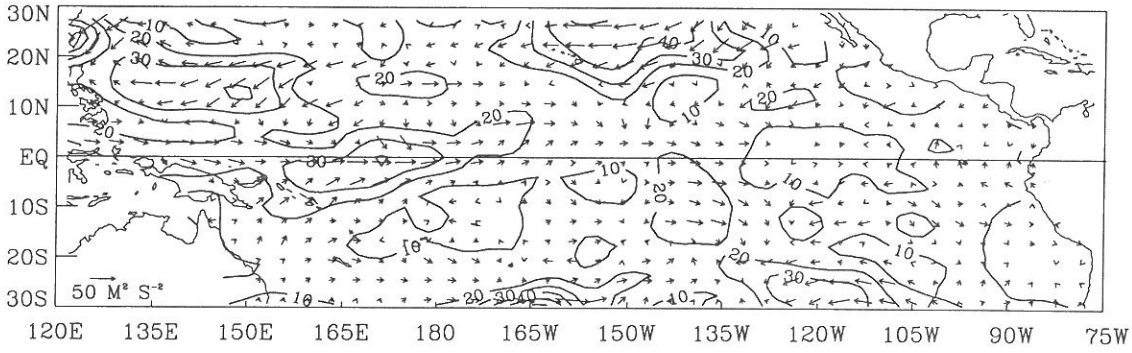
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) November 1986



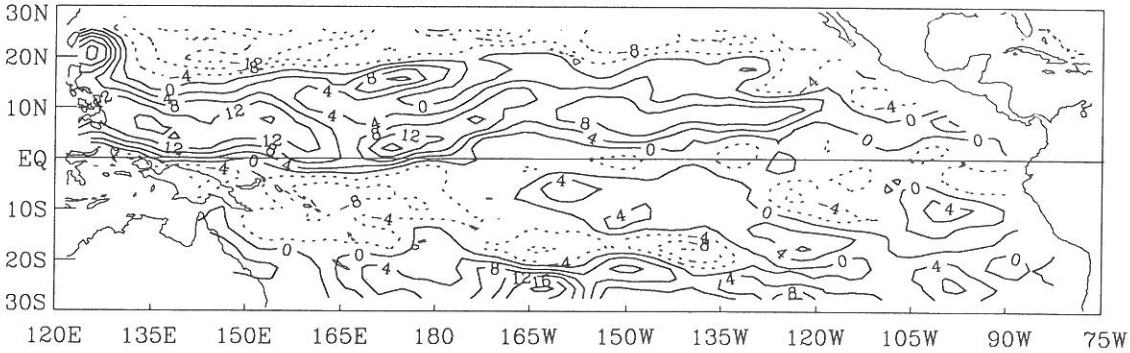
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) November 1986



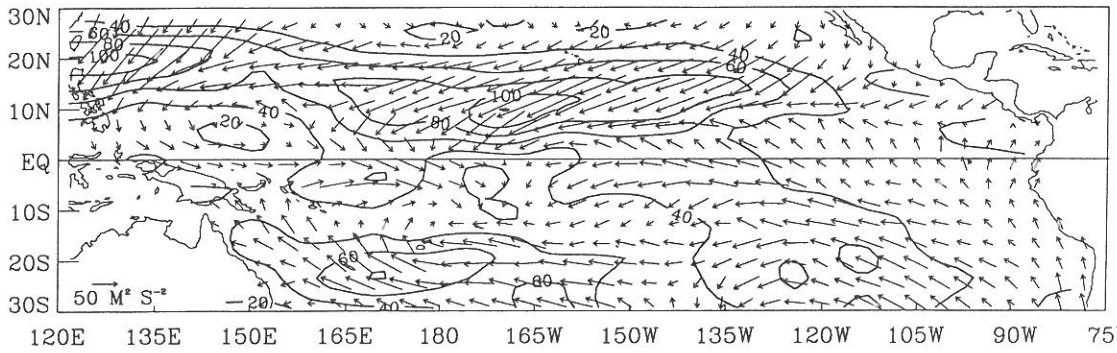
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) November 1986



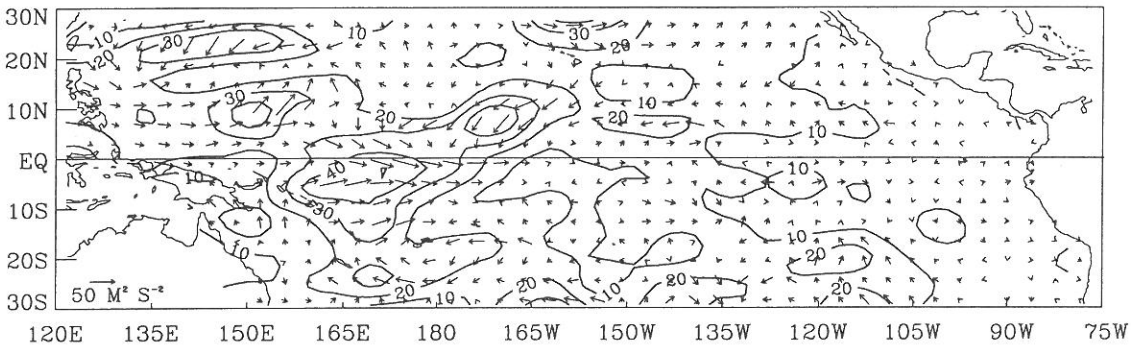
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) November 1986



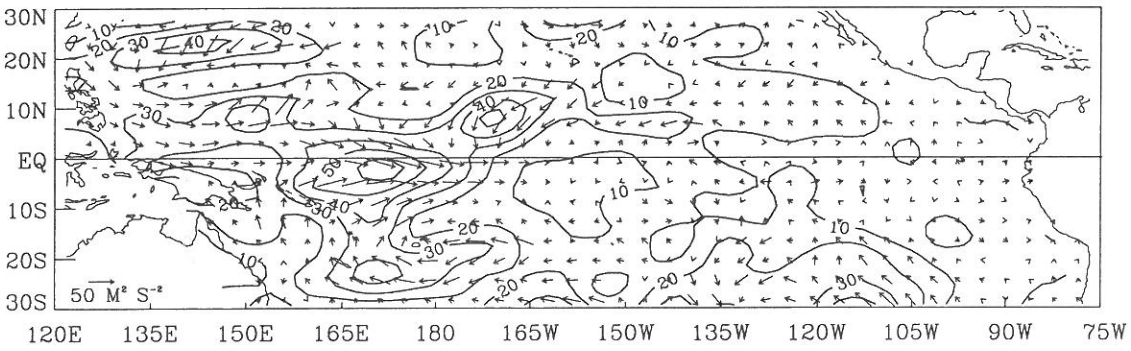
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) December 1986



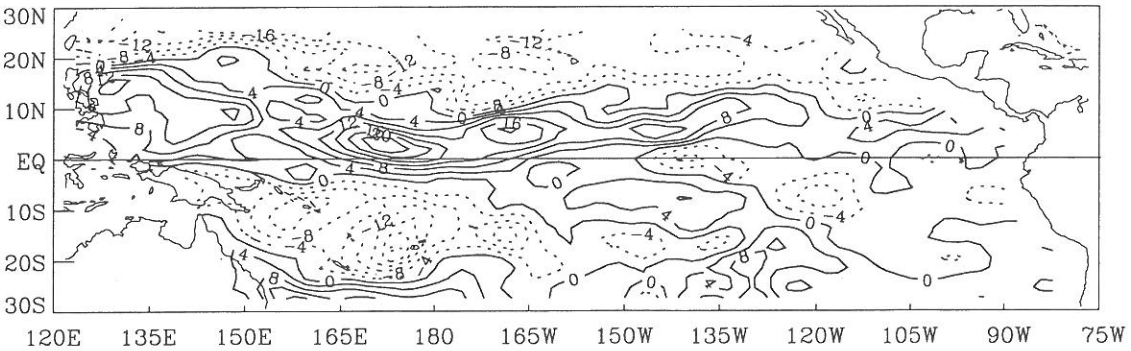
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) December 1986



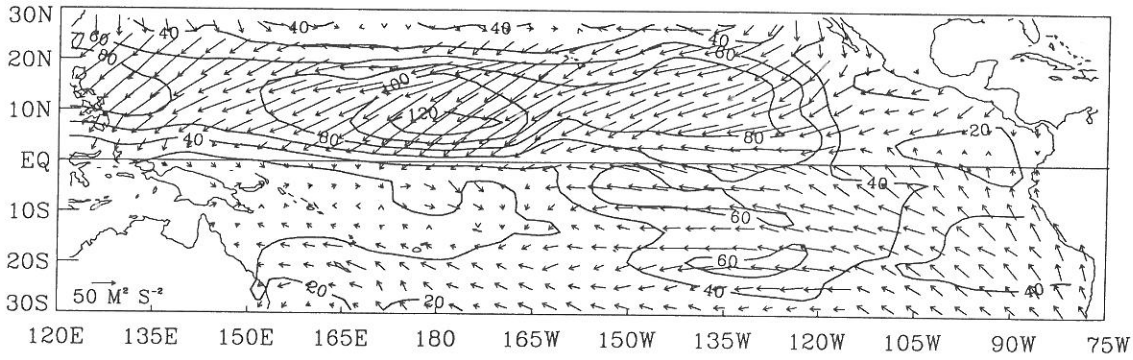
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) December 1986



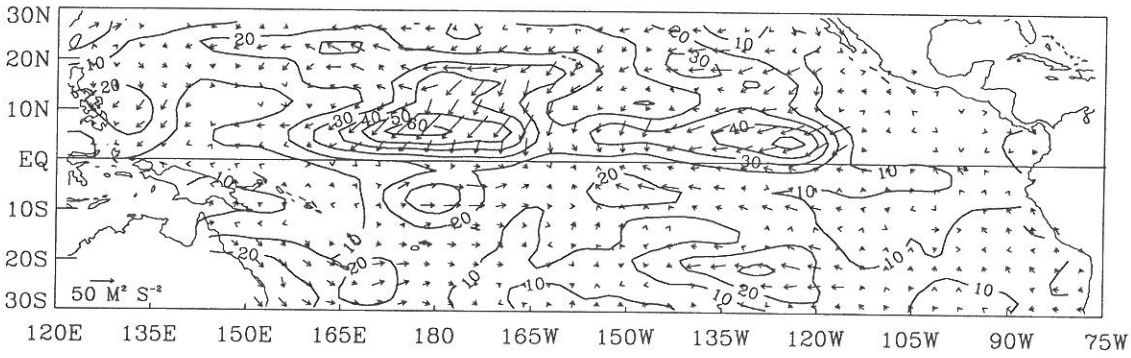
Wind Stress Curl ($x10^{-8}$ N M^{-3}) December 1986



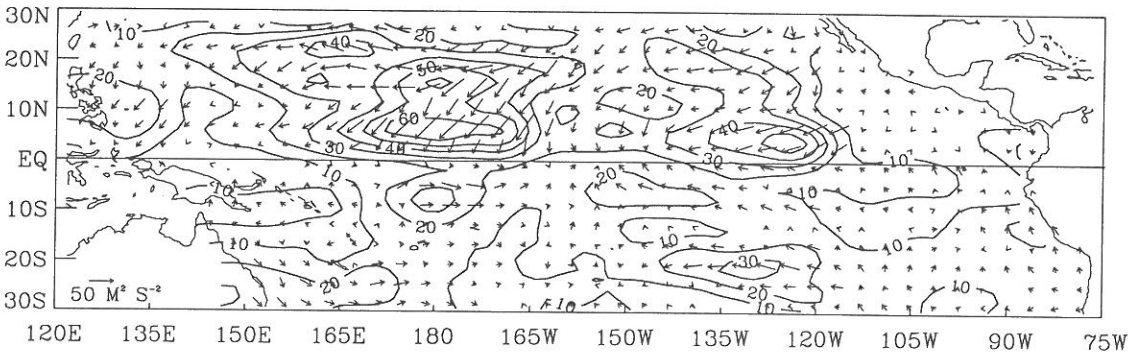
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) January 1987



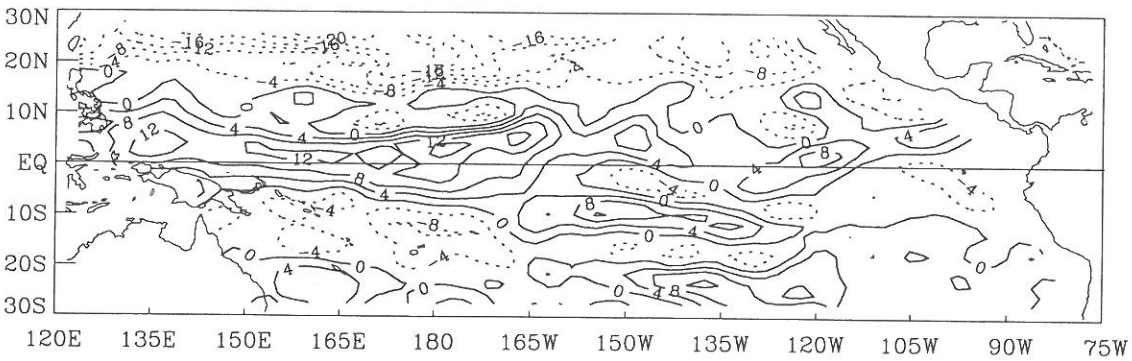
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) January 1987



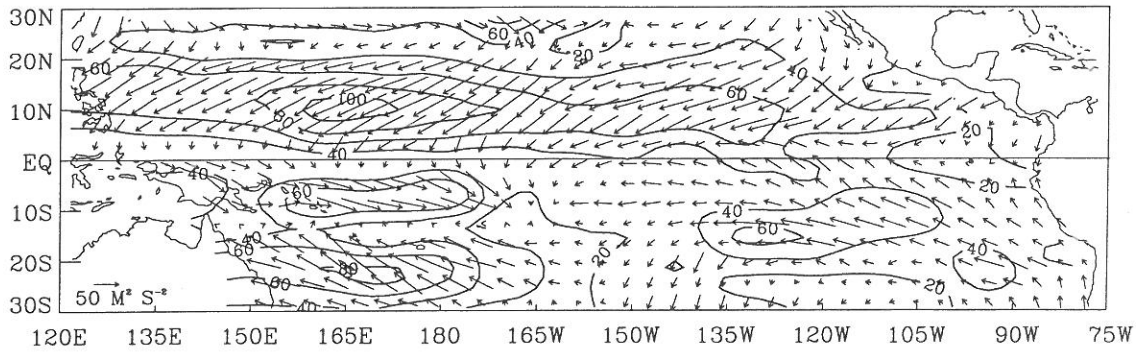
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) January 1987



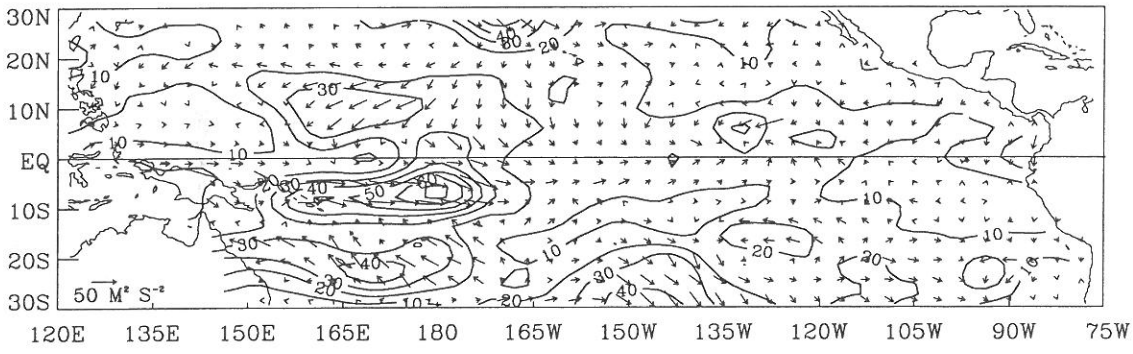
Wind Stress Curl ($x10^{-8}$ N M^{-3}) January 1987



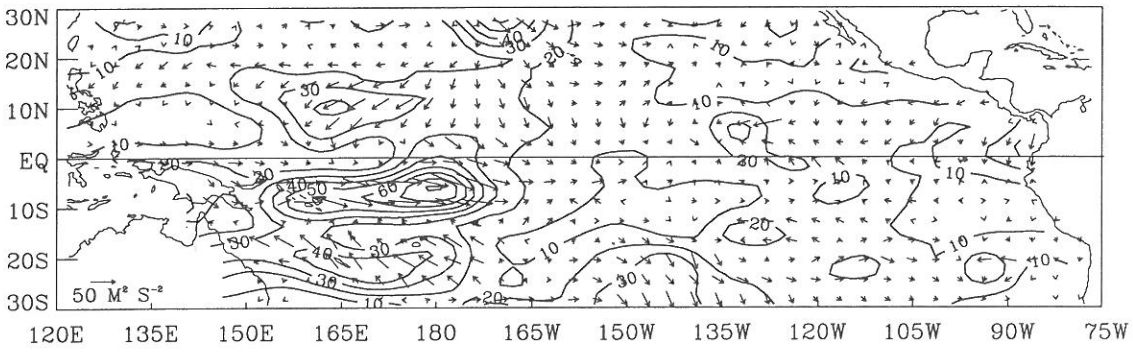
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) February 1987



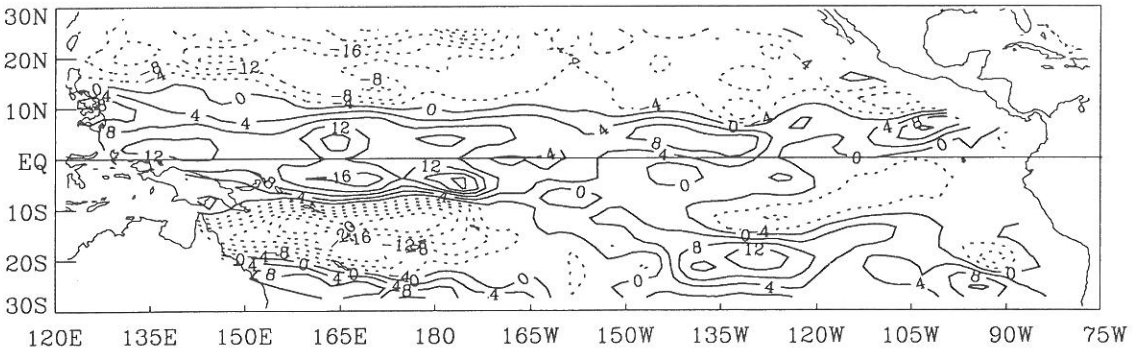
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) February 1987



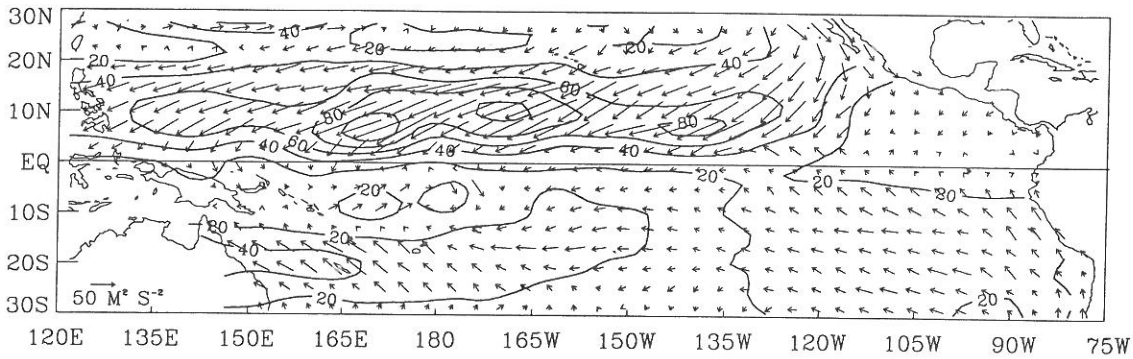
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) February 1987



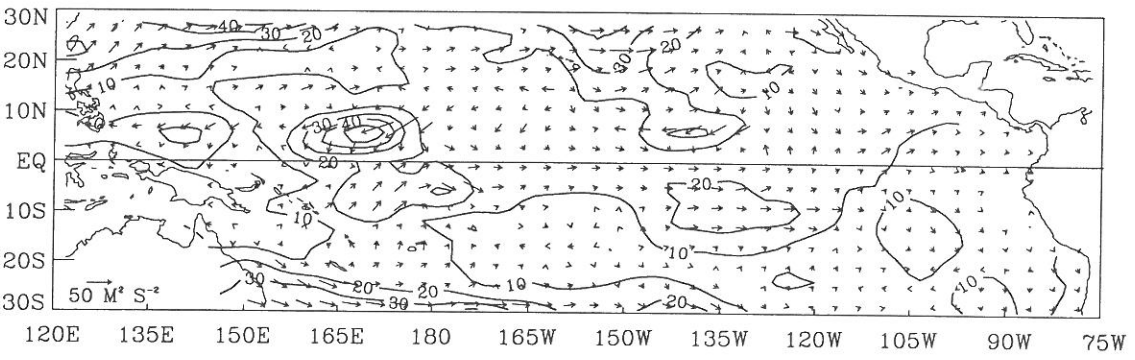
Wind Stress Curl ($x10^{-8}$ N M^{-3}) February 1987



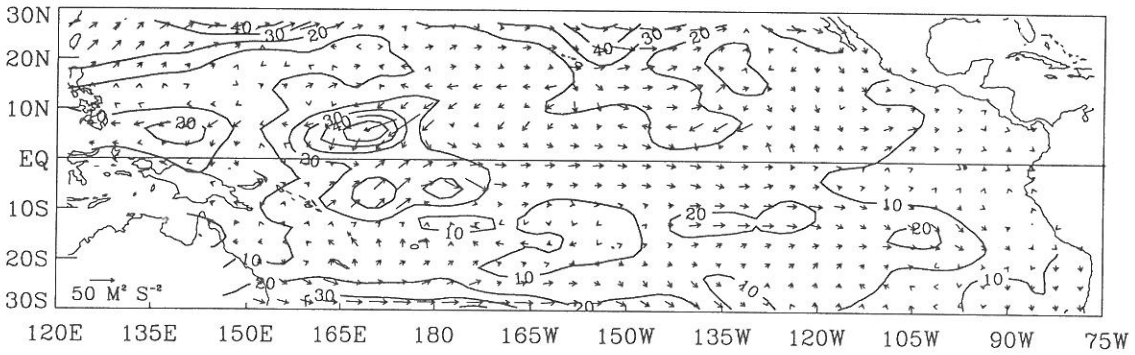
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) March 1987



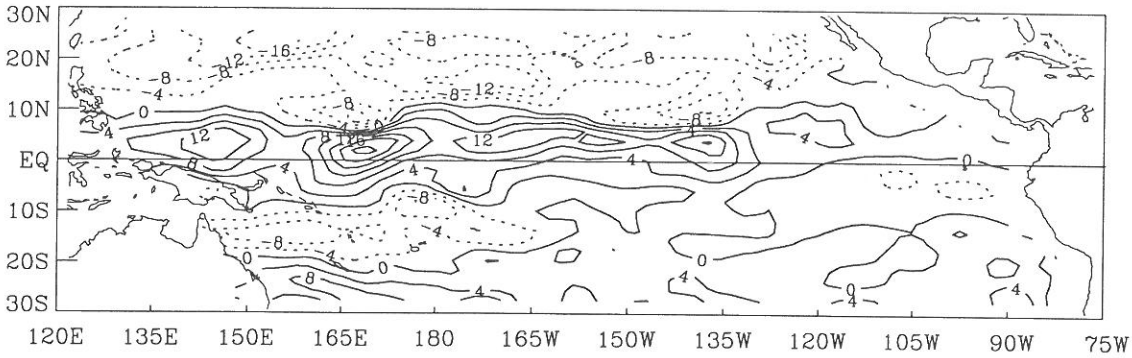
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) March 1987



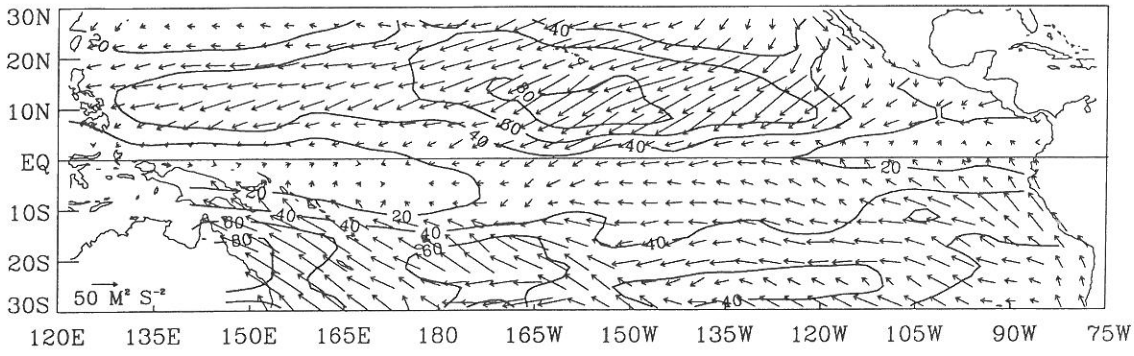
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) March 1987



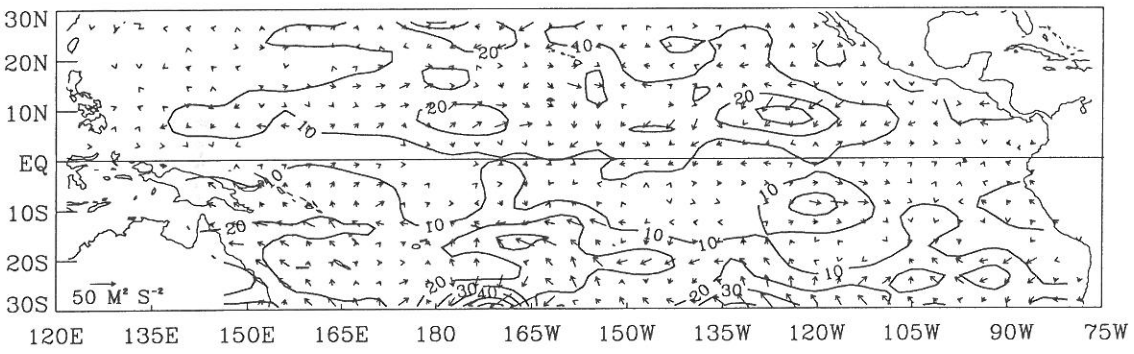
Wind Stress Curl ($x10^{-8}$ N M^{-3}) March 1987



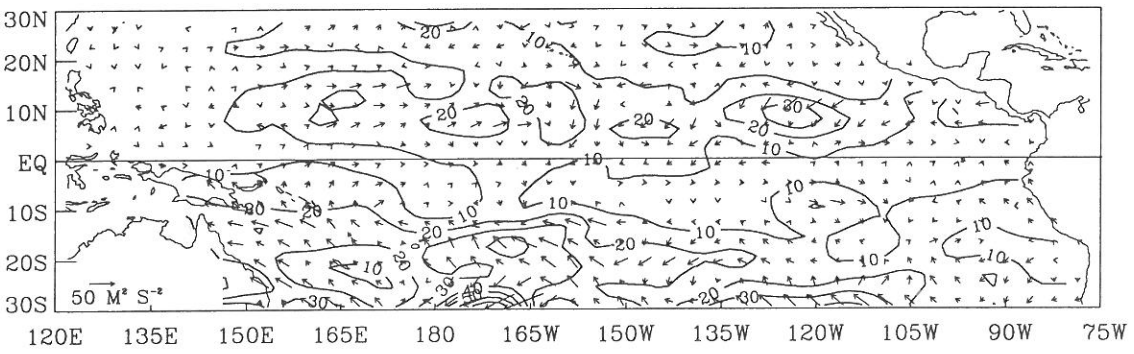
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) April 1987



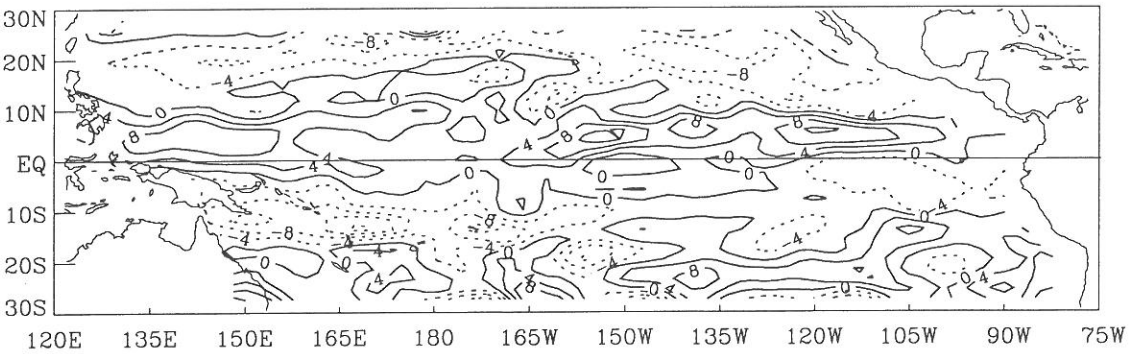
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) April 1987



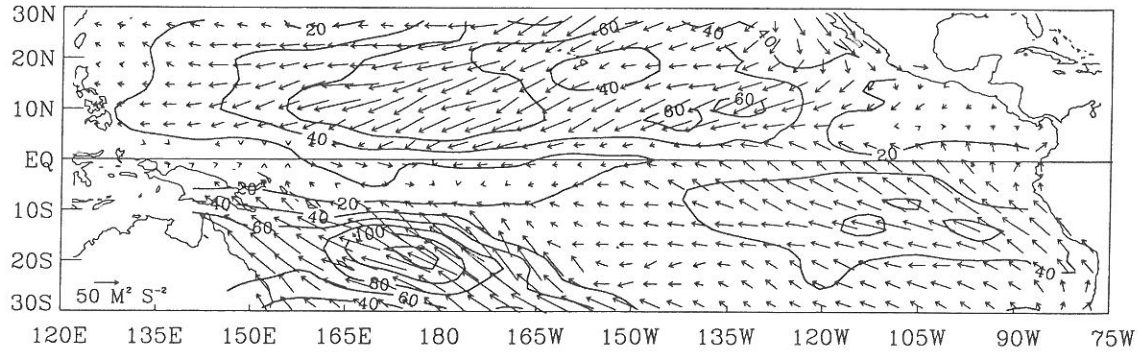
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) April 1987



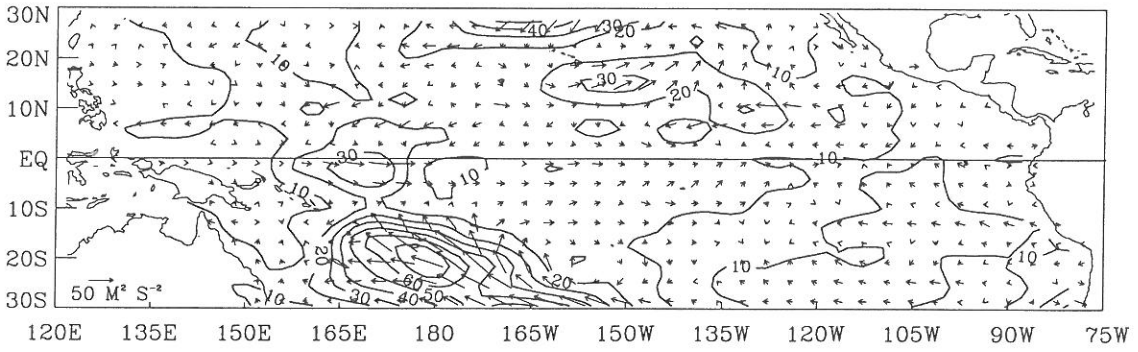
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) April 1987



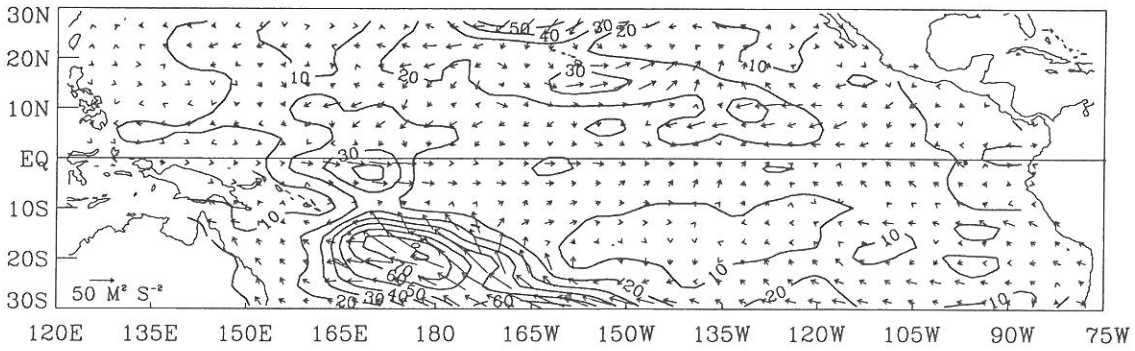
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) May 1987



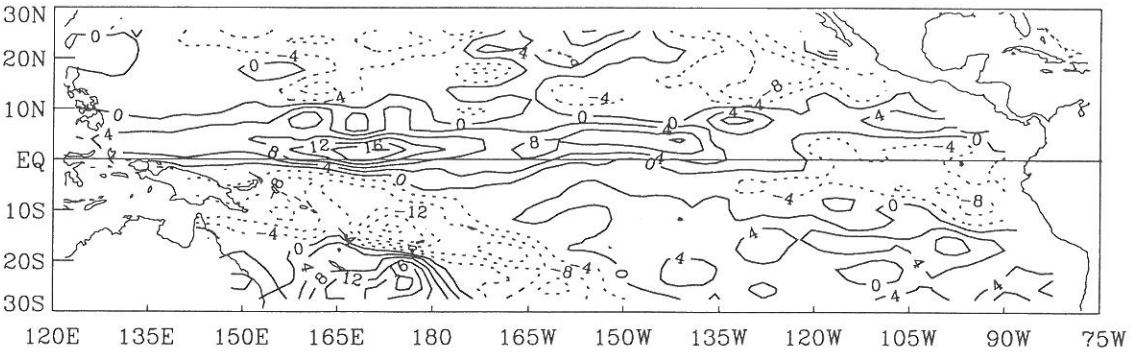
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) May 1987



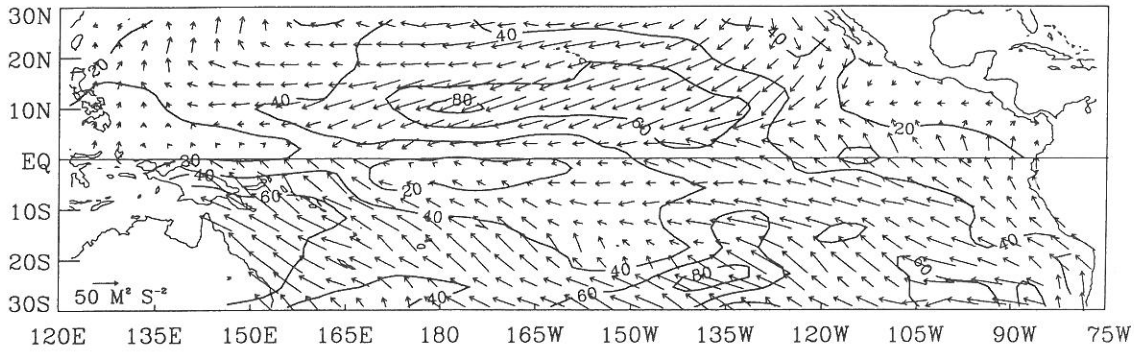
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) May 1987



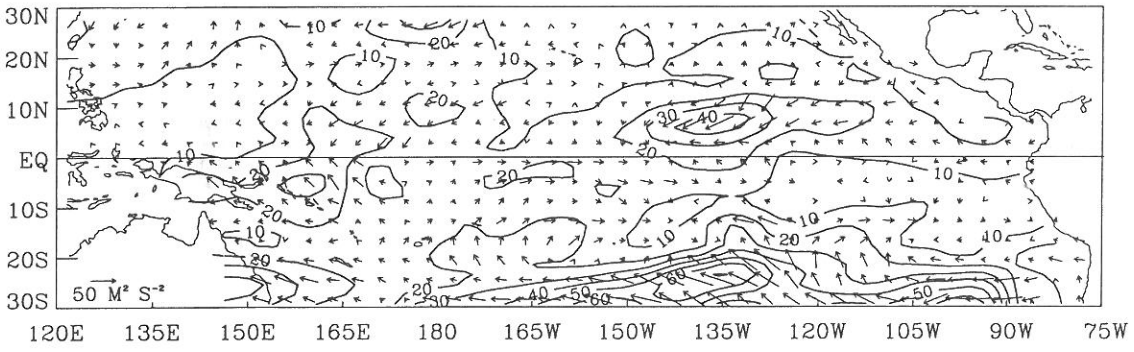
Wind Stress Curl ($x10^{-8}$ N M^{-3}) May 1987



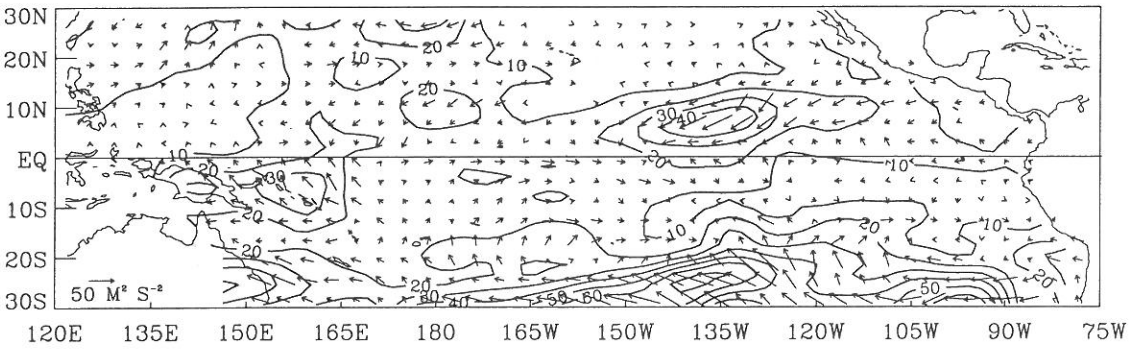
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) June 1987



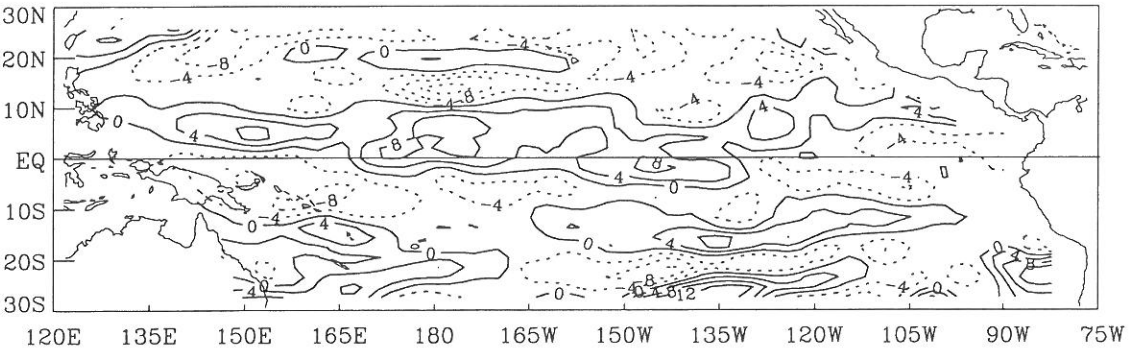
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) June 1987



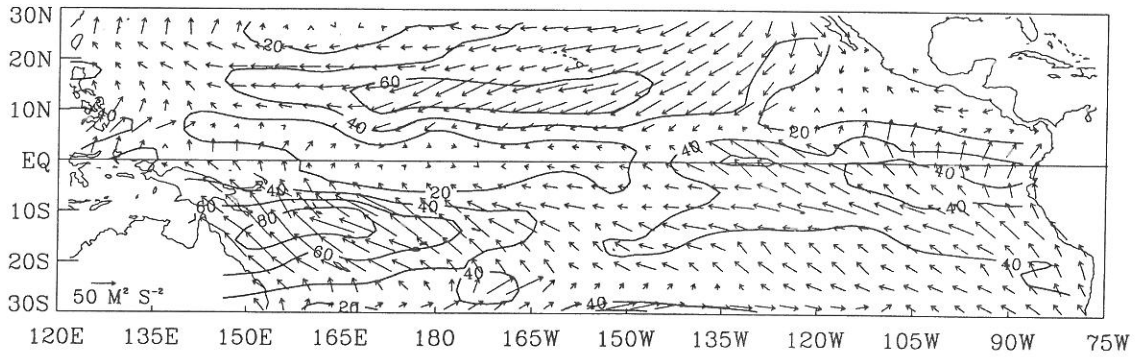
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) June 1987



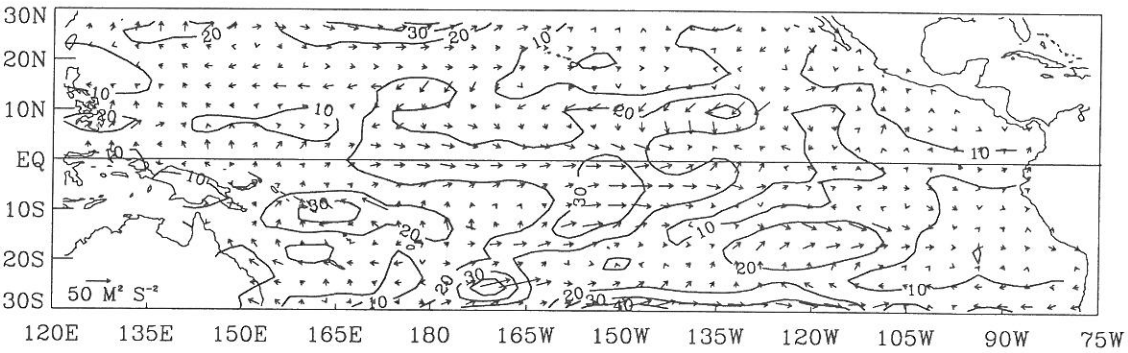
Wind Stress Curl ($x10^{-8}$ N M^{-3}) June 1987



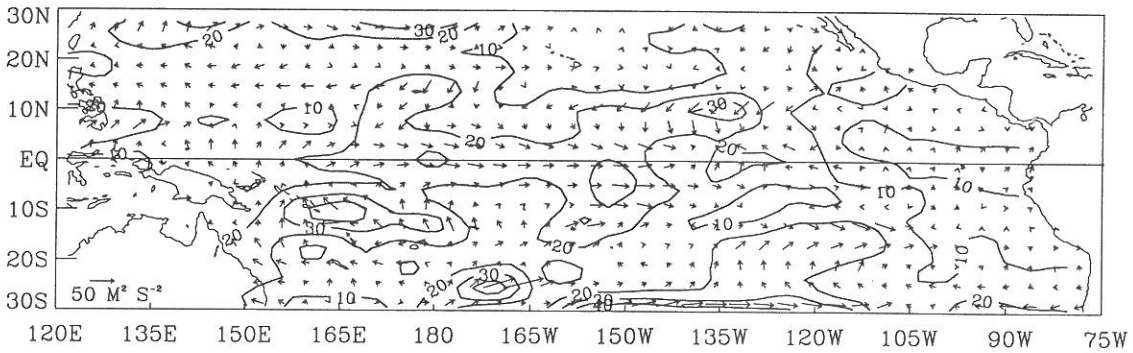
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) July 1987



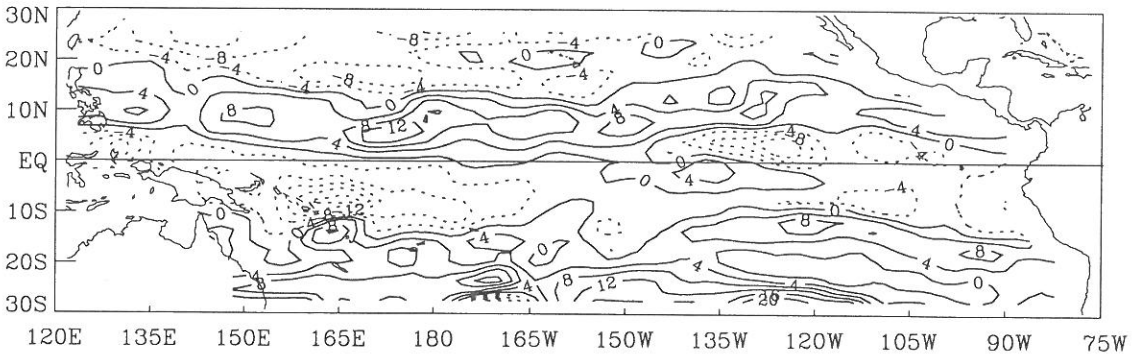
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) July 1987



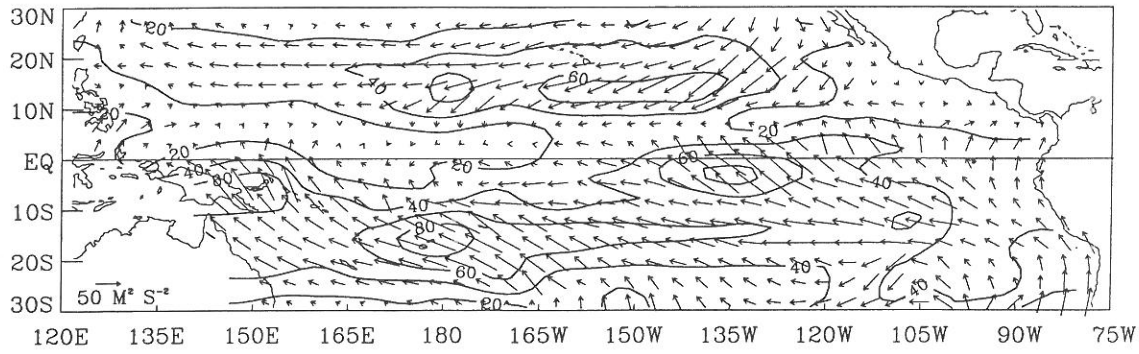
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) July 1987



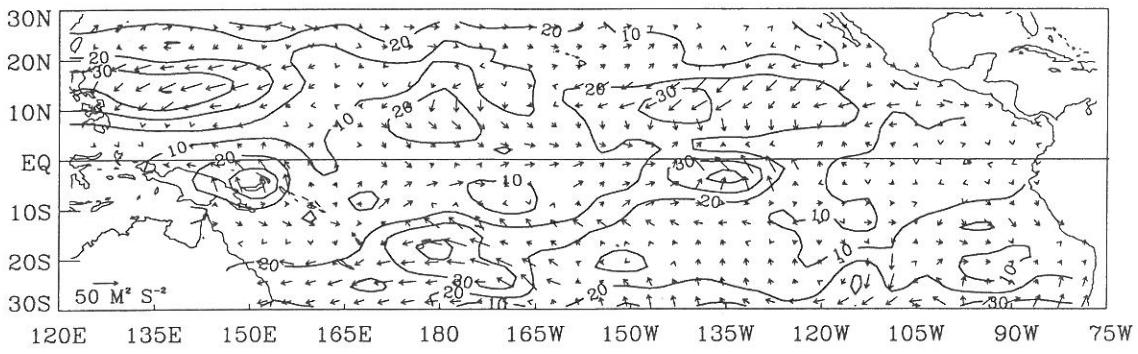
Wind Stress Curl ($x10^{-8}$ N M^{-3}) July 1987



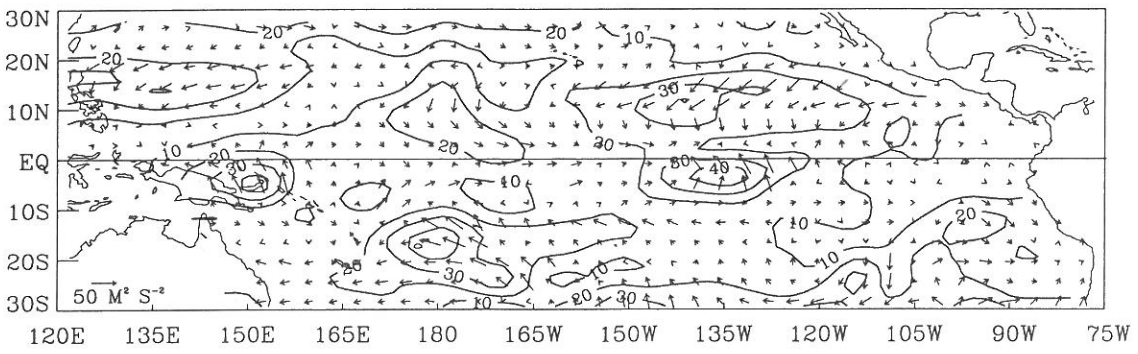
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) August 1987



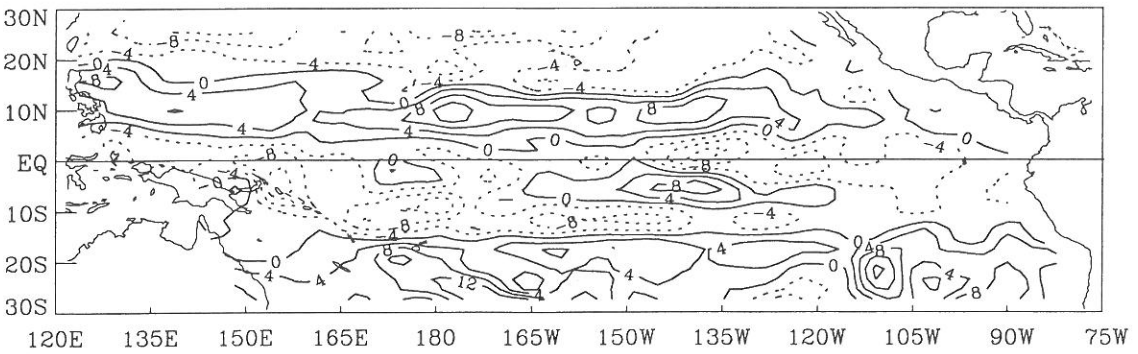
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) August 1987



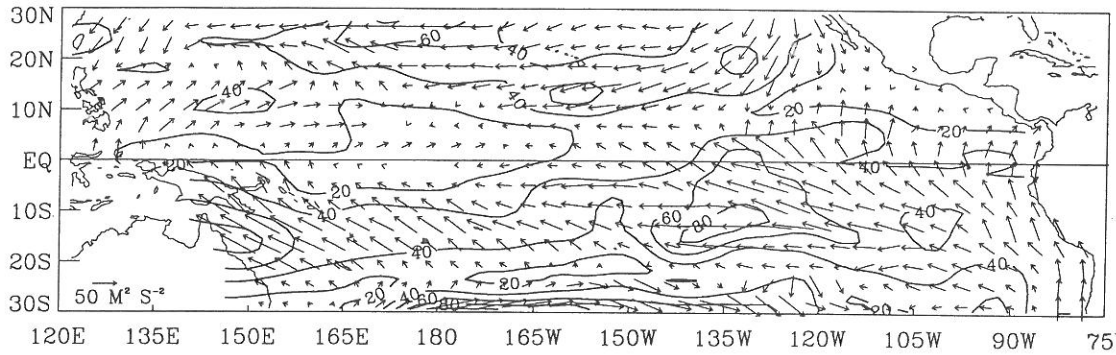
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) August 1987



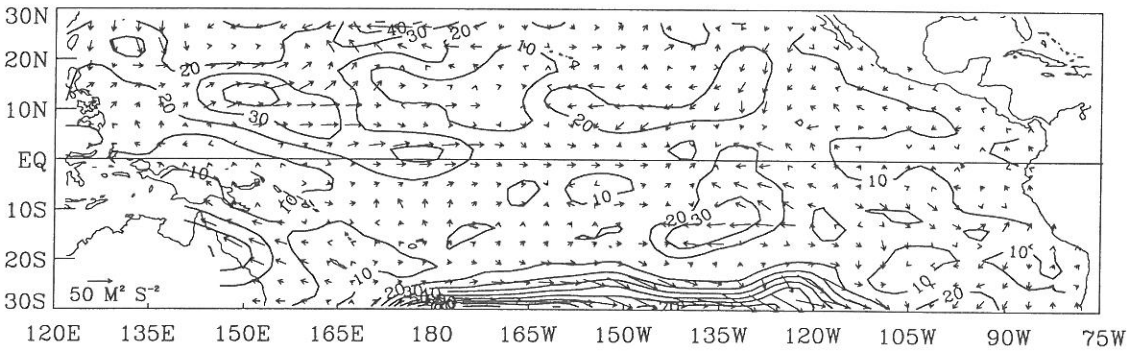
Wind Stress Curl ($x10^{-8}$ N M^{-3}) August 1987



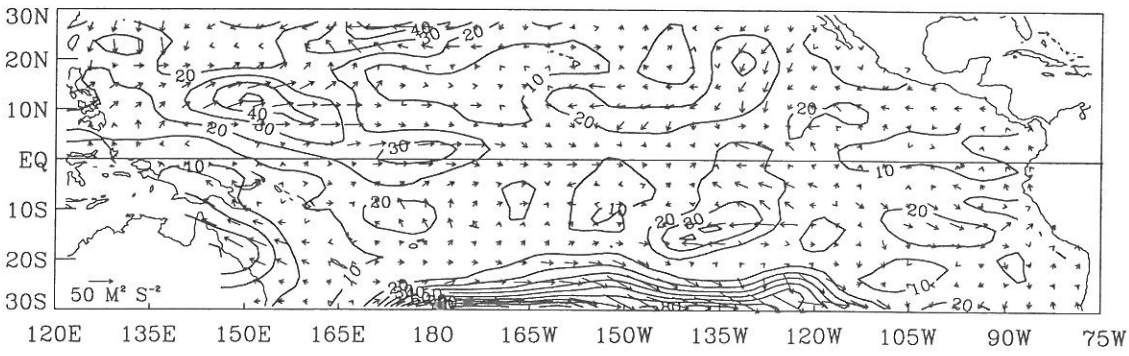
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) September 1987



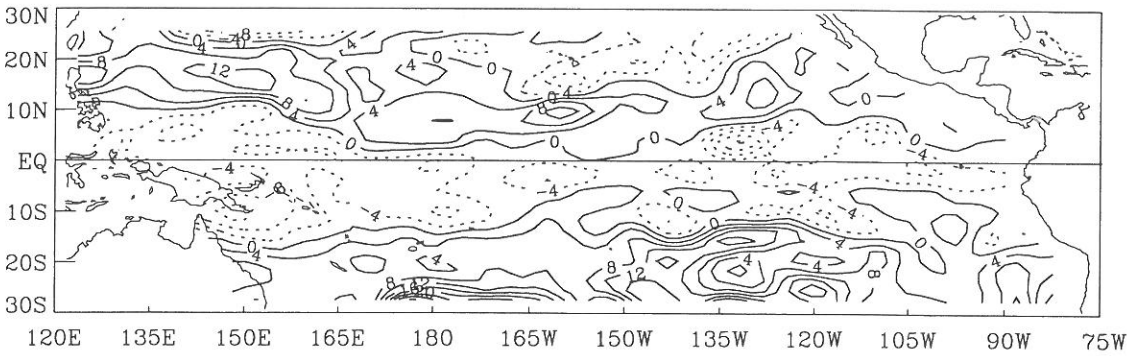
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) September 1987



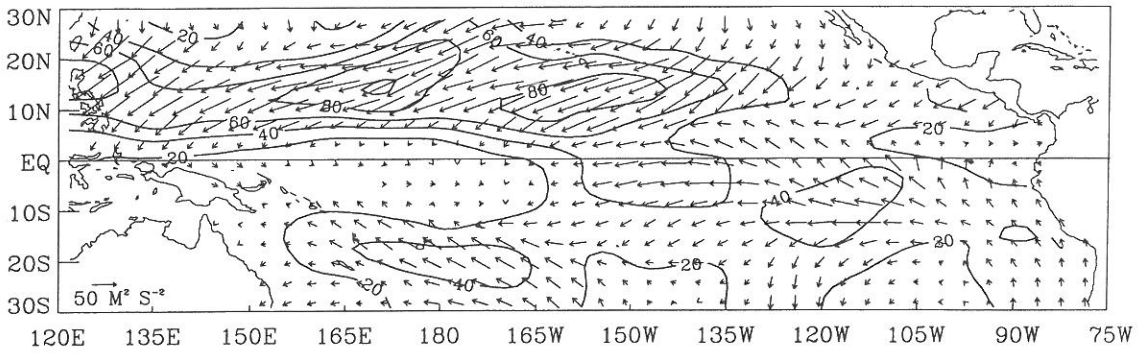
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) September 1987



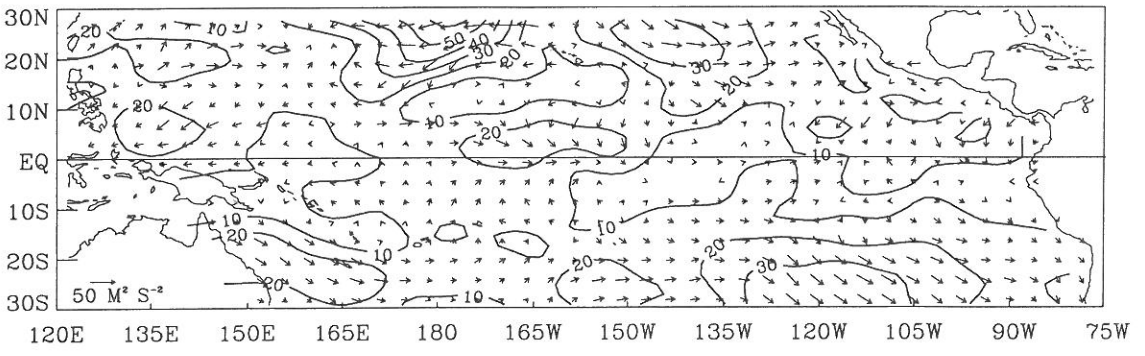
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) September 1987



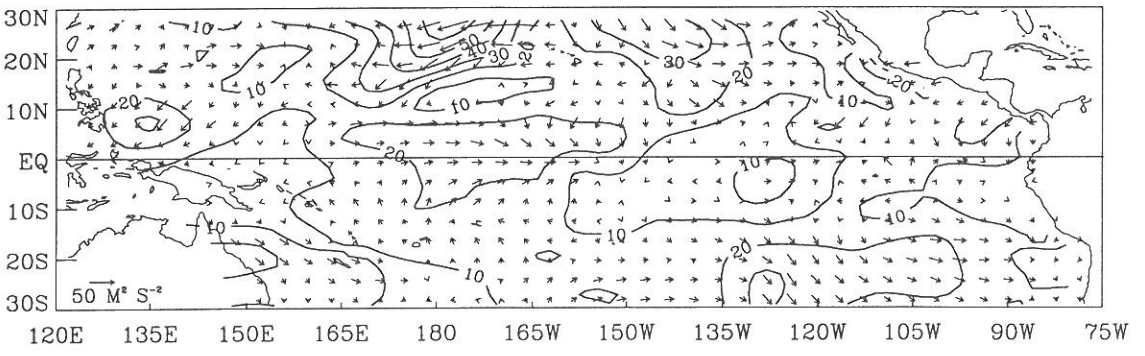
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) December 1991



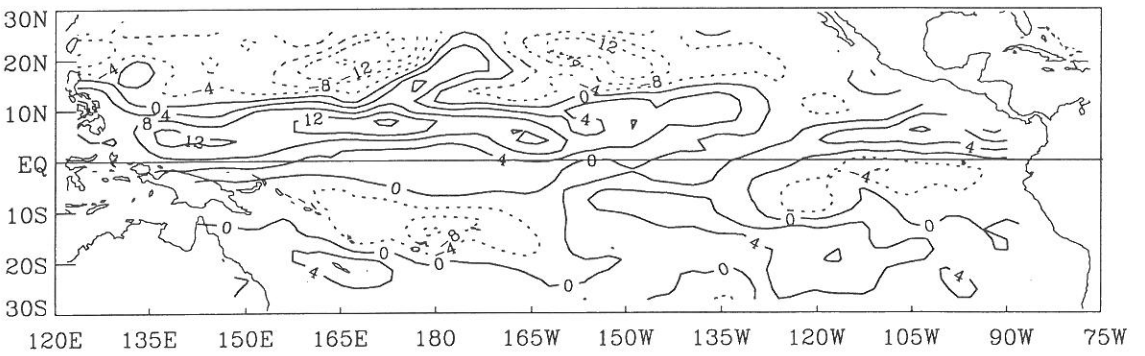
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) December 1991



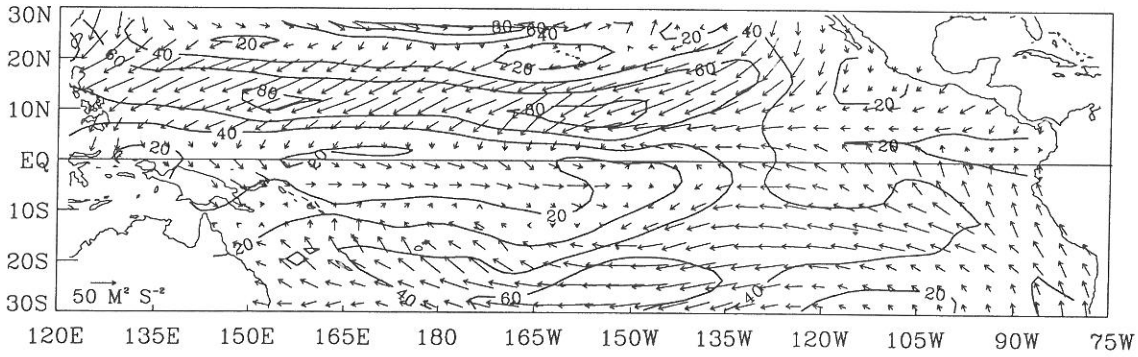
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) December 1991



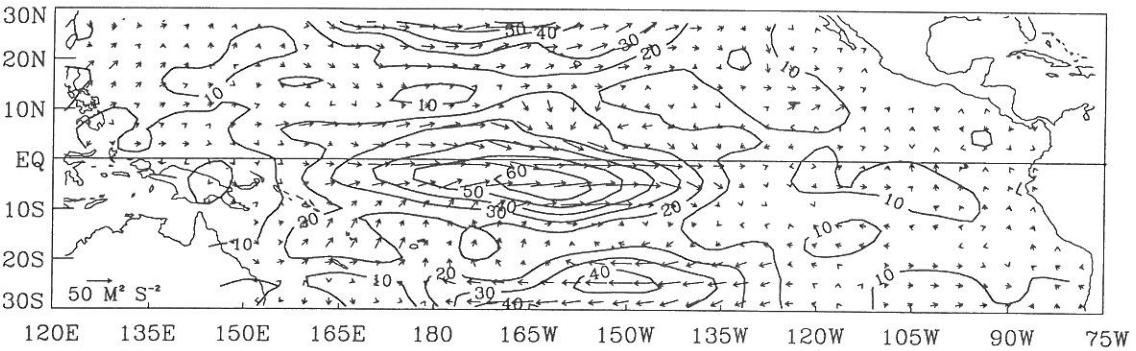
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) December 1991



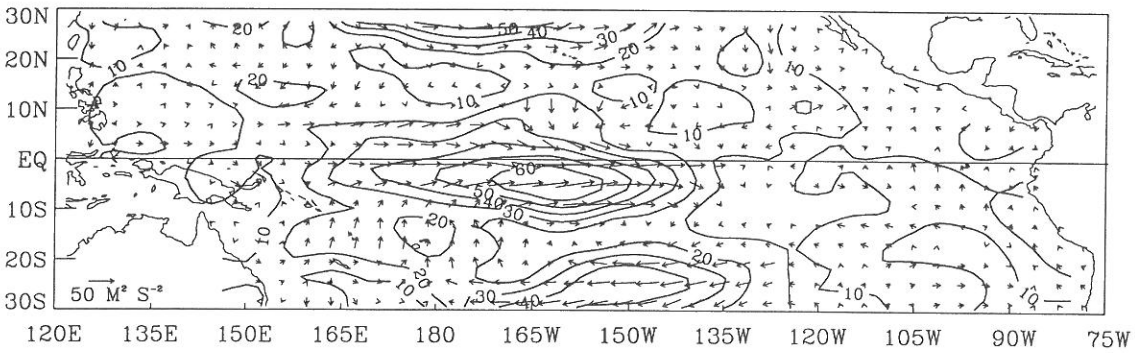
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) January 1992



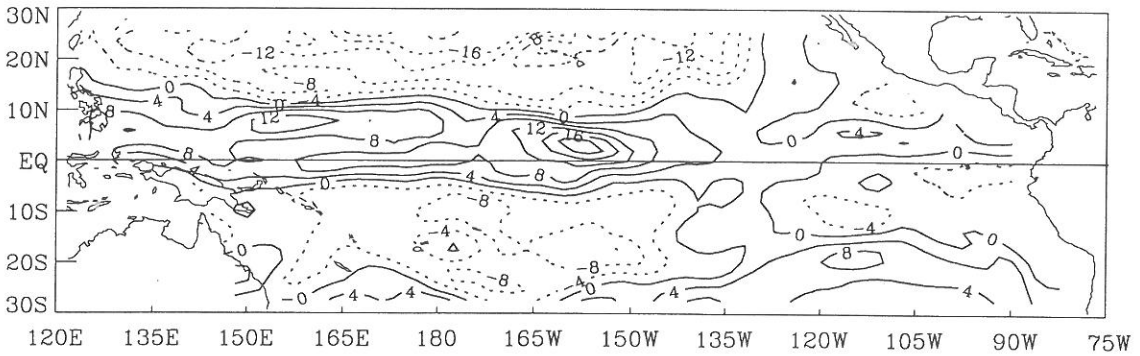
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) January 1992



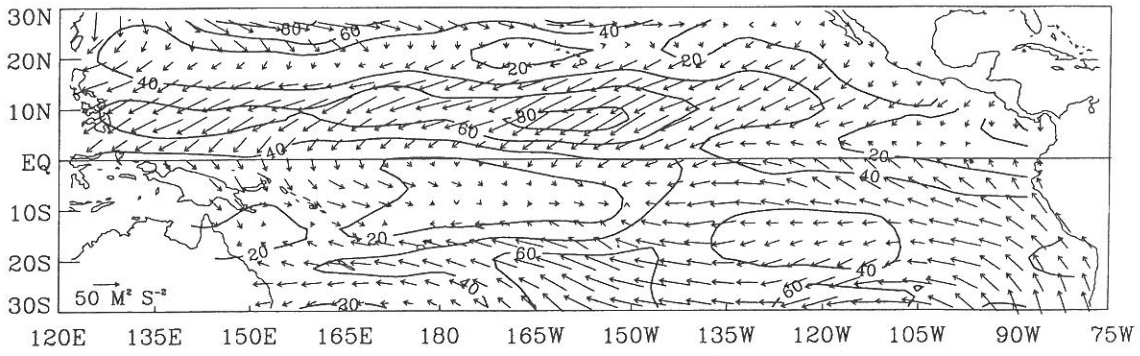
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) January 1992



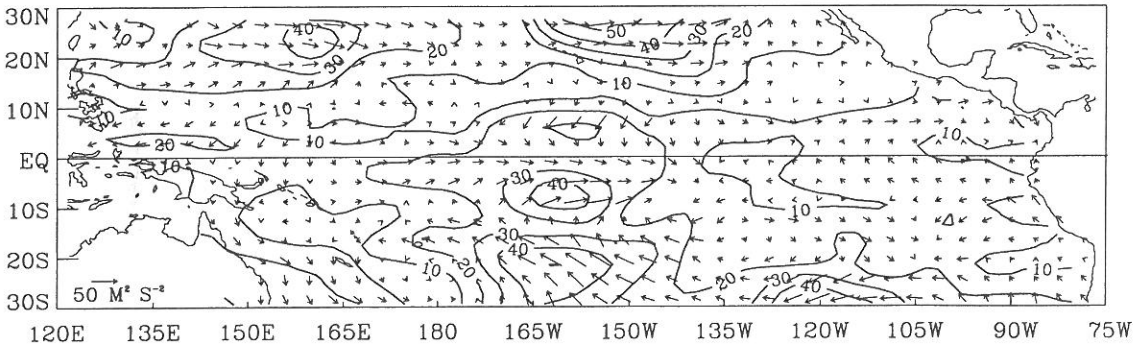
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) January 1992



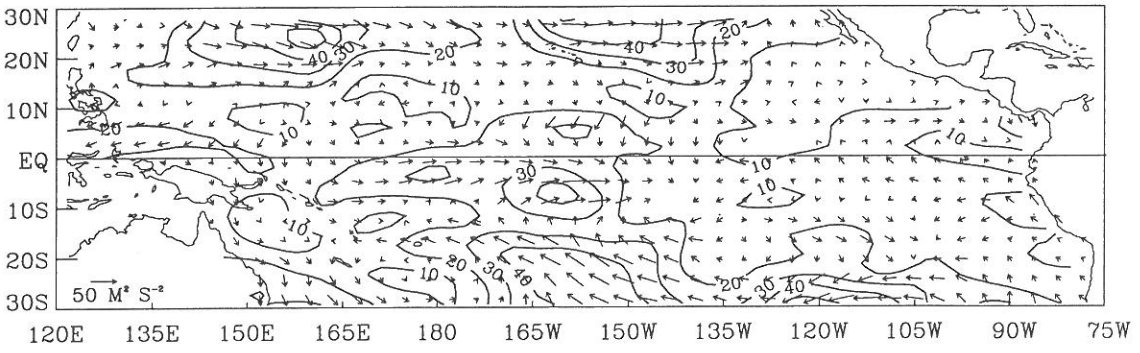
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) February 1992



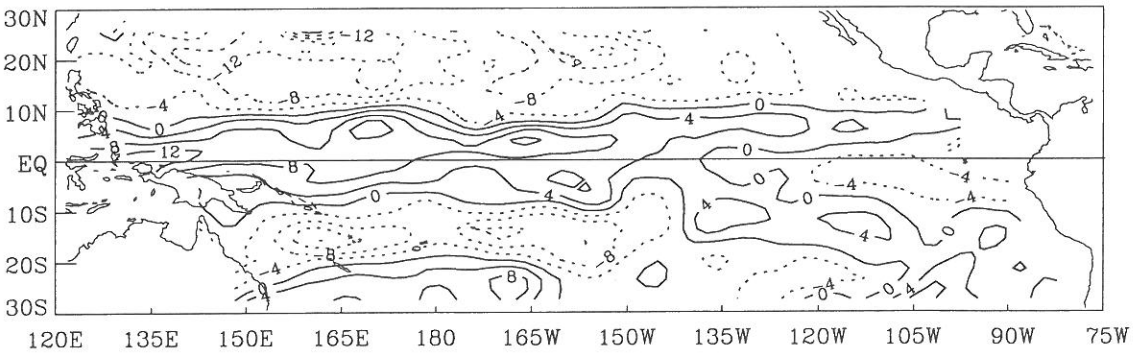
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) February 1992



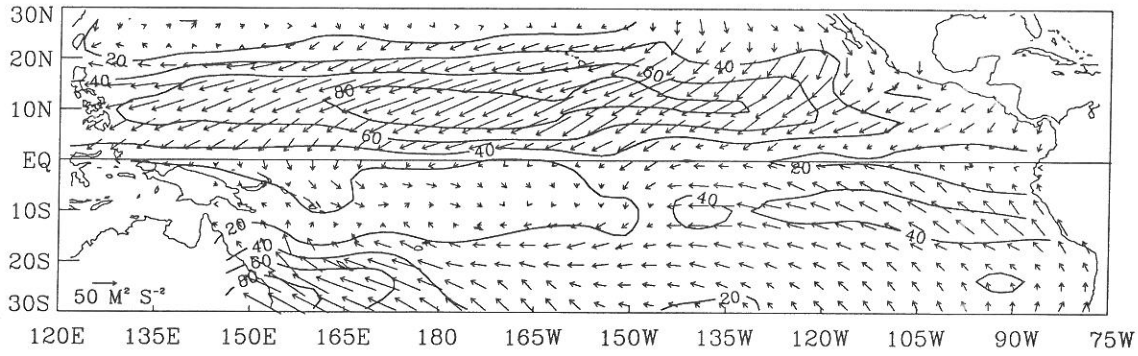
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) February 1992



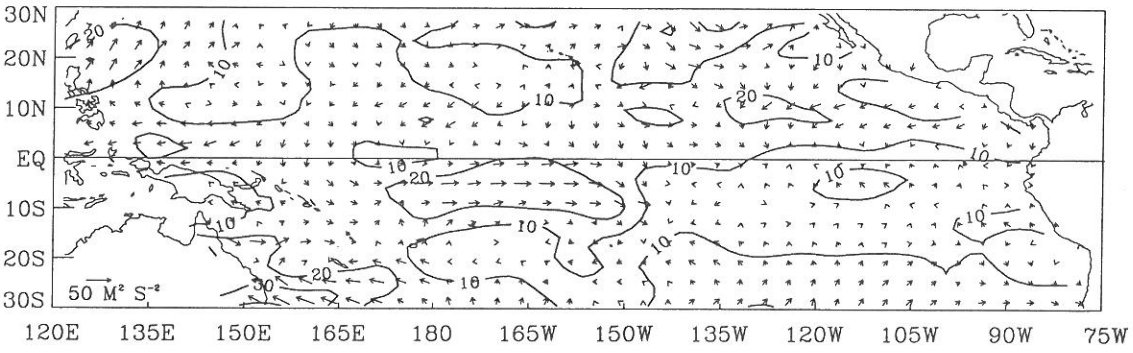
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) February 1992



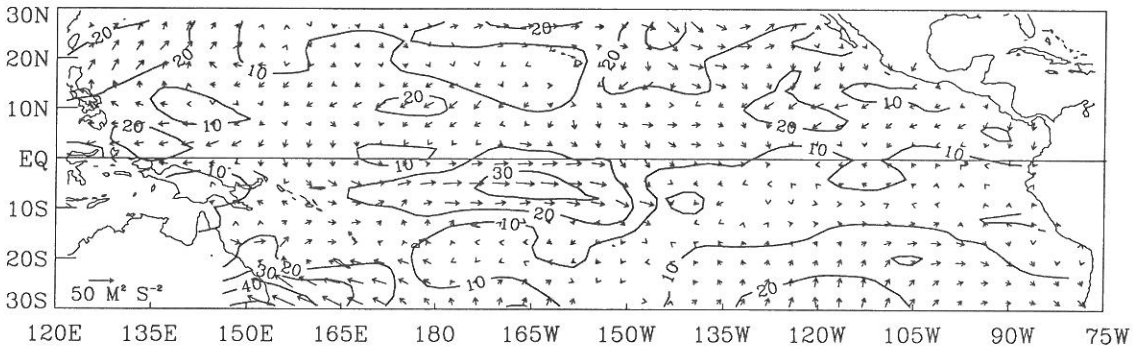
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) March 1992



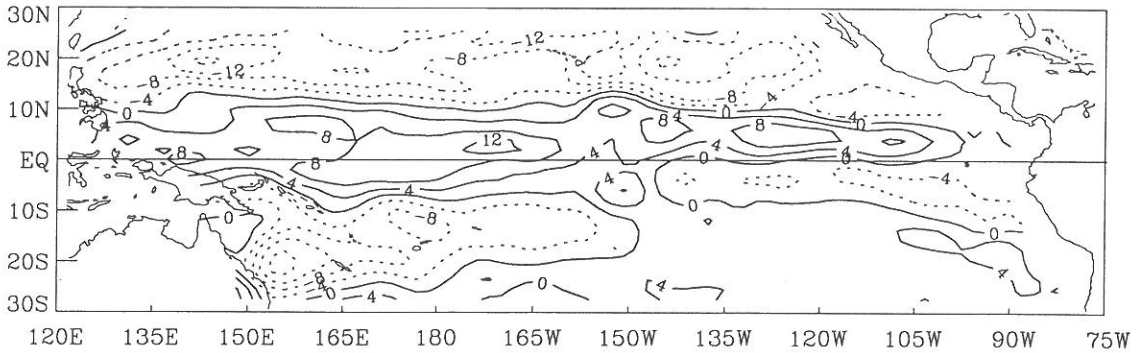
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) March 1992



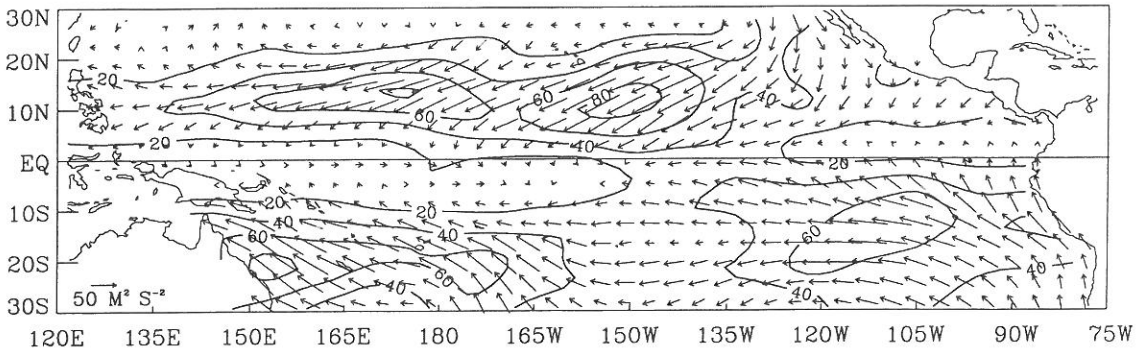
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) March 1992



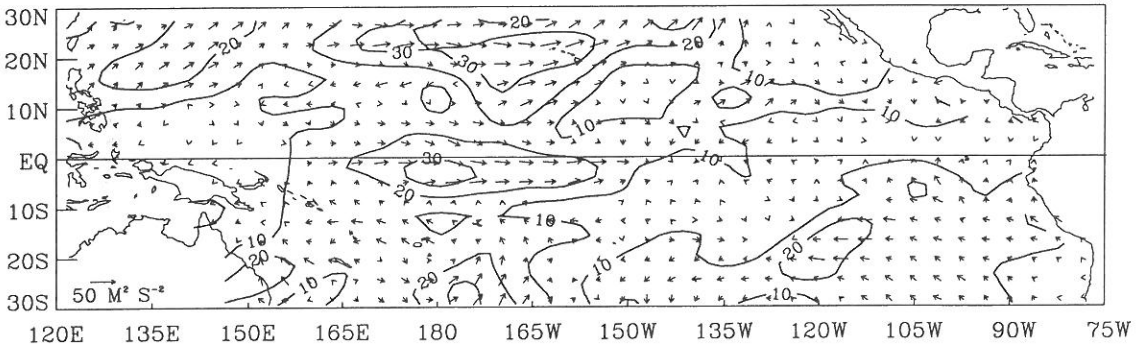
Wind Stress Curl ($x10^{-8}$ N M^{-3}) March 1992



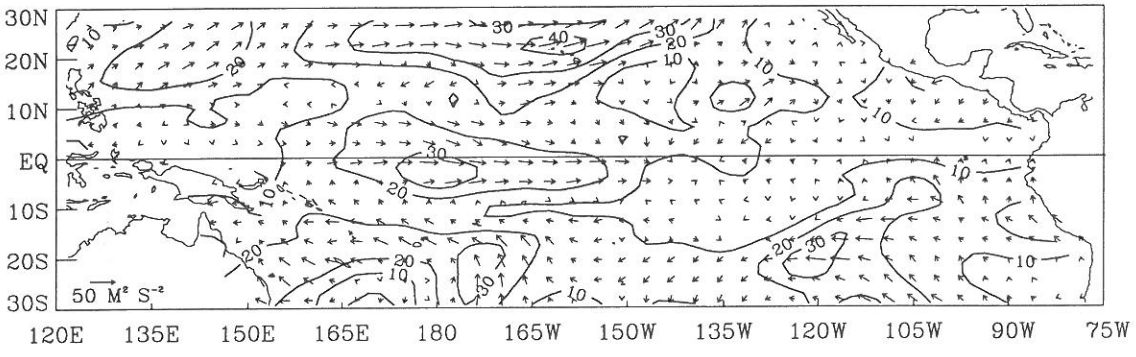
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) April 1992



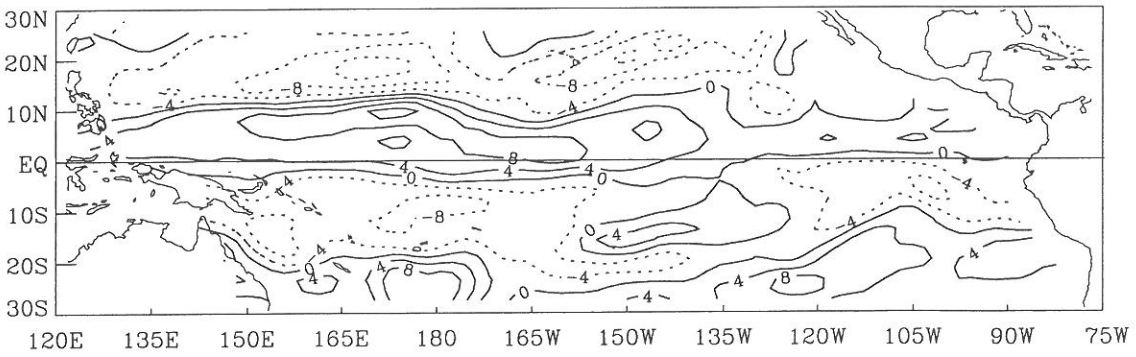
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) April 1992



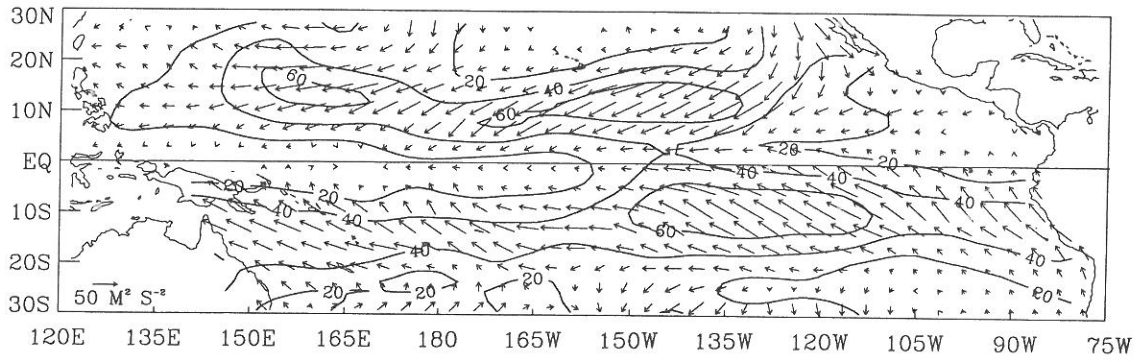
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) April 1992



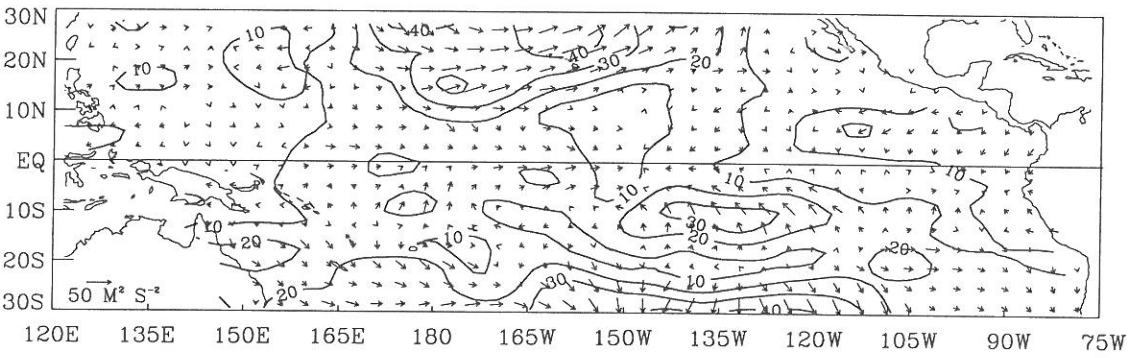
Wind Stress Curl ($x10^{-8}$ N M^{-3}) April 1992



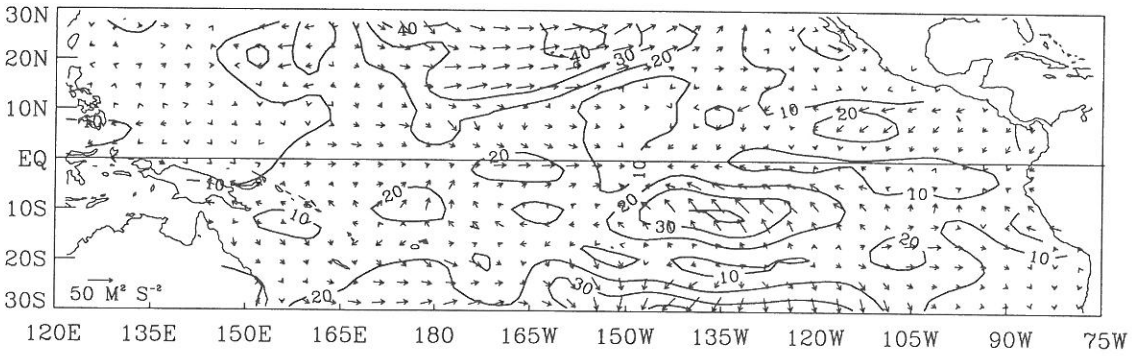
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) May 1992



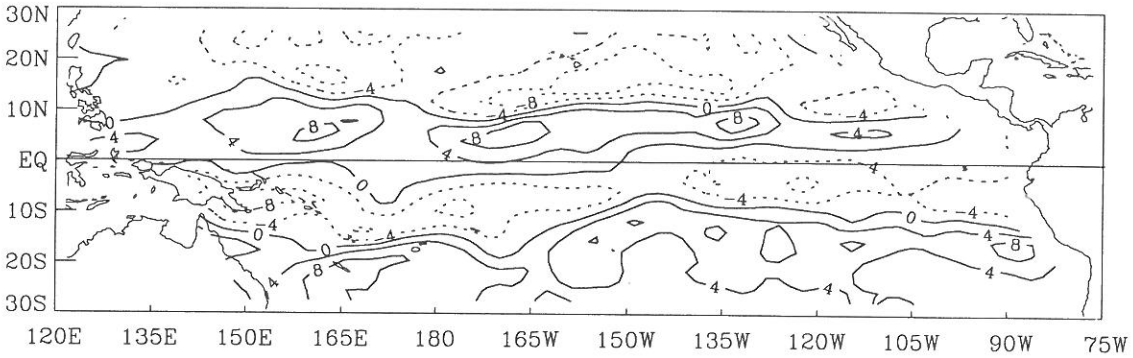
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) May 1992



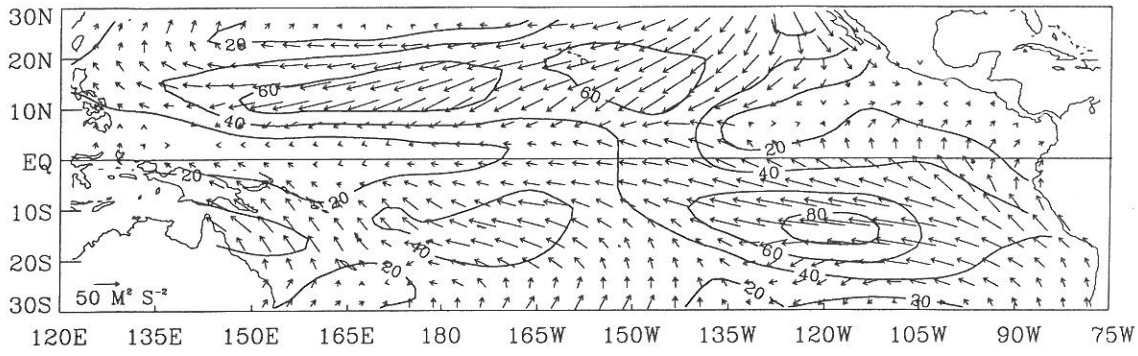
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) May 1992



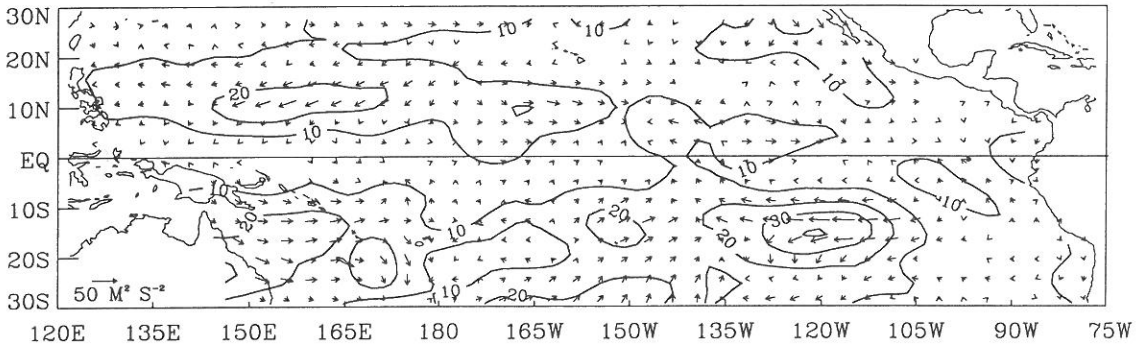
Wind Stress Curl ($x10^{-8}$ N M^{-3}) May 1992



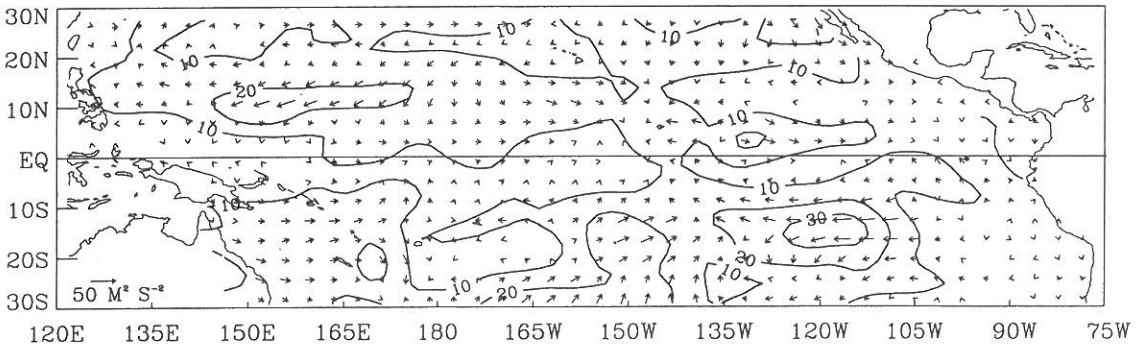
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) June 1992



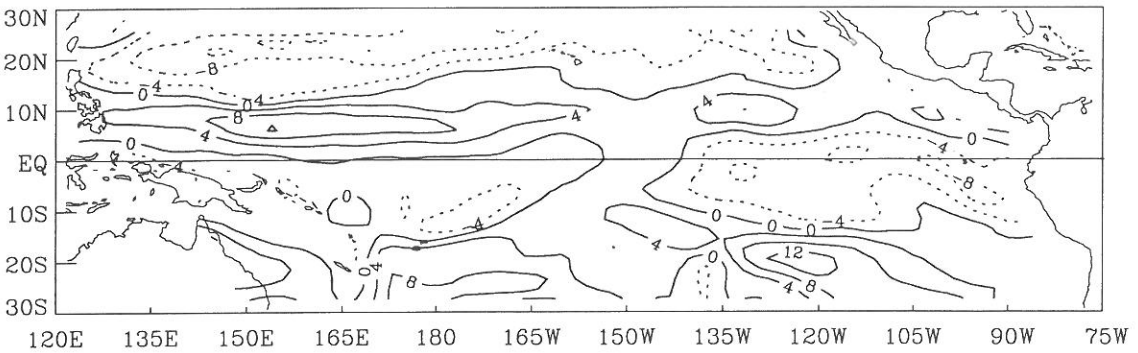
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) June 1992



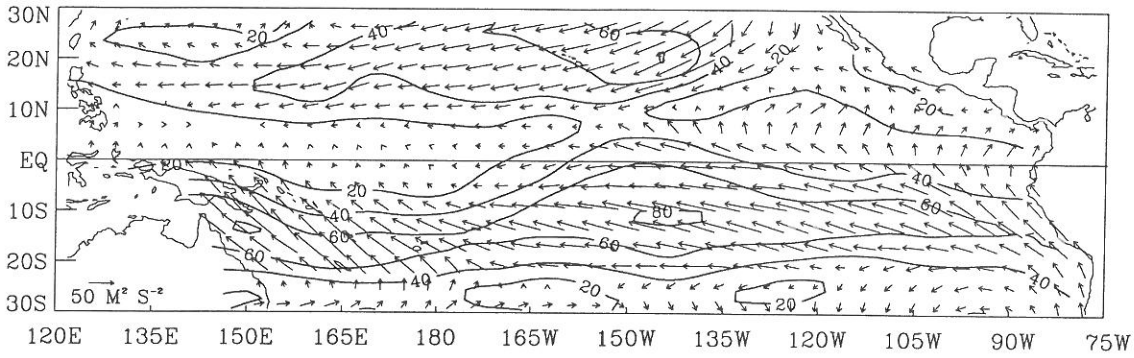
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) June 1992



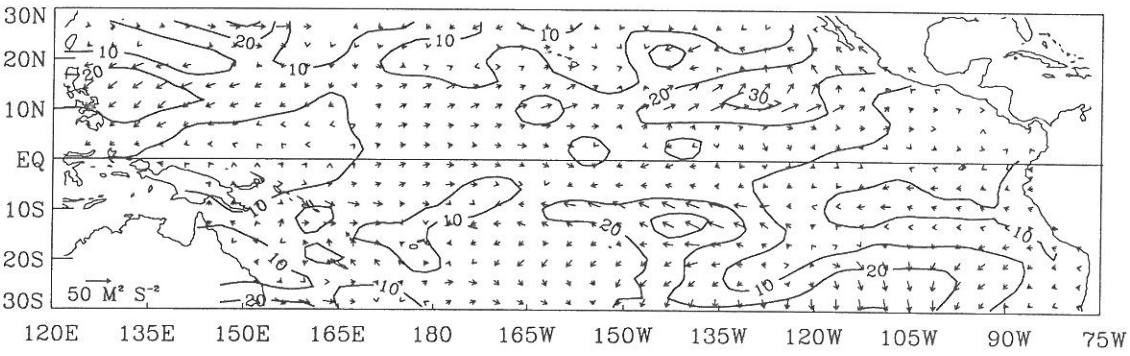
Wind Stress Curl ($x10^{-8}$ N M^{-3}) June 1992



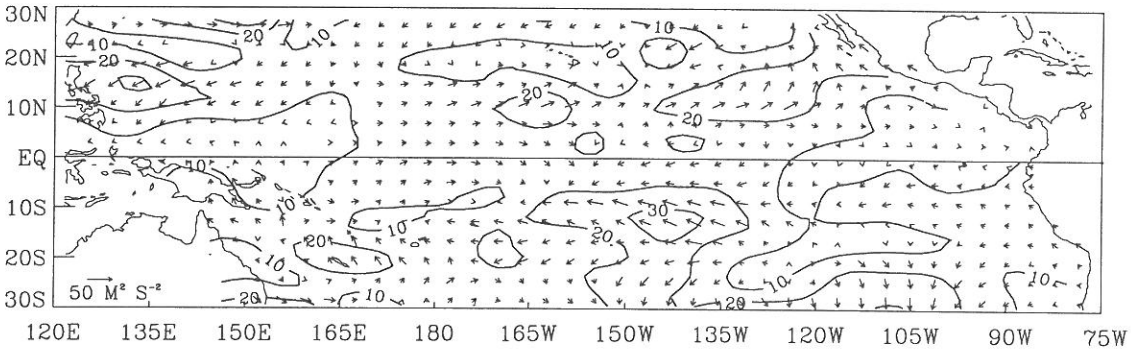
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) July 1992



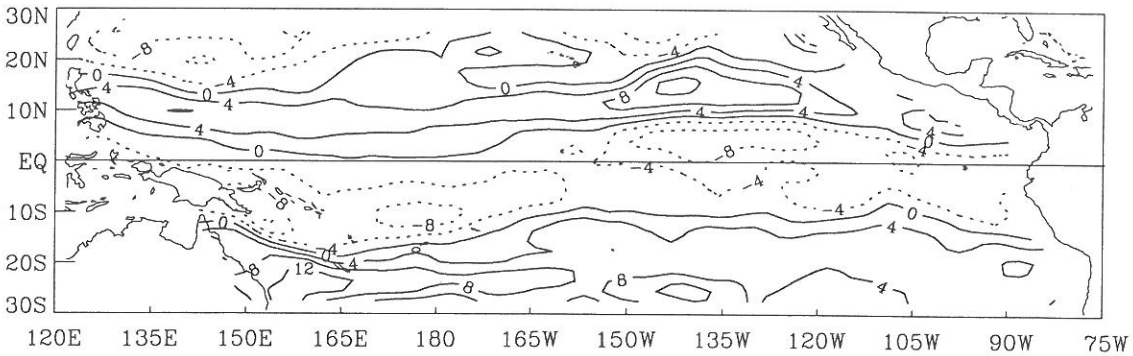
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) July 1992



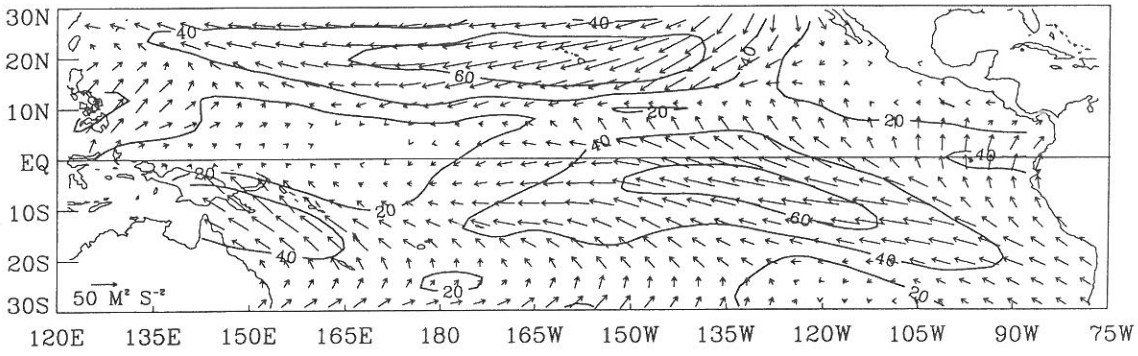
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) July 1992



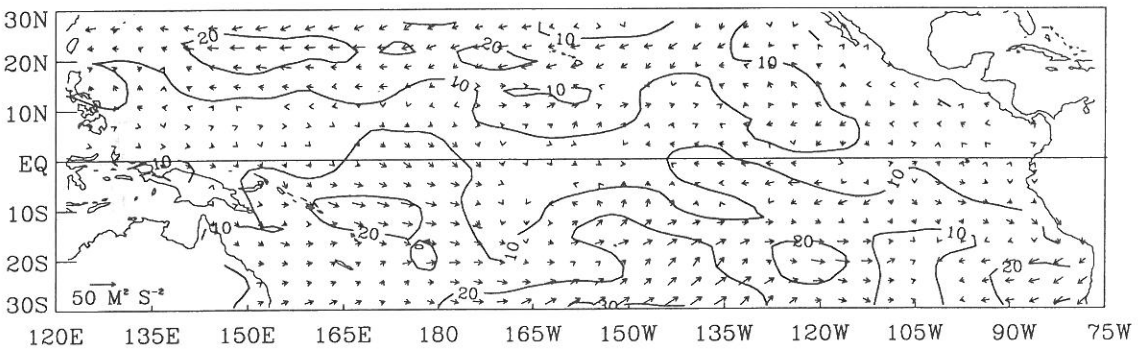
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) July 1992



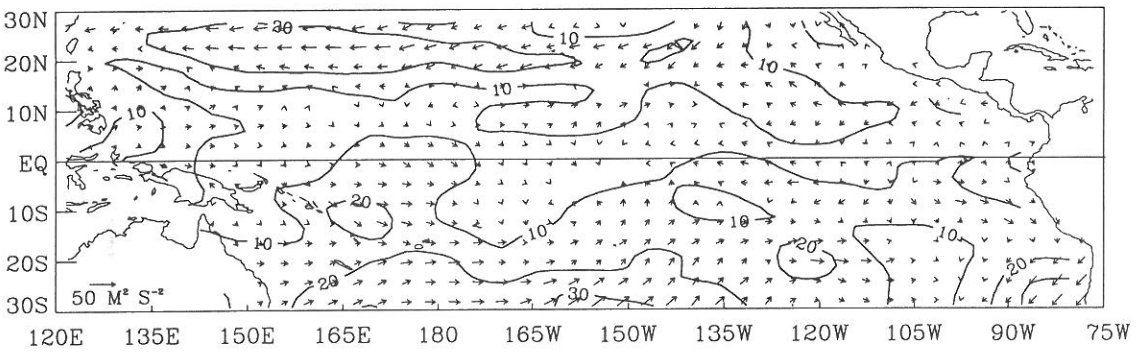
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) August 1992



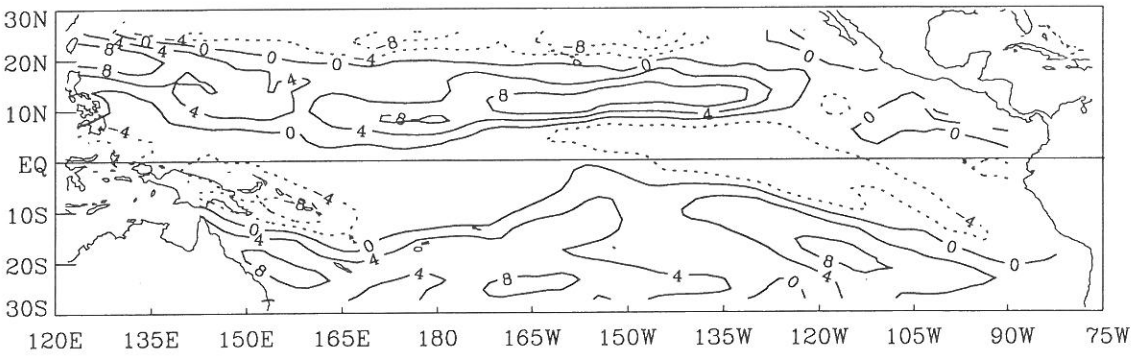
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) August 1992



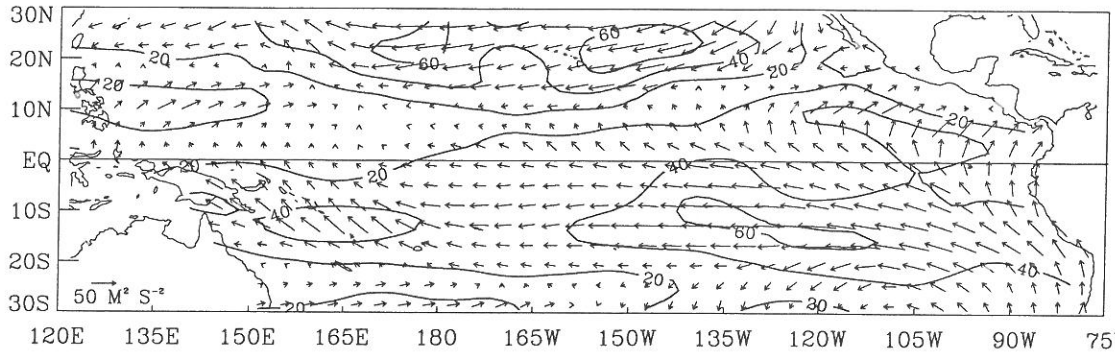
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) August 1992



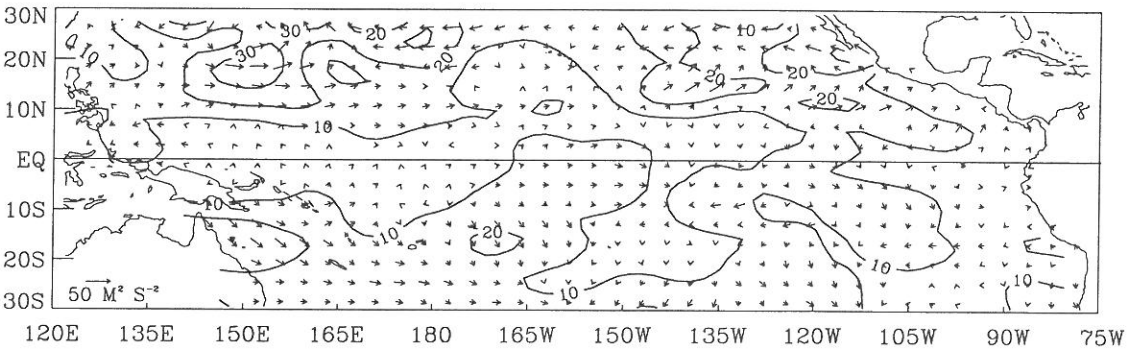
Wind Stress Curl ($x10^{-8}$ N M^{-3}) August 1992



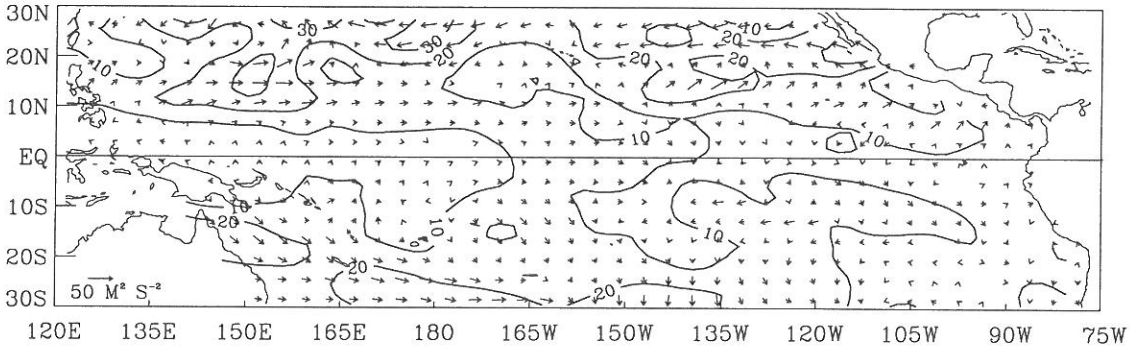
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) September 1992



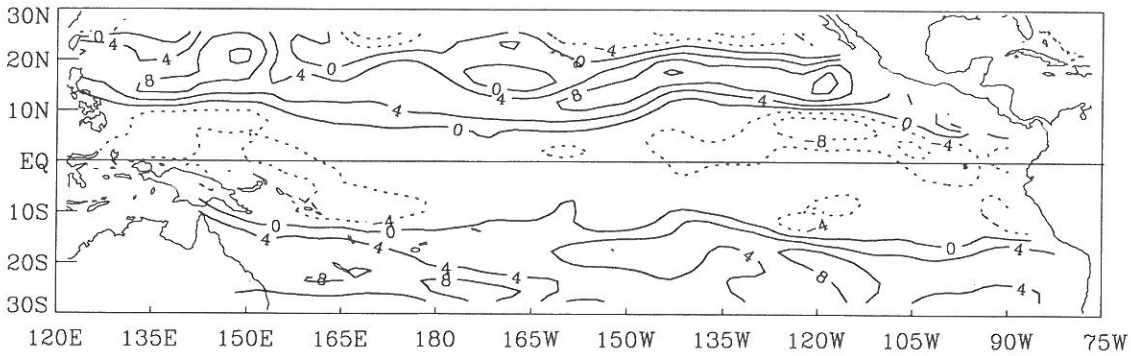
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) September 1992



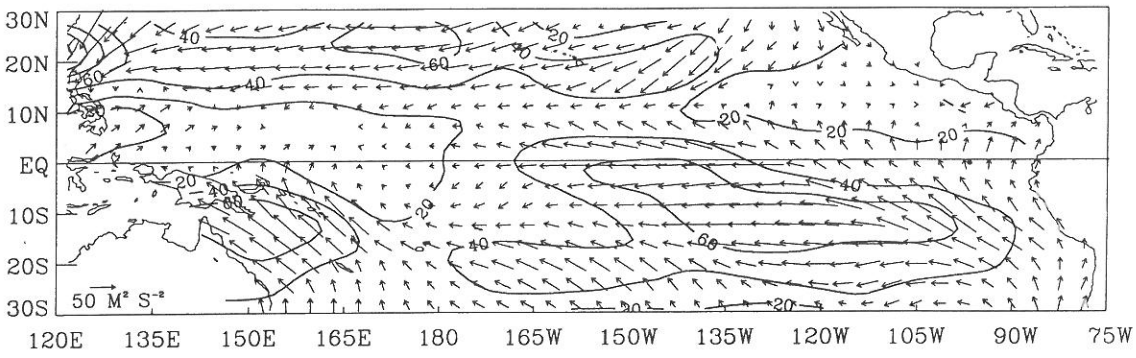
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) September 1992



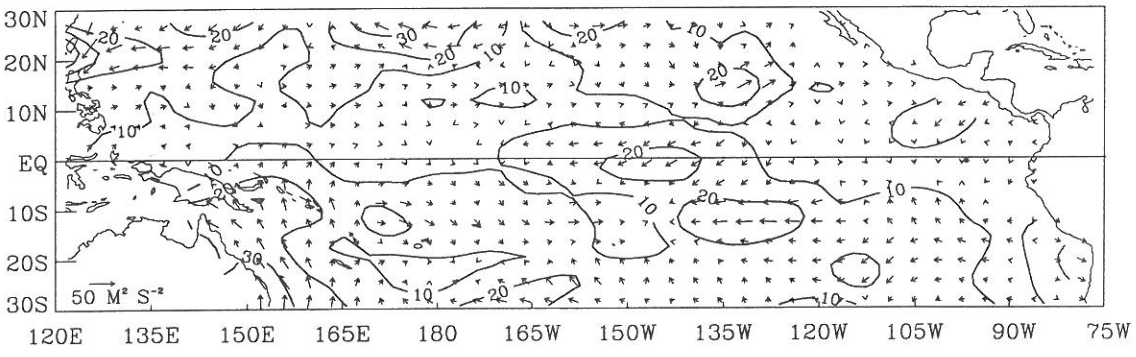
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) September 1992



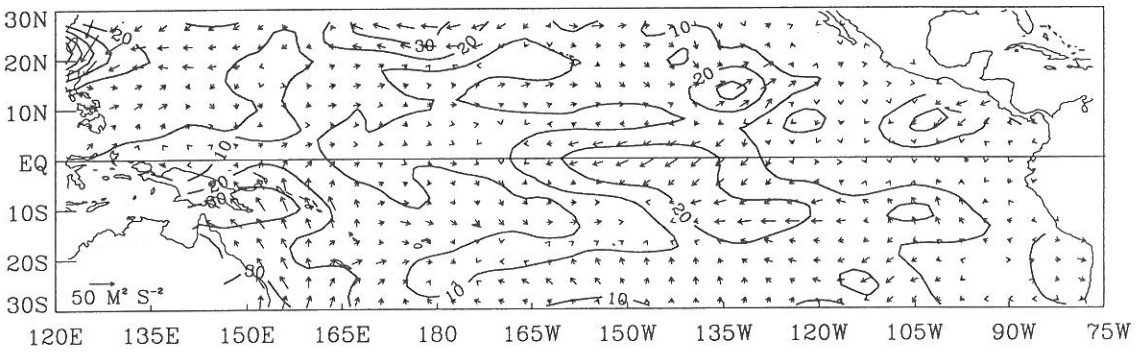
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) October 1992



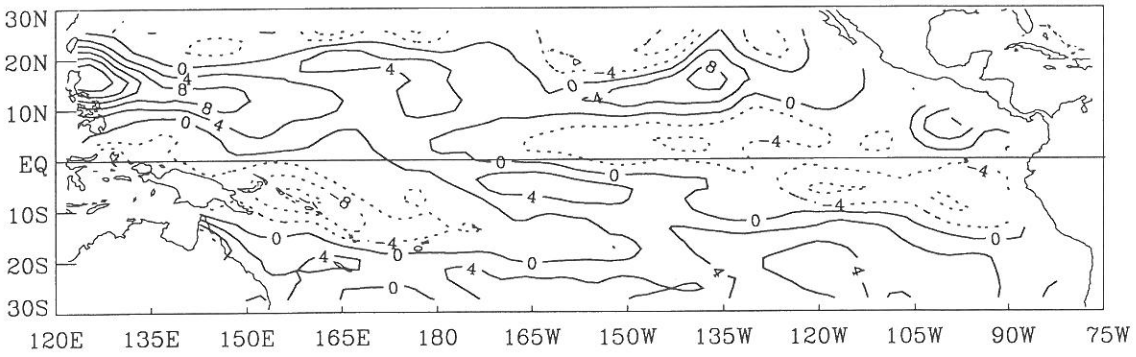
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) October 1992



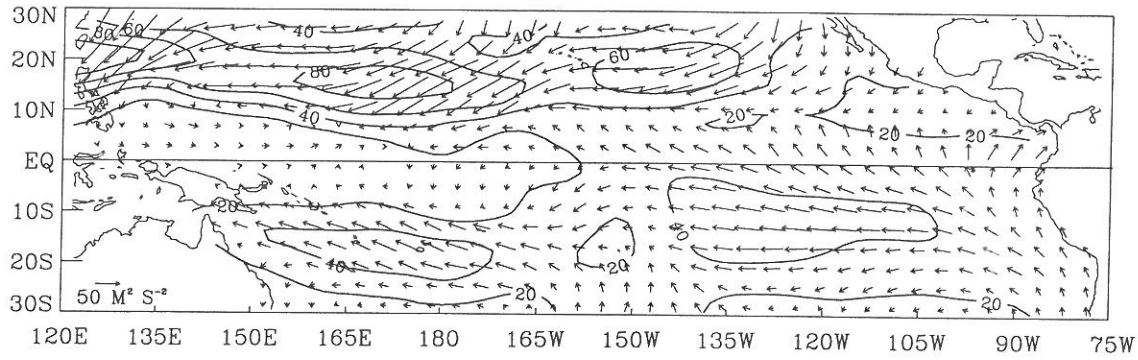
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) October 1992



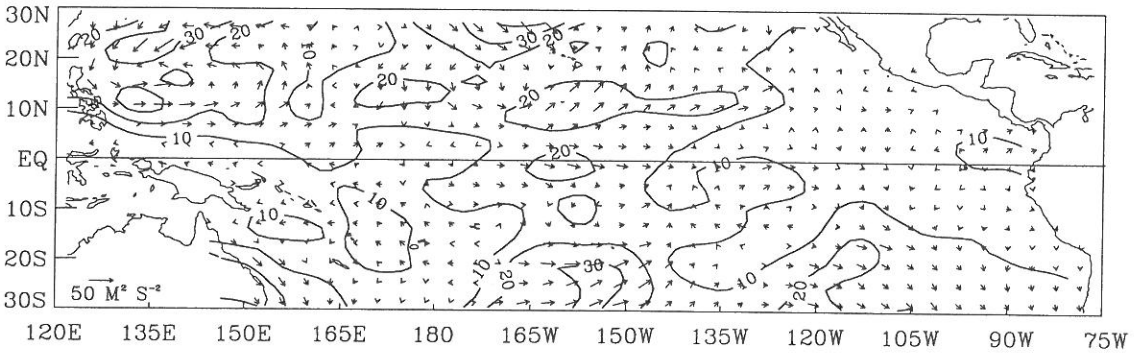
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) October 1992



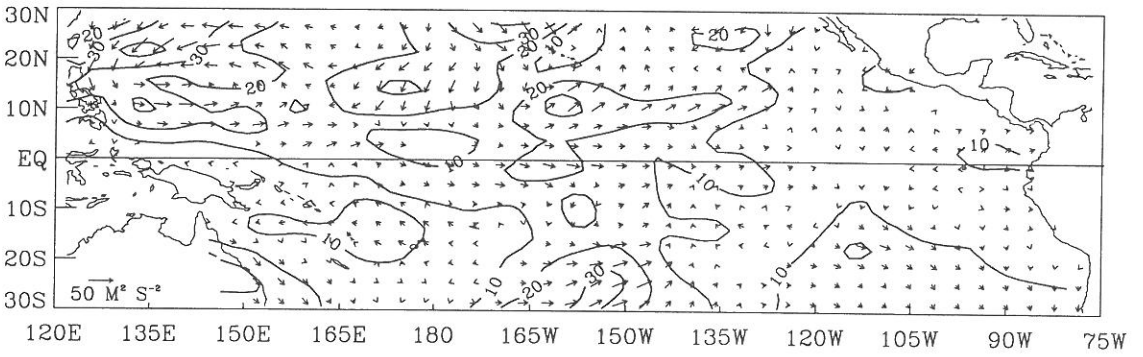
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) November 1992



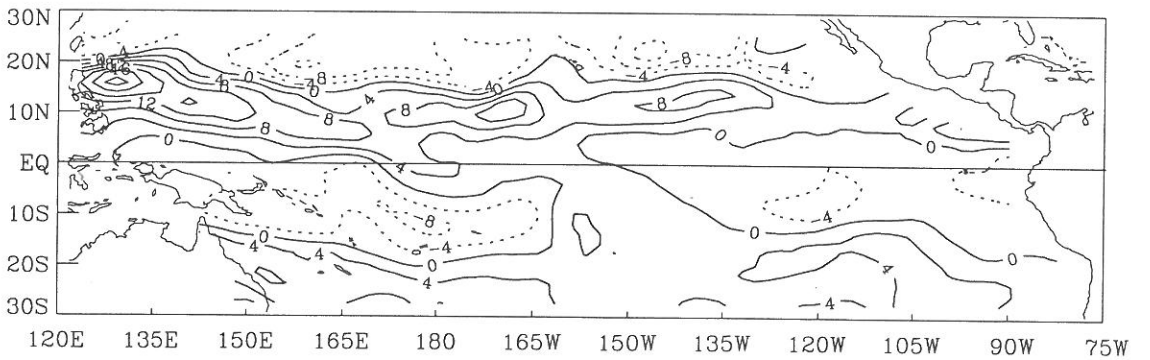
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) November 1992



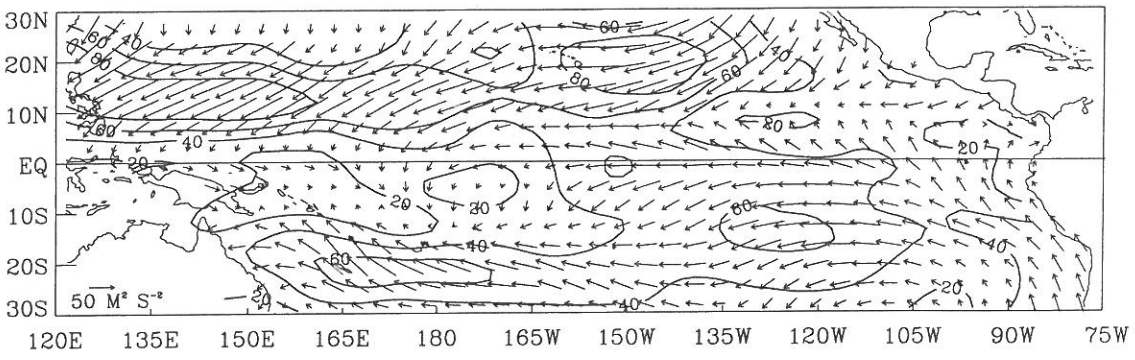
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) November 1992



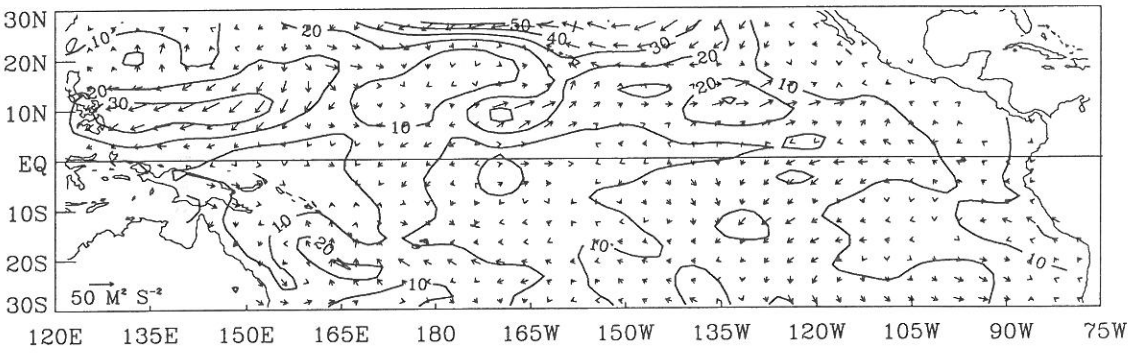
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) November 1992



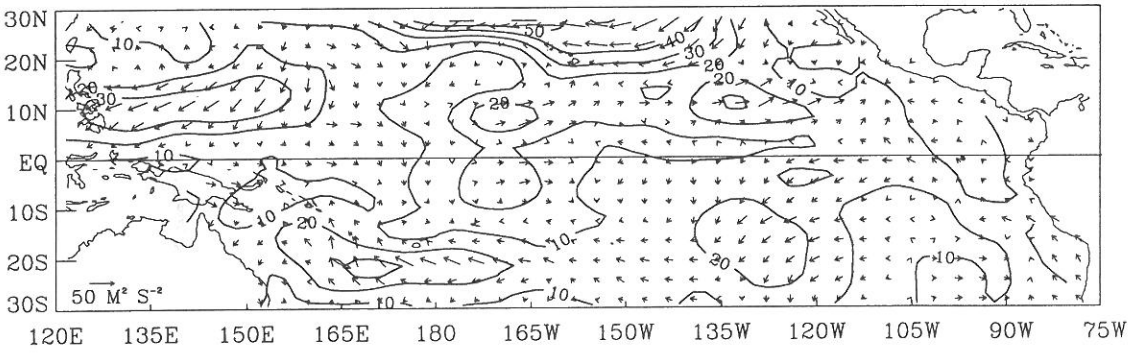
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) December 1992



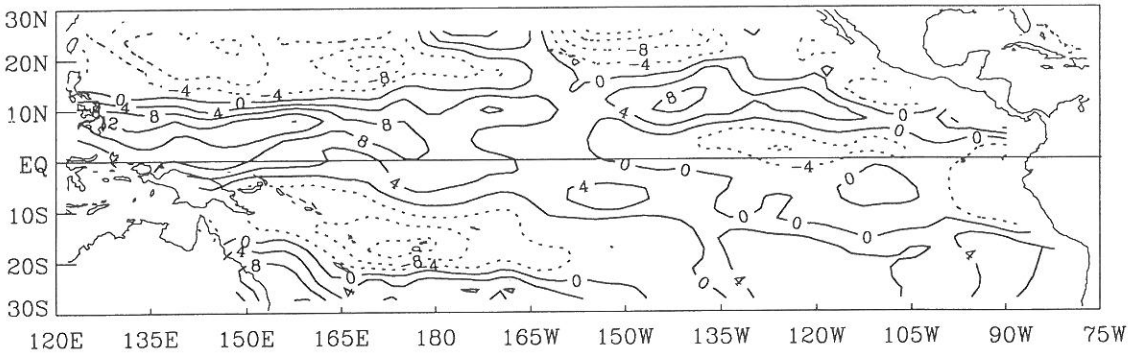
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) December 1992



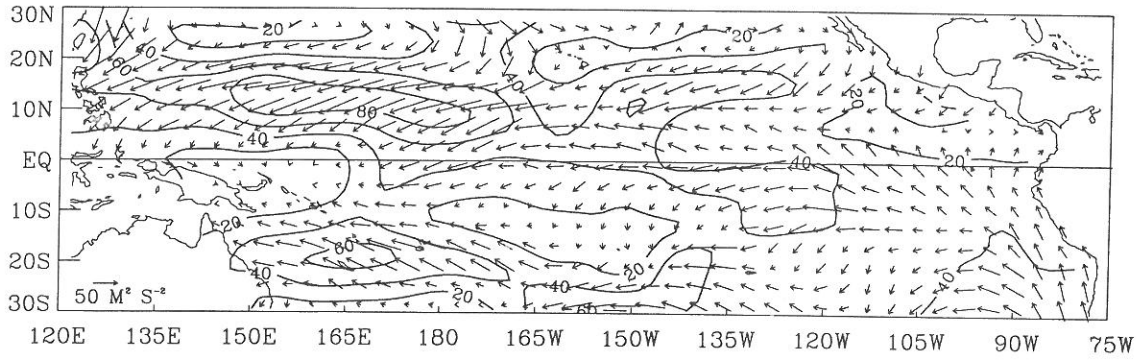
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) December 1992



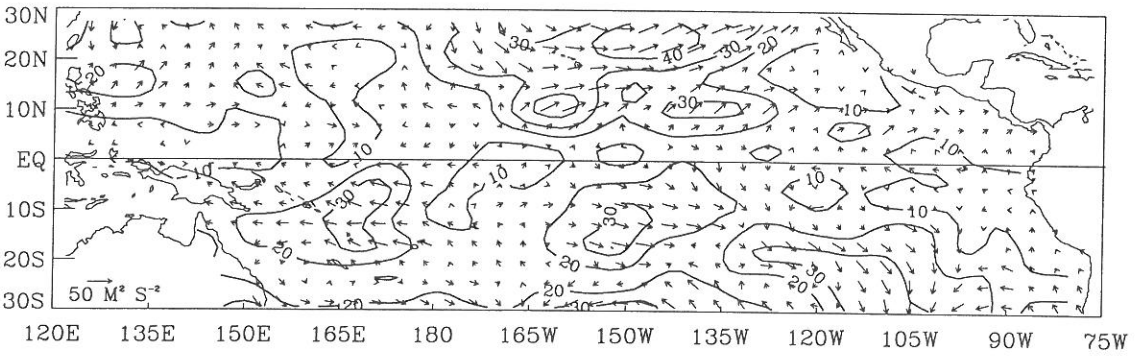
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) December 1992



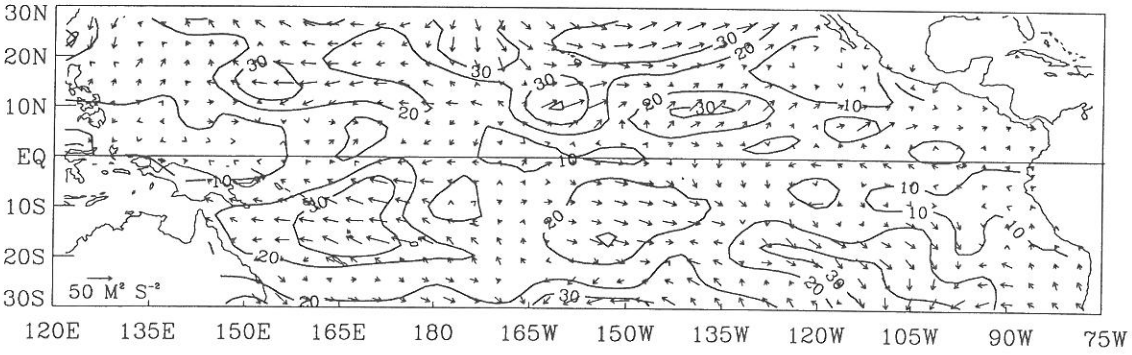
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) January 1993



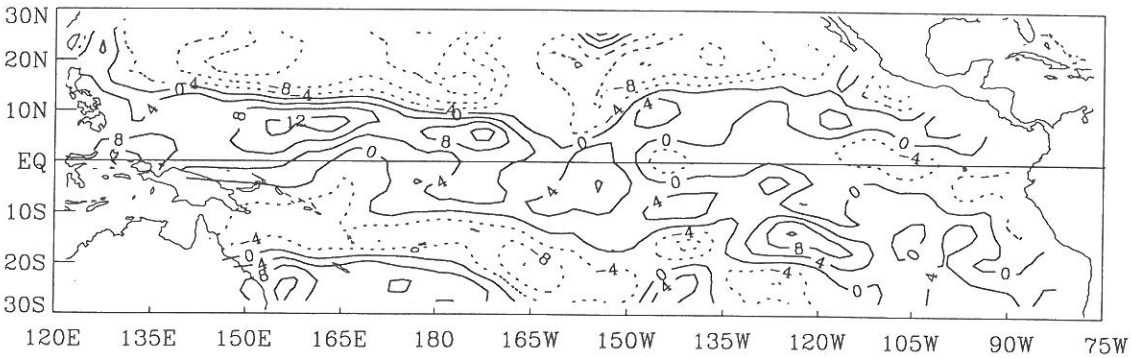
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) January 1993



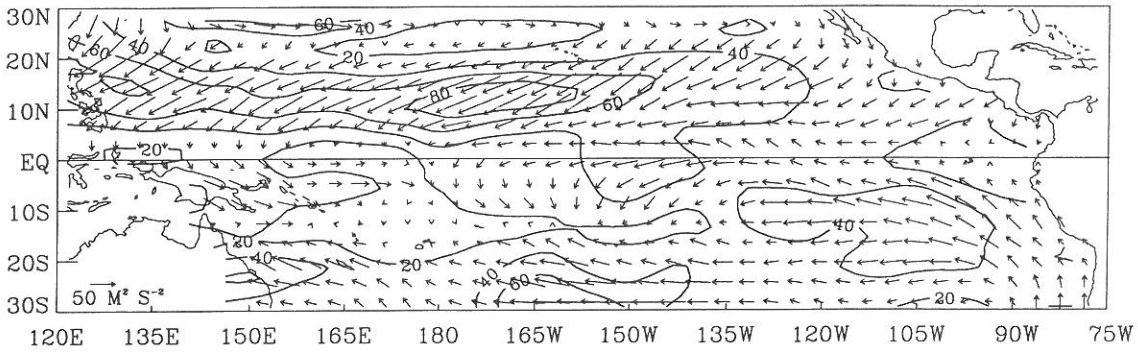
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) January 1993



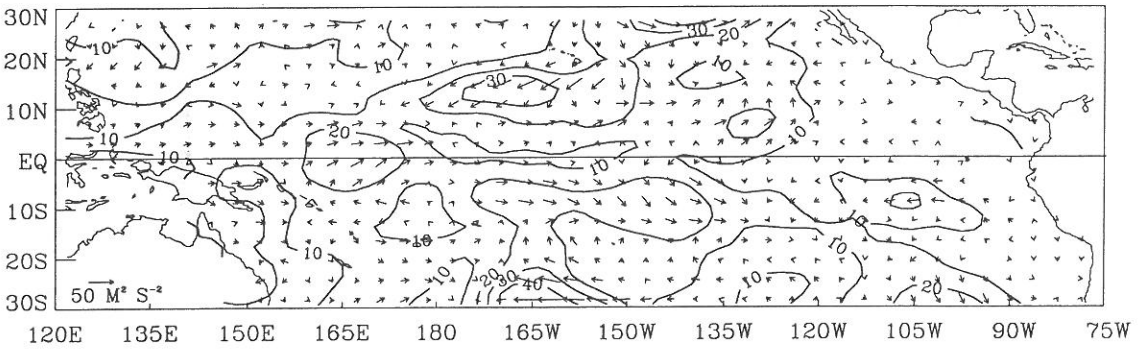
Wind Stress Curl ($x10^{-8}$ N M^{-3}) January 1993



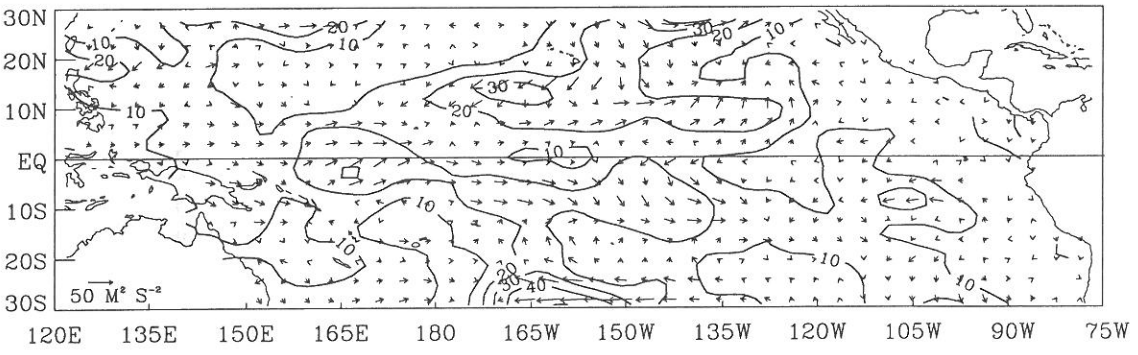
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) February 1993



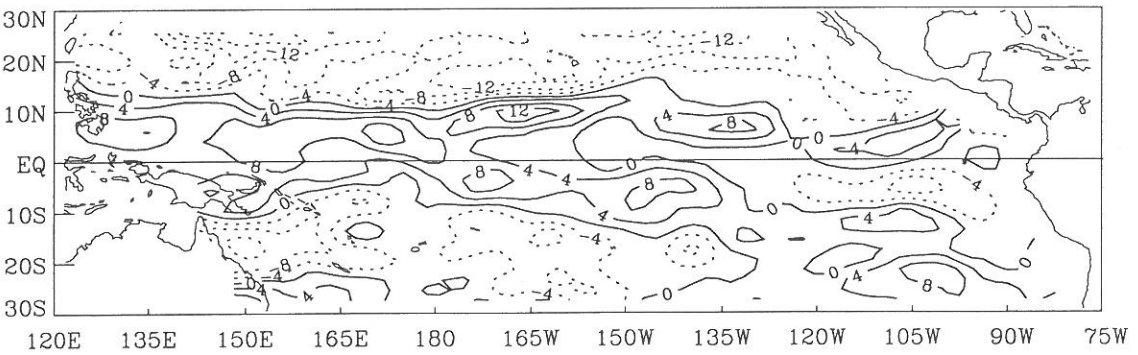
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) February 1993



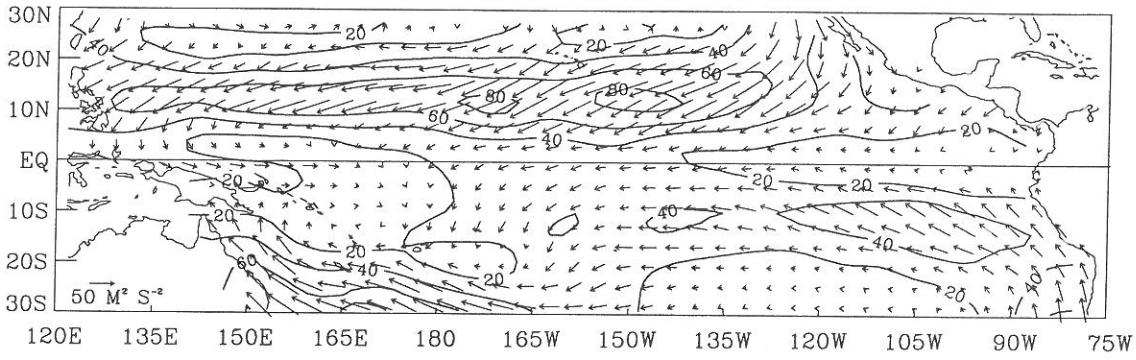
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) February 1993



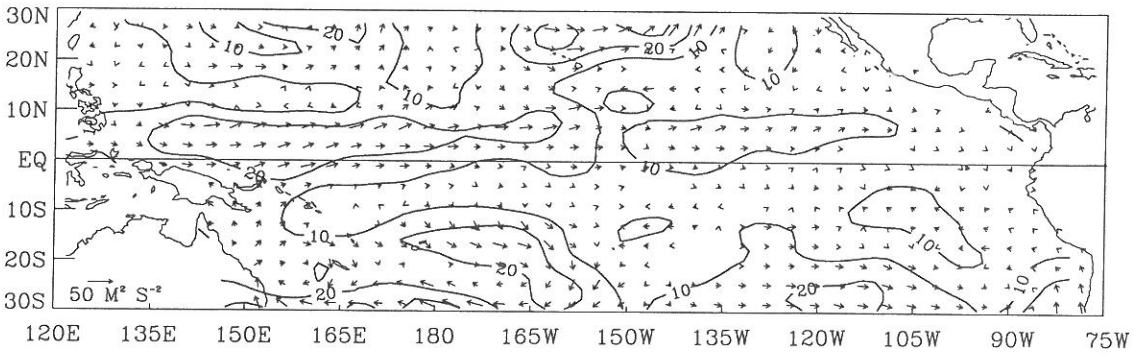
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) February 1993



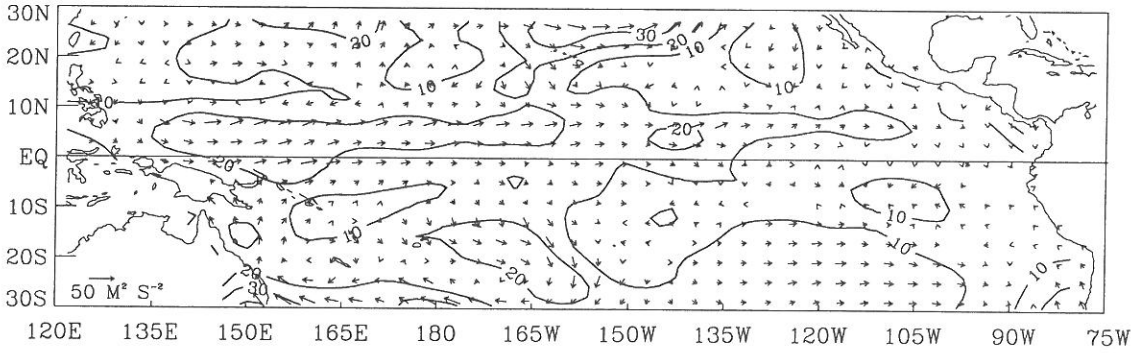
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) March 1993



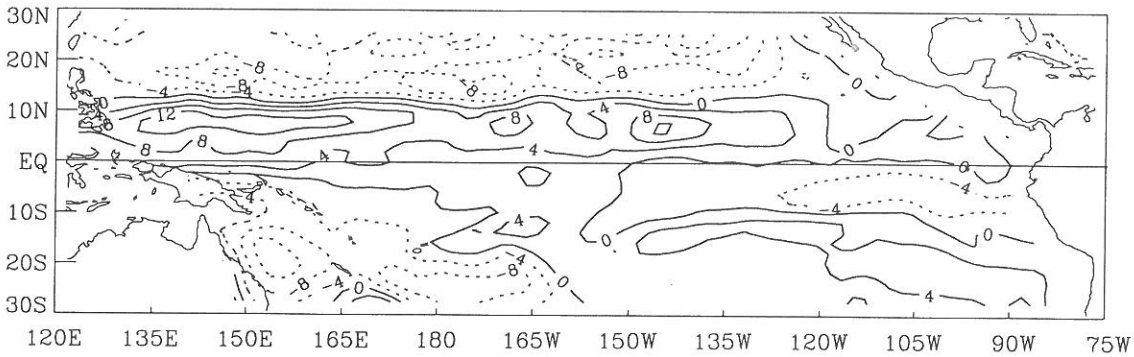
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) March 1993



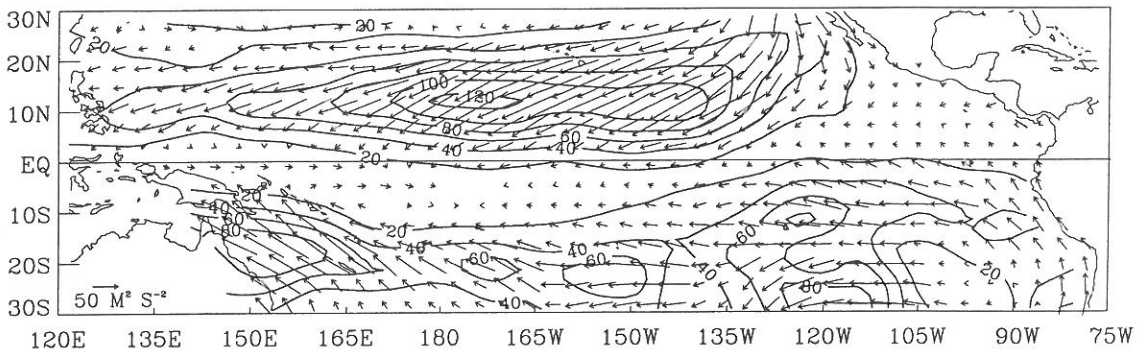
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) March 1993



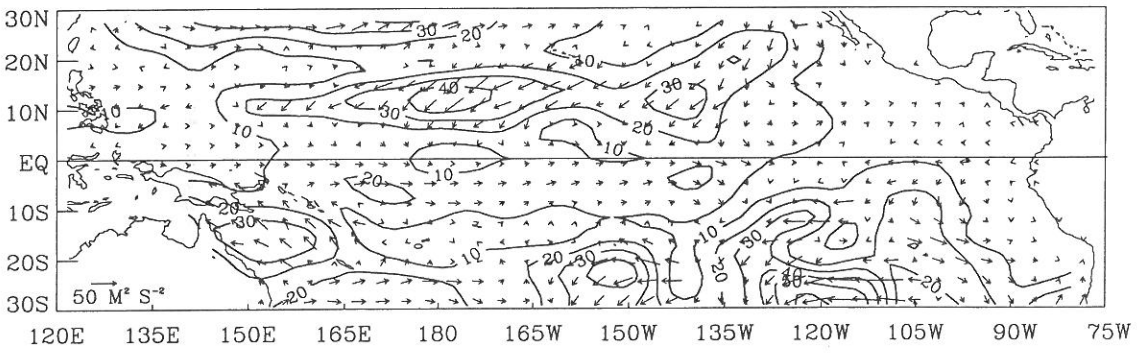
Wind Stress Curl ($x10^{-8}$ N M^{-3}) March 1993



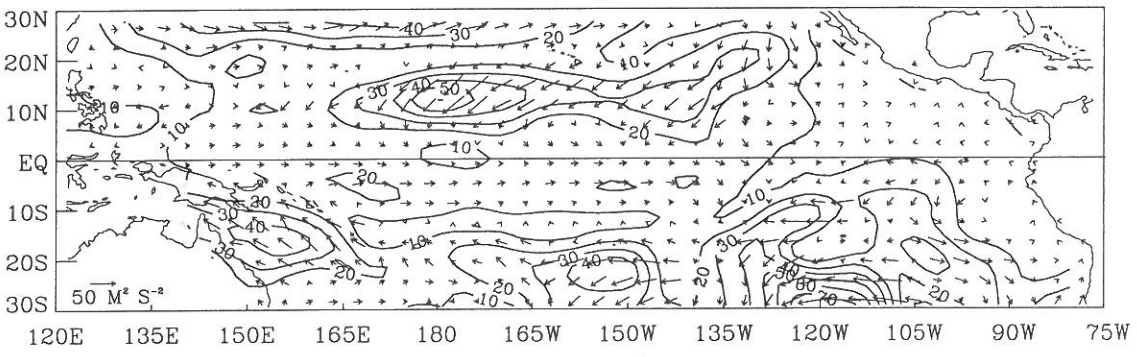
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) April 1993



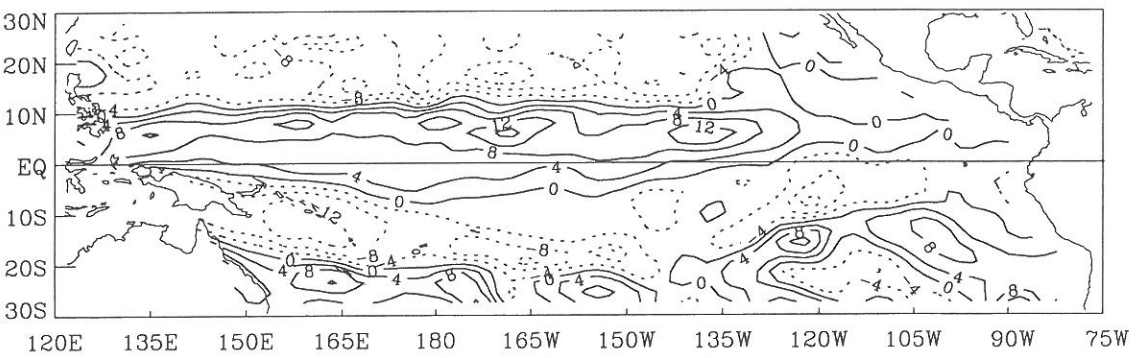
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) April 1993



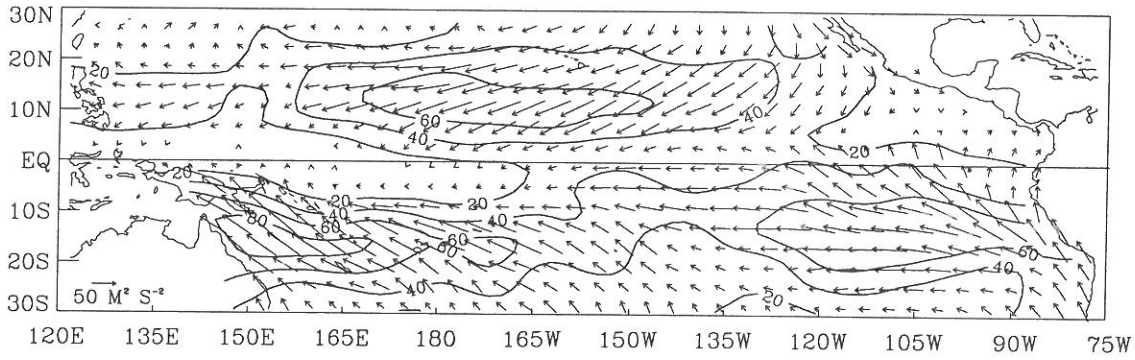
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) April 1993



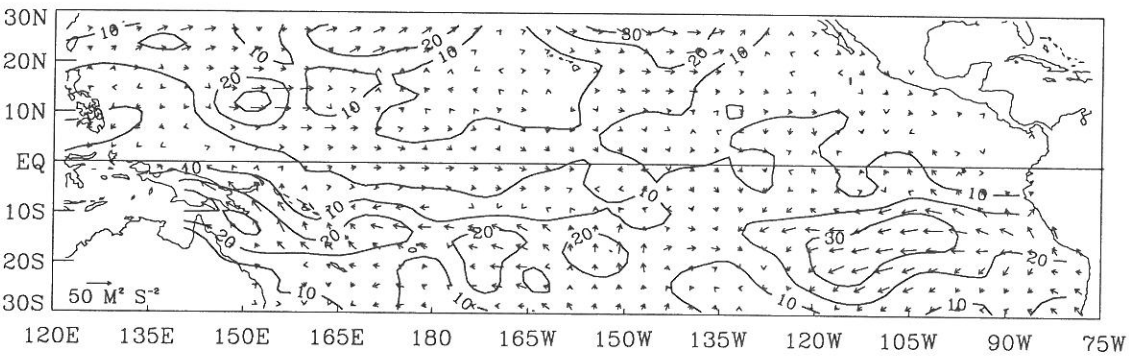
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) April 1993



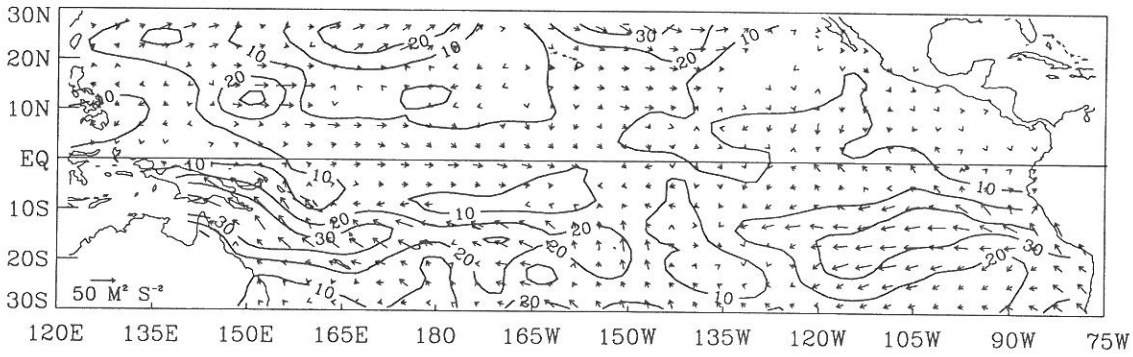
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) May 1993



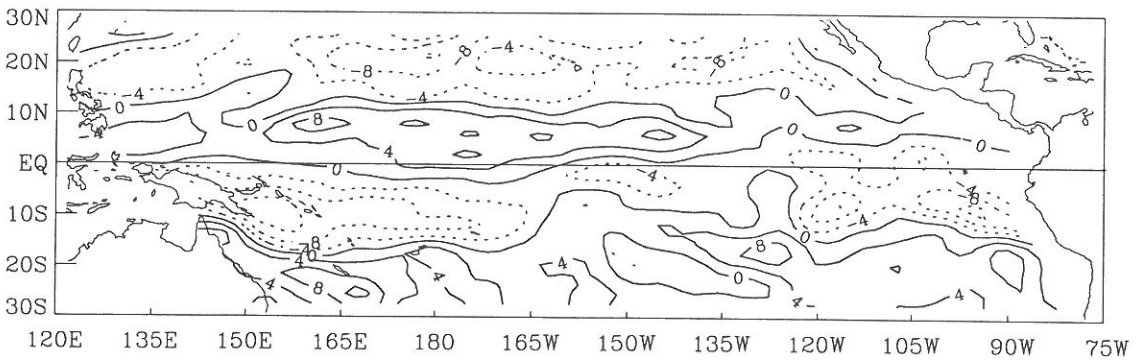
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) May 1993



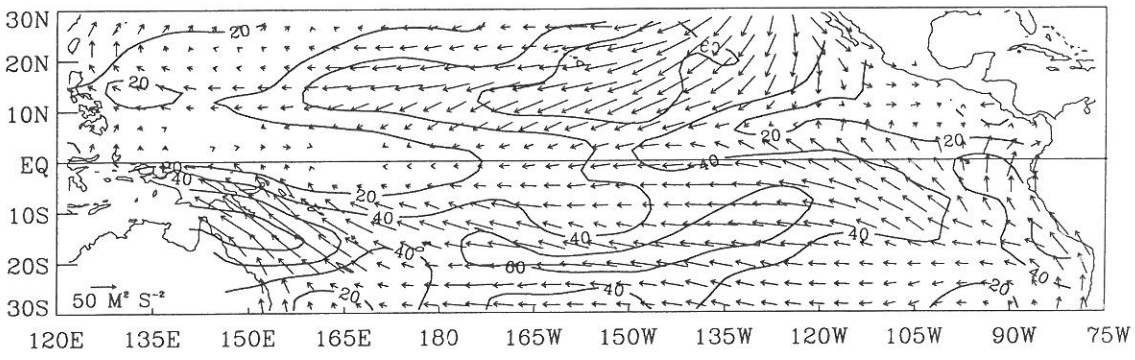
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) May 1993



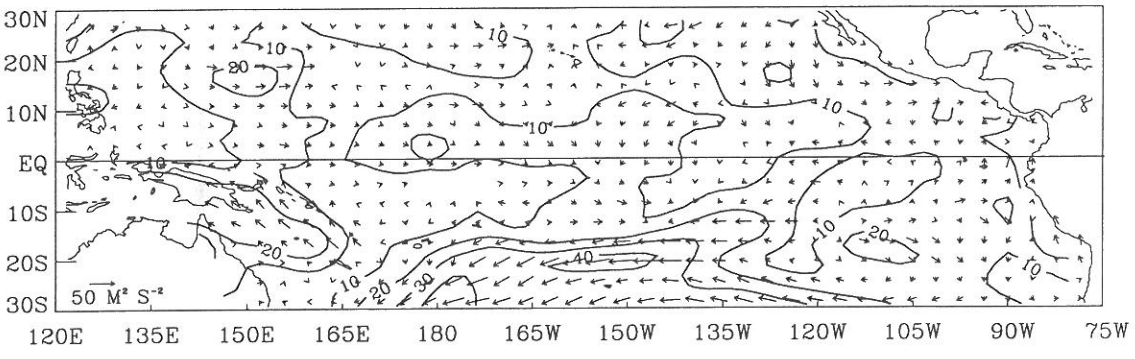
Wind Stress Curl ($x10^{-8}$ N M^{-3}) May 1993



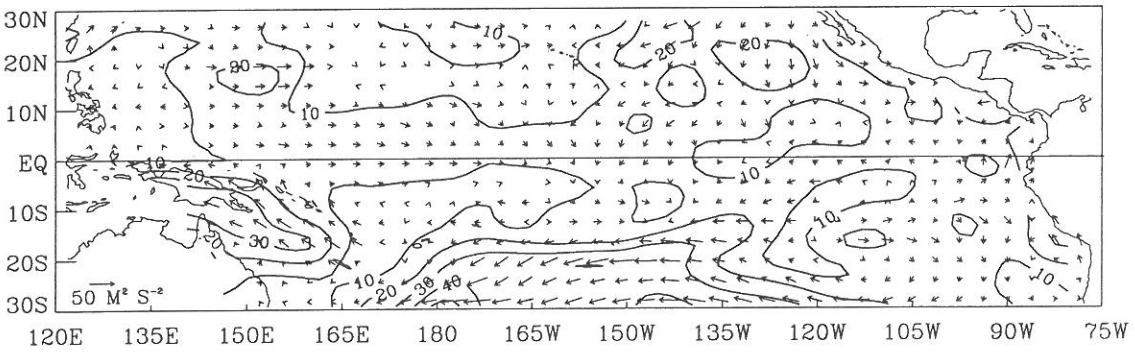
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) June 1993



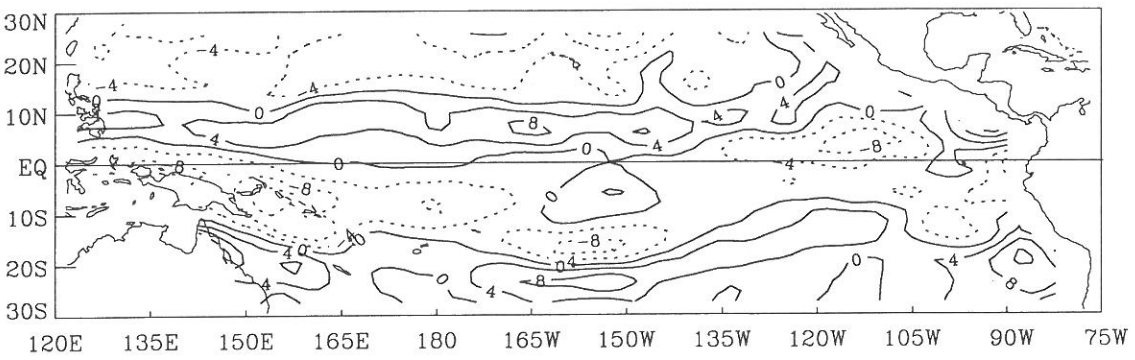
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) June 1993



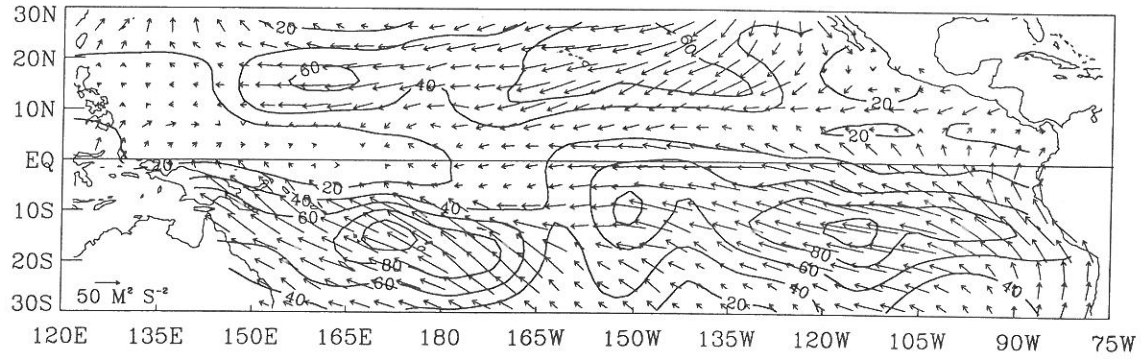
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) June 1993



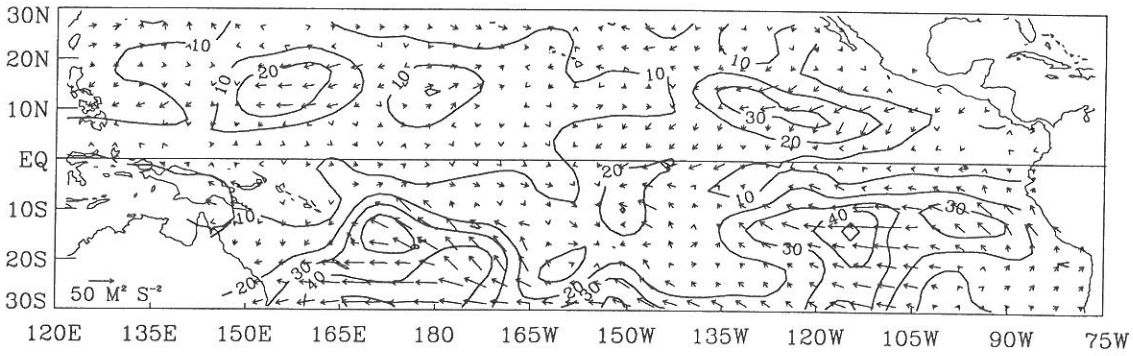
Wind Stress Curl ($x10^{-8}$ N M^{-3}) June 1993



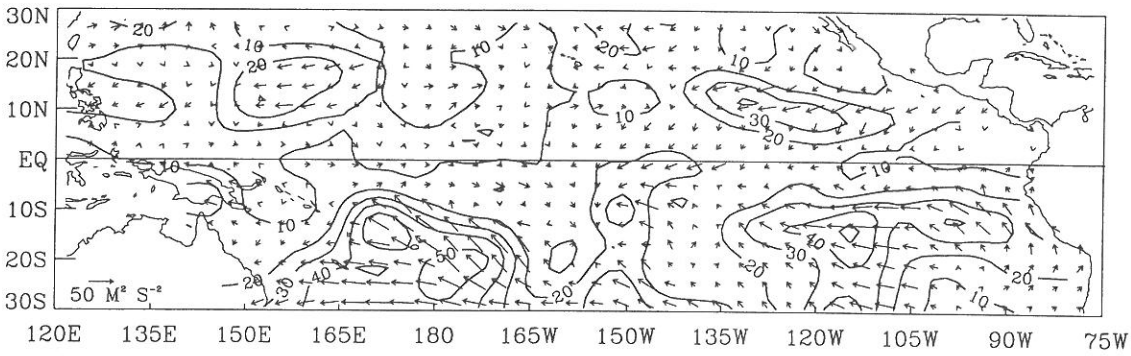
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) July 1993



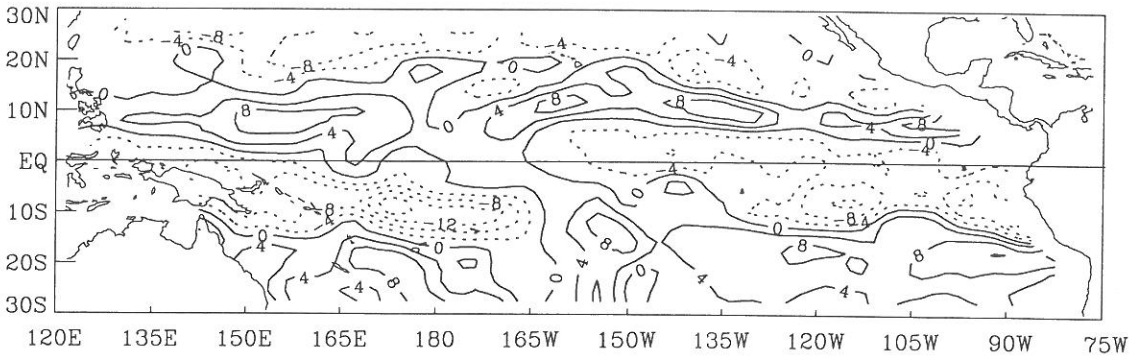
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) July 1993



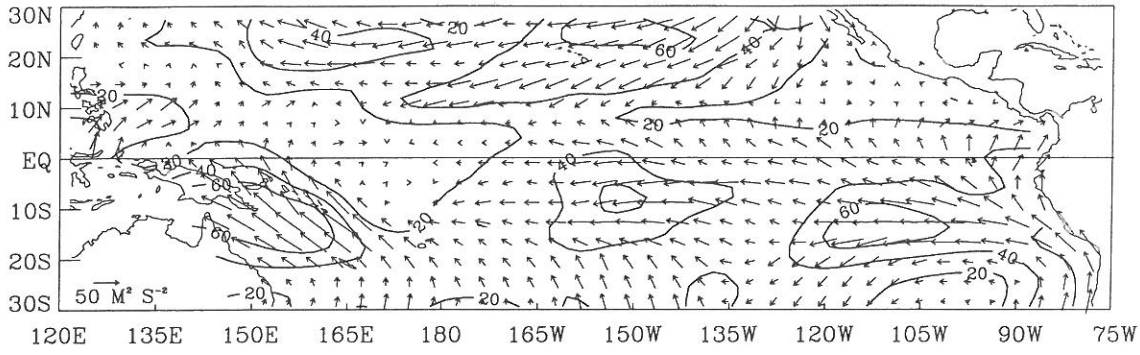
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) July 1993



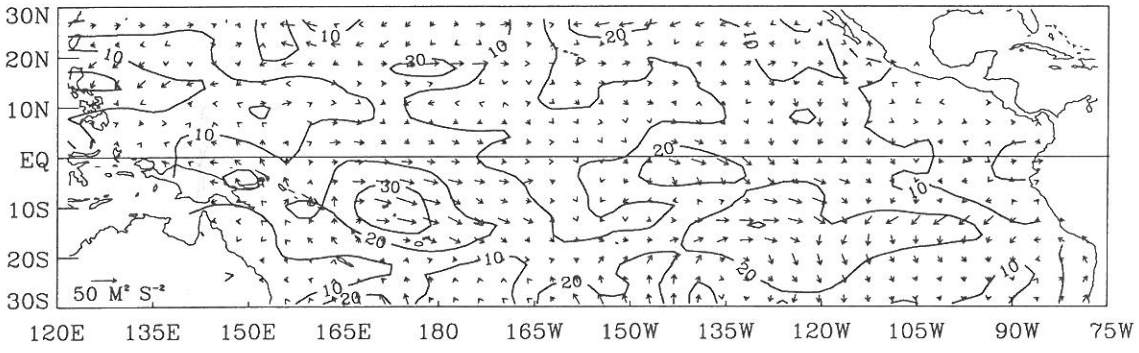
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) July 1993



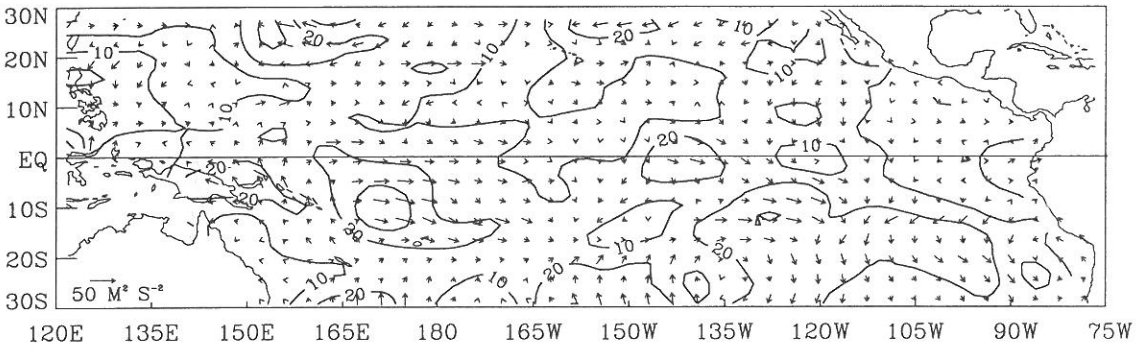
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) August 1993



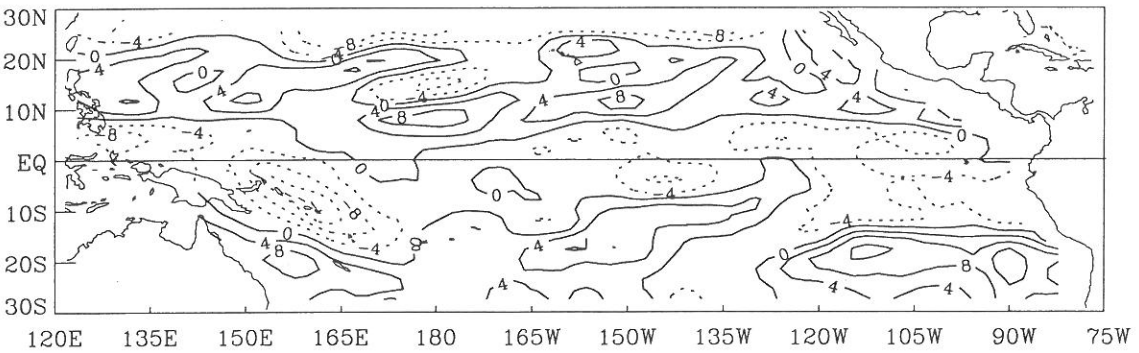
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) August 1993



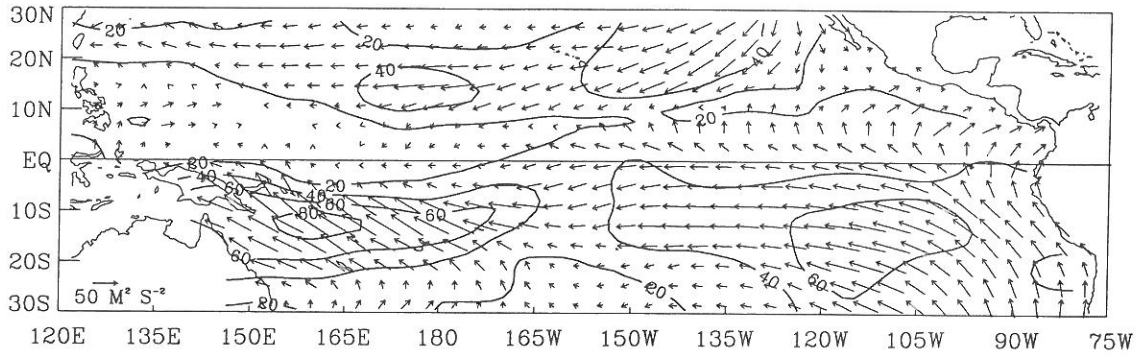
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) August 1993



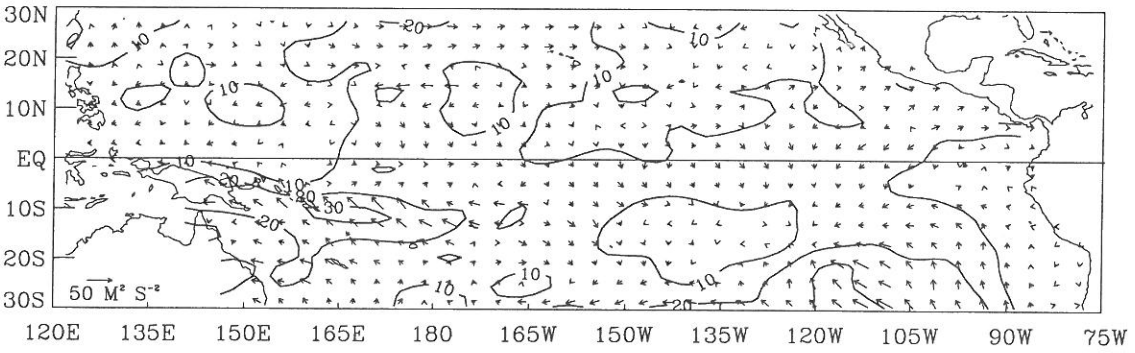
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) August 1993



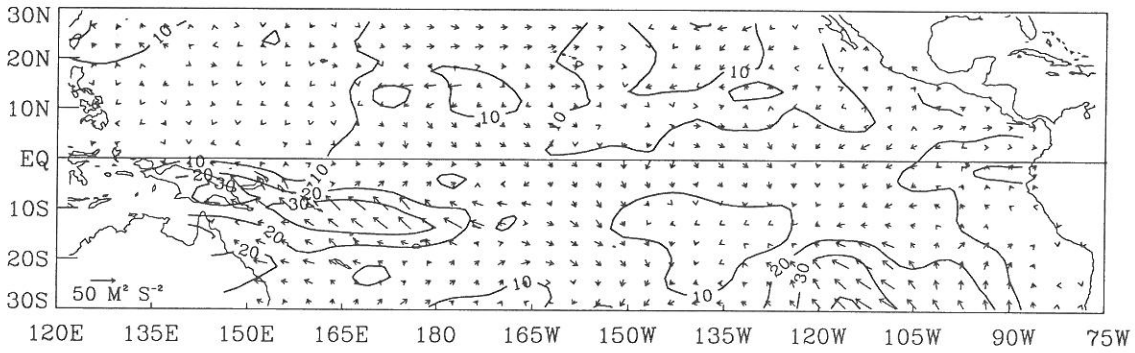
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) September 1993



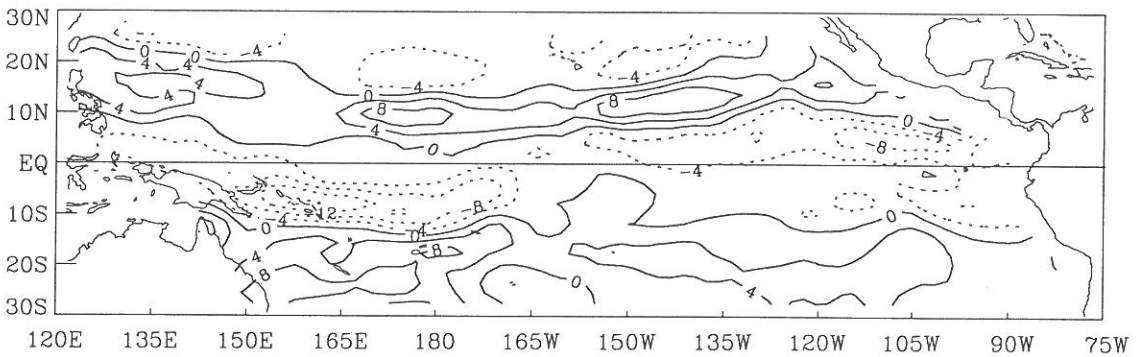
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) September 1993



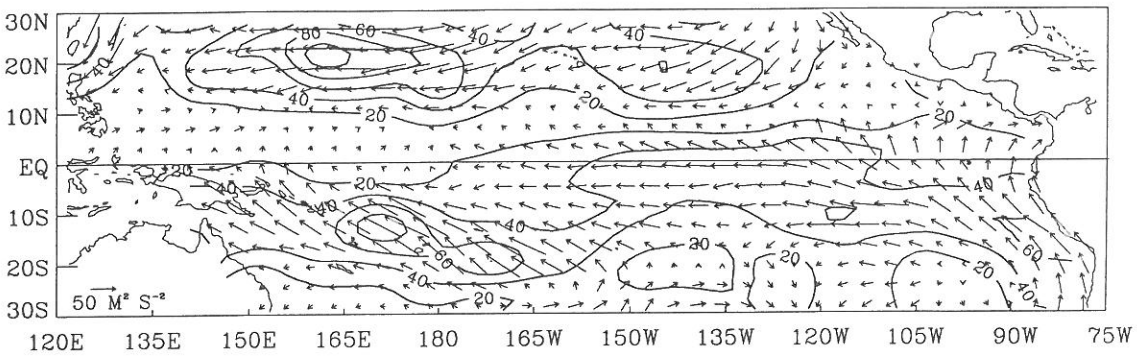
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) September 1993



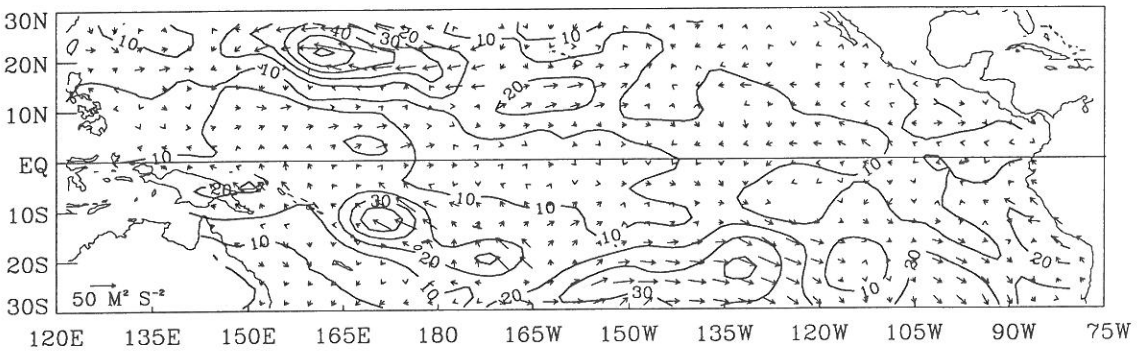
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) September 1993



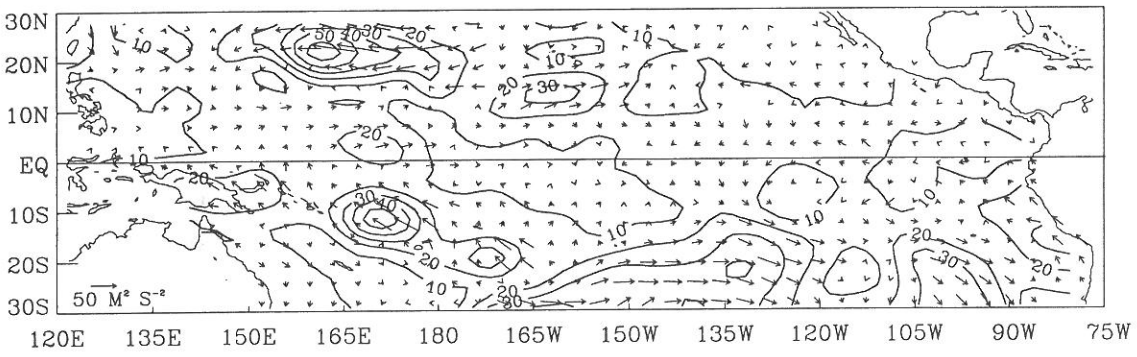
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) October 1993



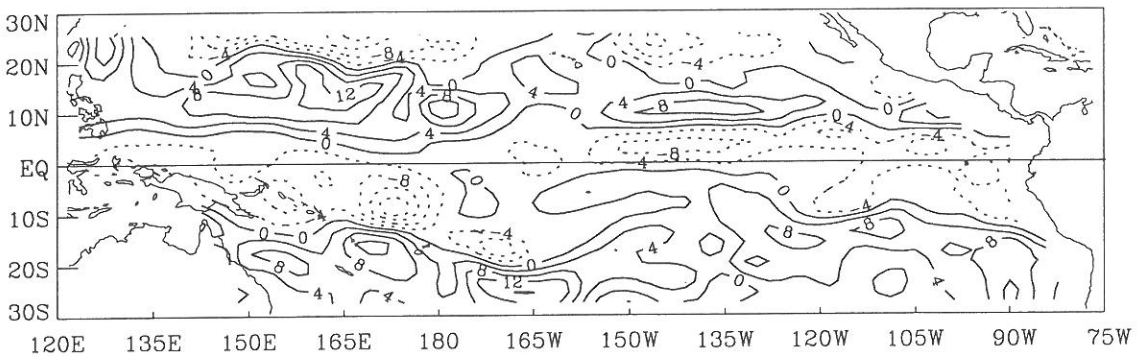
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) October 1993



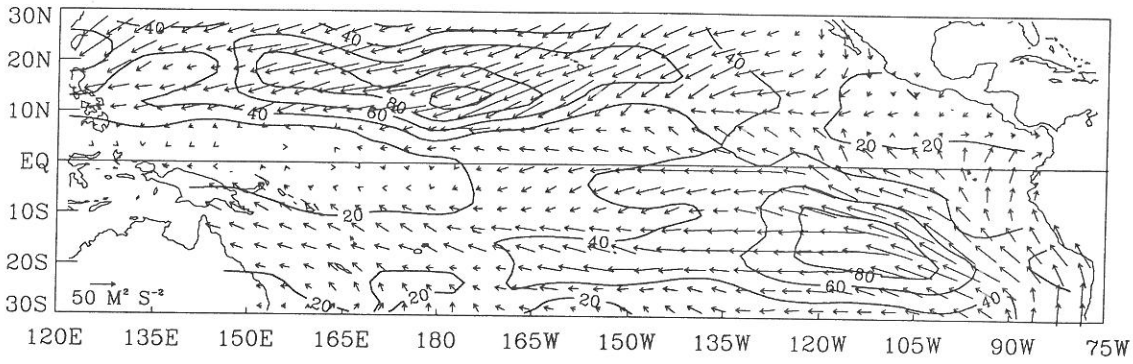
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) October 1993



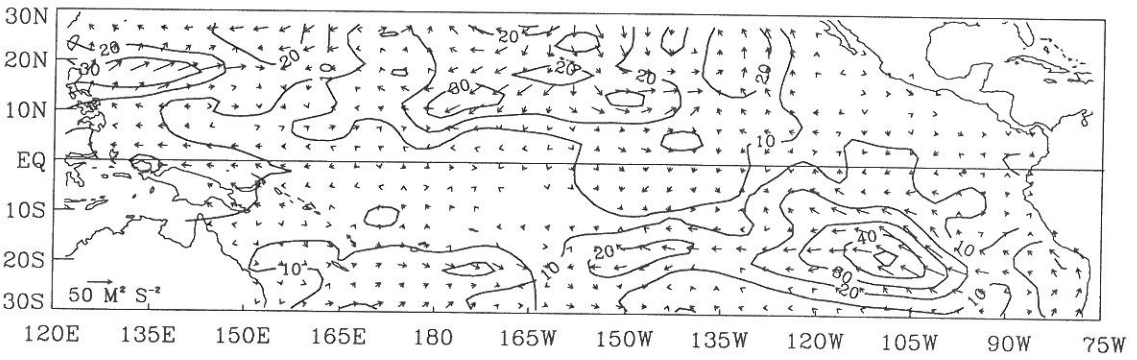
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) October 1993



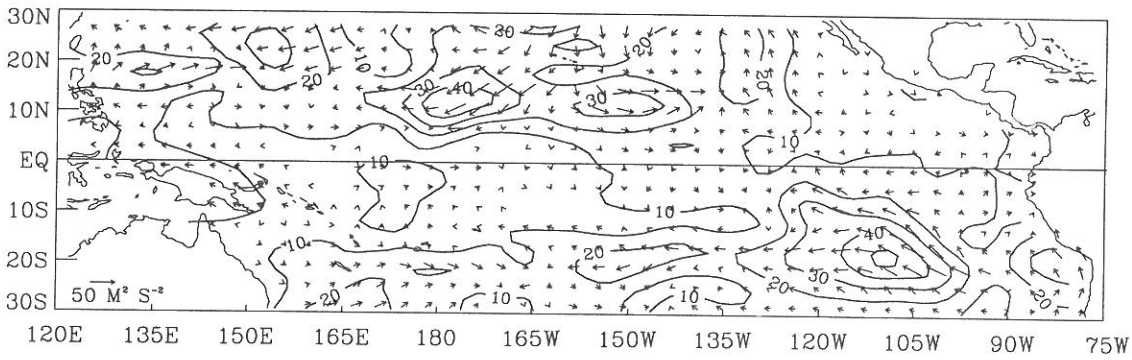
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) November 1993



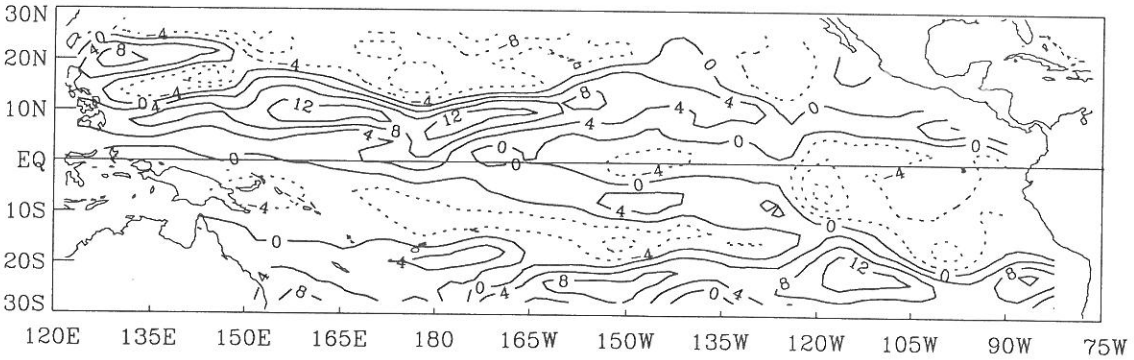
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) November 1993



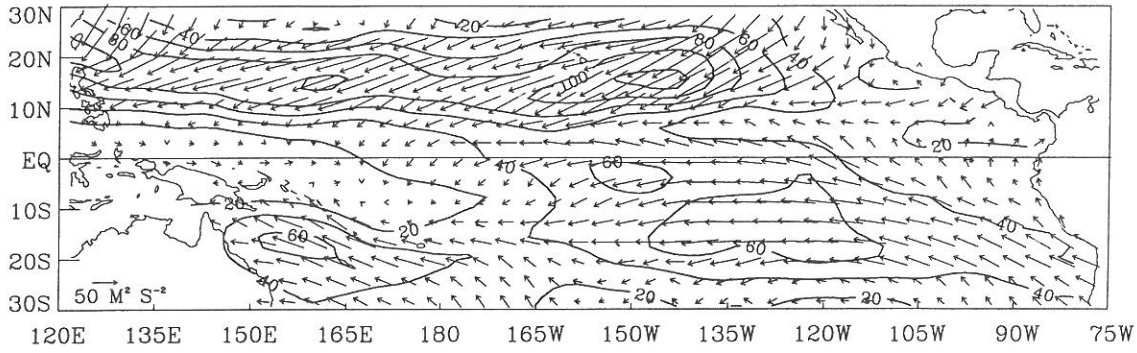
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) November 1993



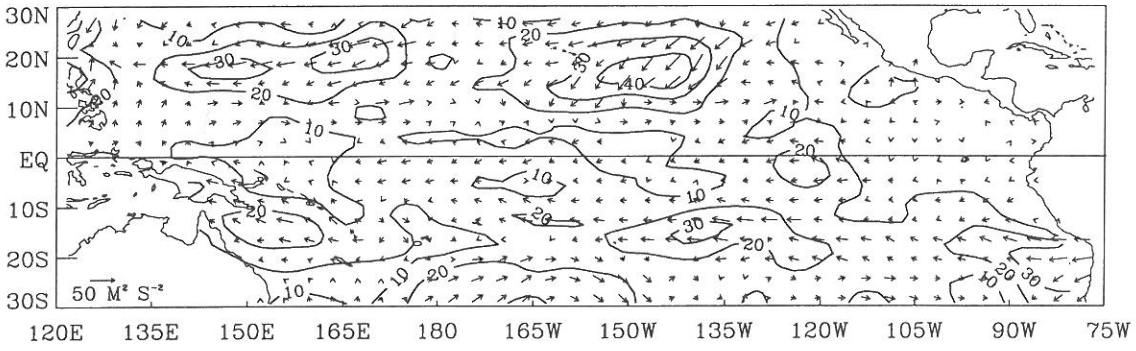
Wind Stress Curl ($x10^{-8}$ N M^{-3}) November 1993



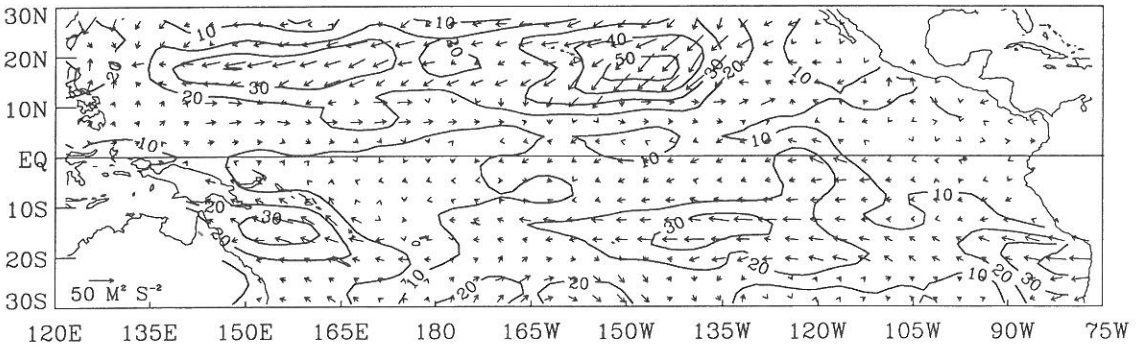
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) December 1993



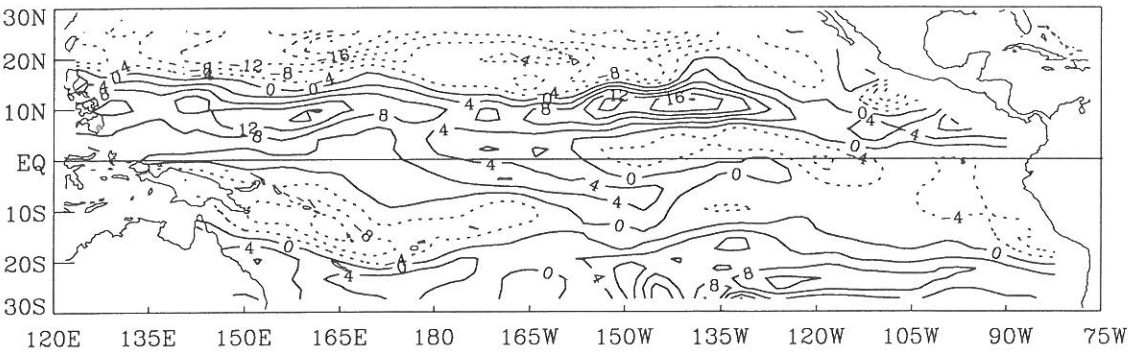
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) December 1993



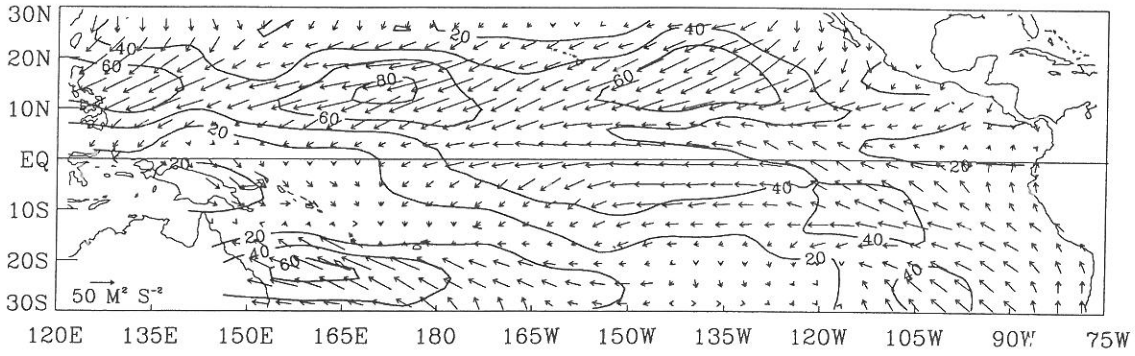
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) December 1993



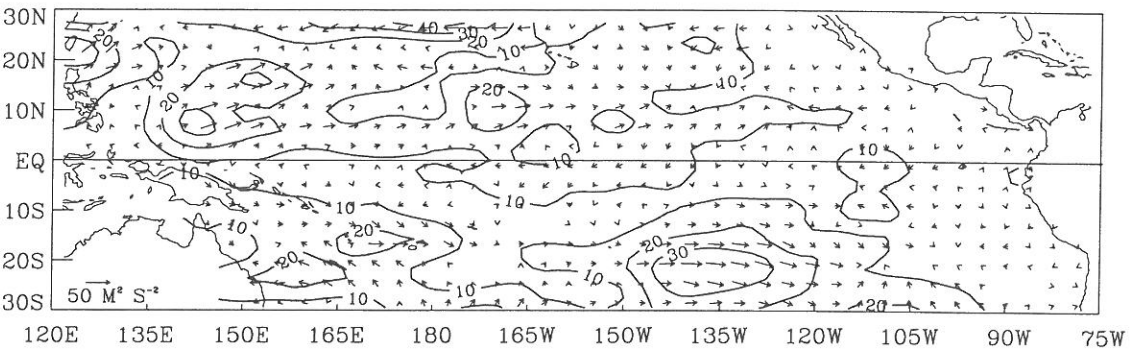
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) December 1993



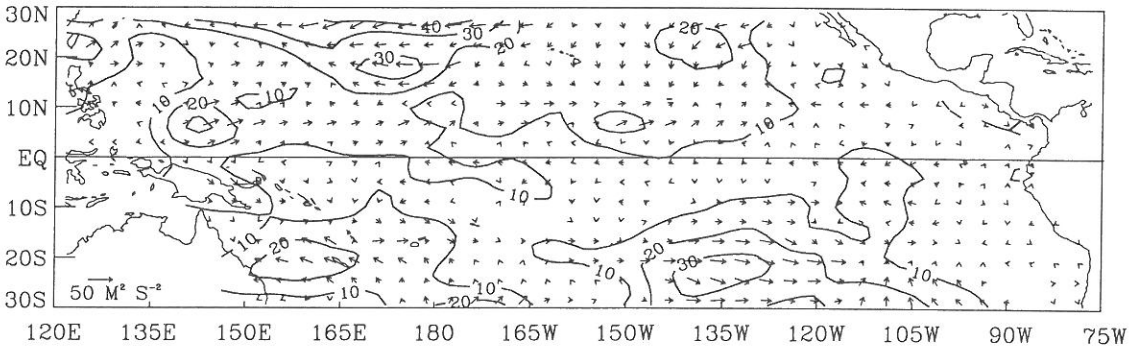
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) January 1994



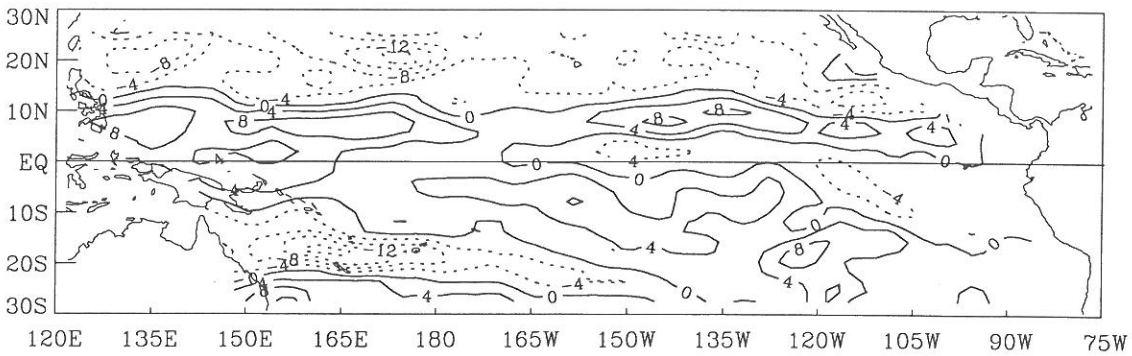
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) January 1994



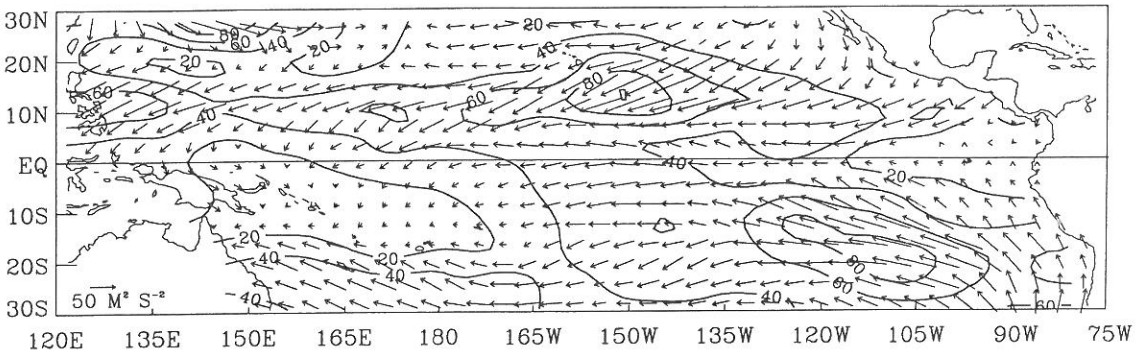
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) January 1994



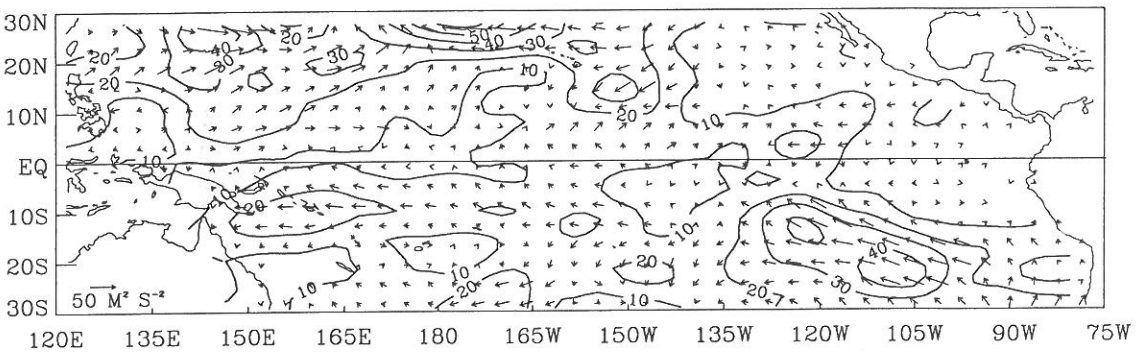
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) January 1994



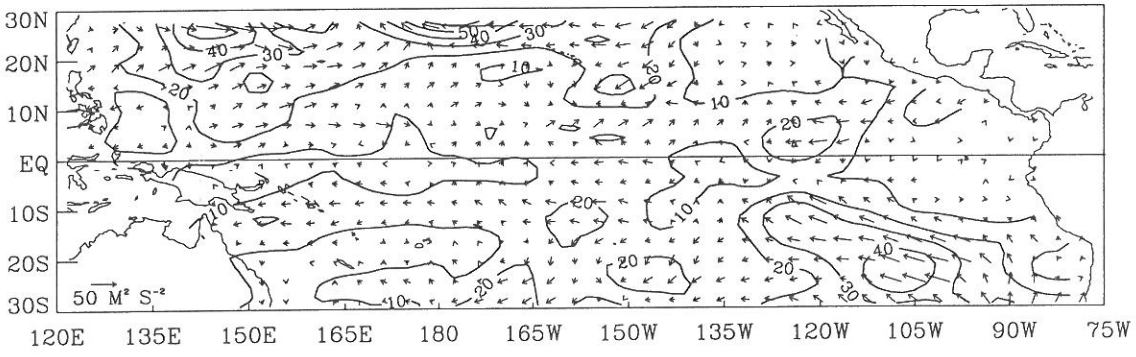
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) February 1994



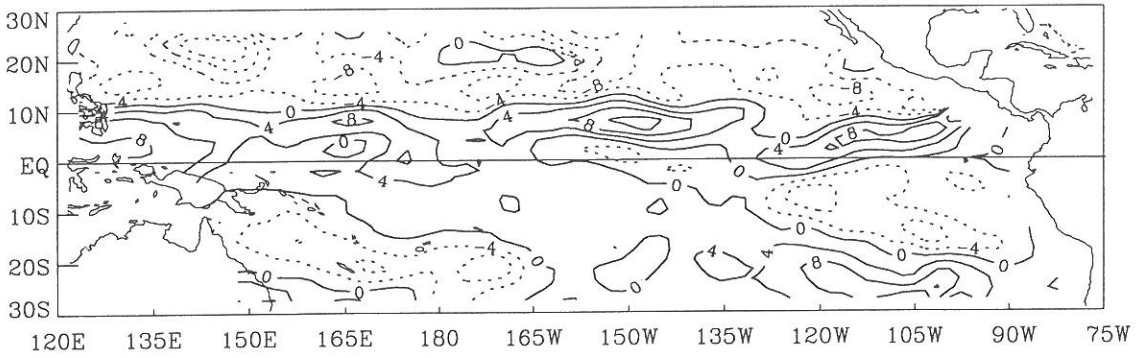
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) February 1994



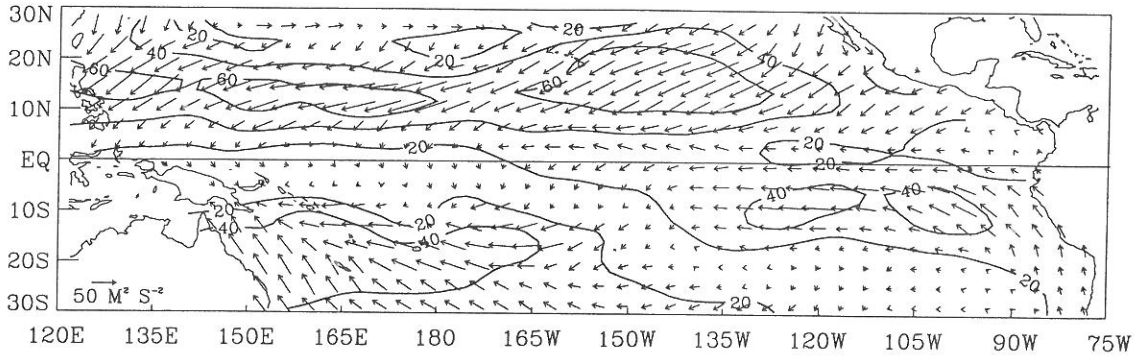
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) February 1994



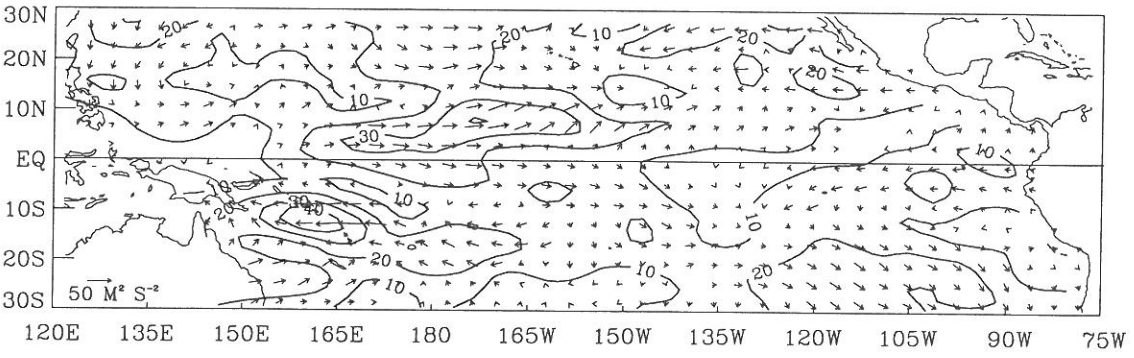
Wind Stress Curl ($x10^{-8}$ N M^{-3}) February 1994



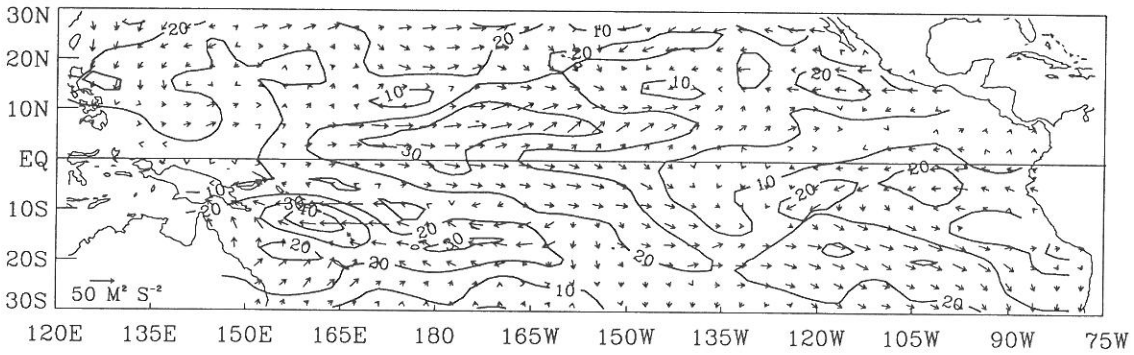
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) March 1994



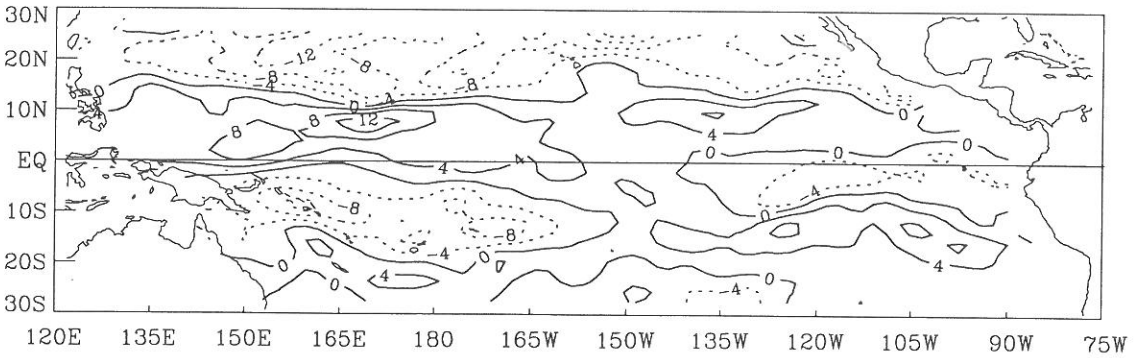
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) March 1994



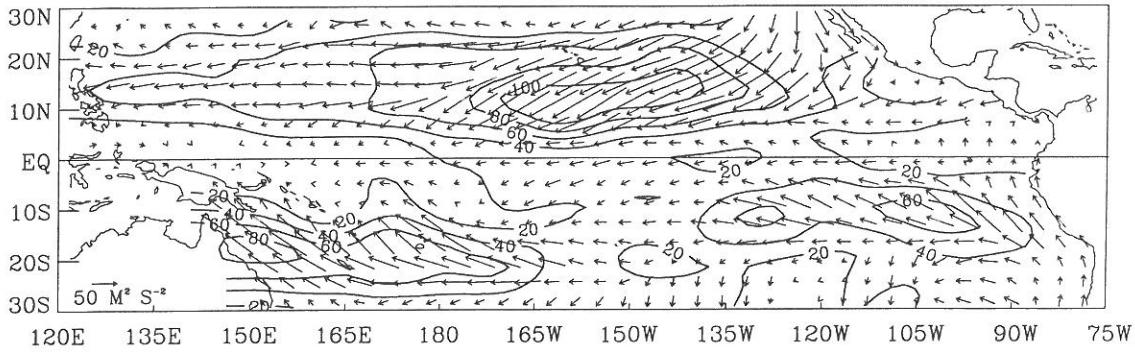
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) March 1994



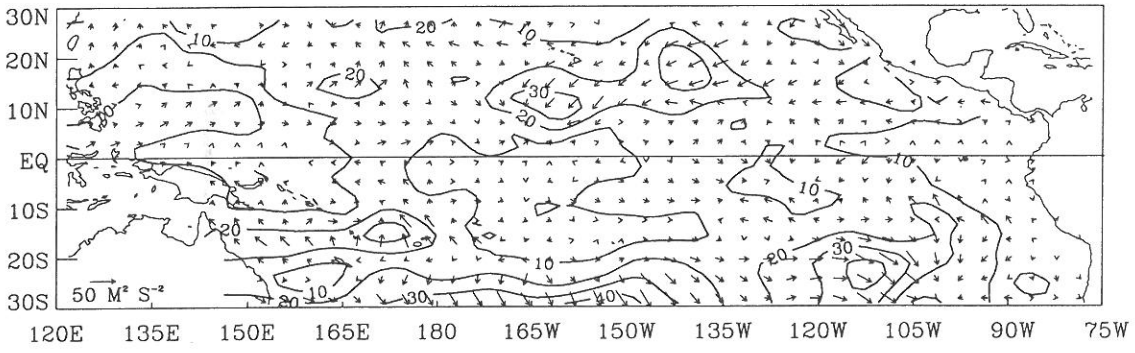
Wind Stress Curl ($x10^{-8}$ N M^{-3}) March 1994



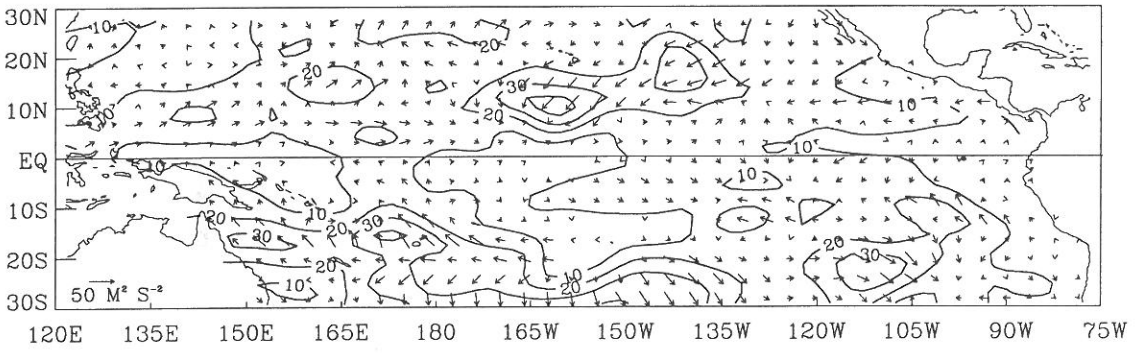
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) April 1994



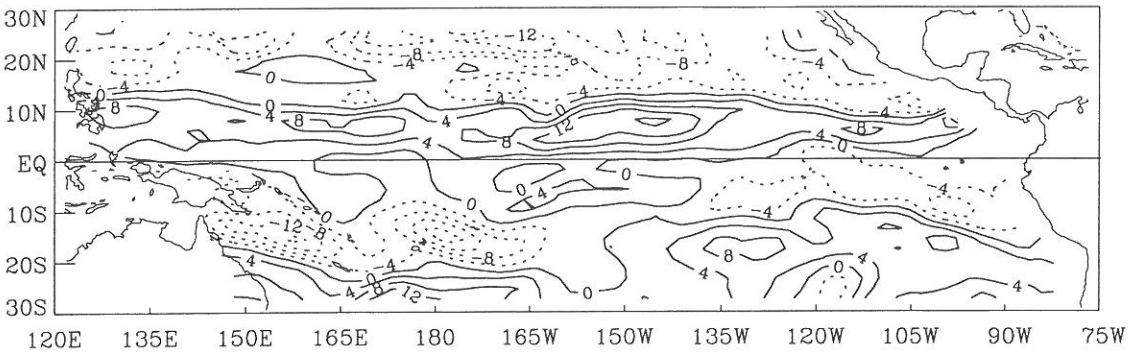
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) April 1994



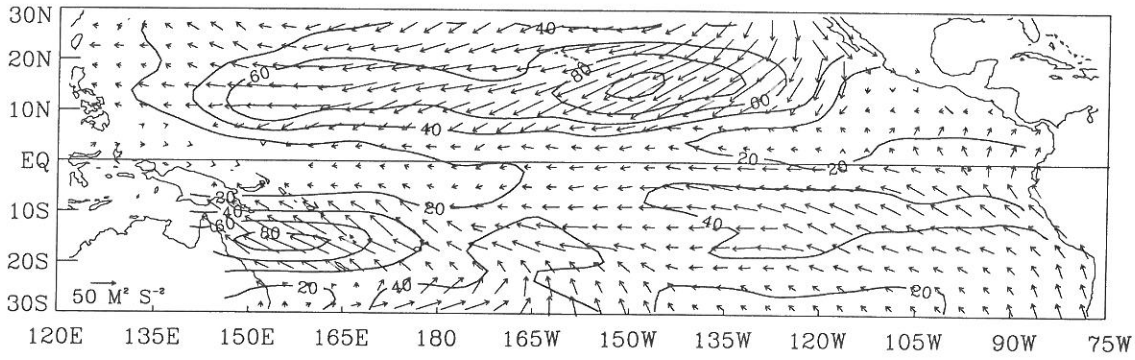
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) April 1994



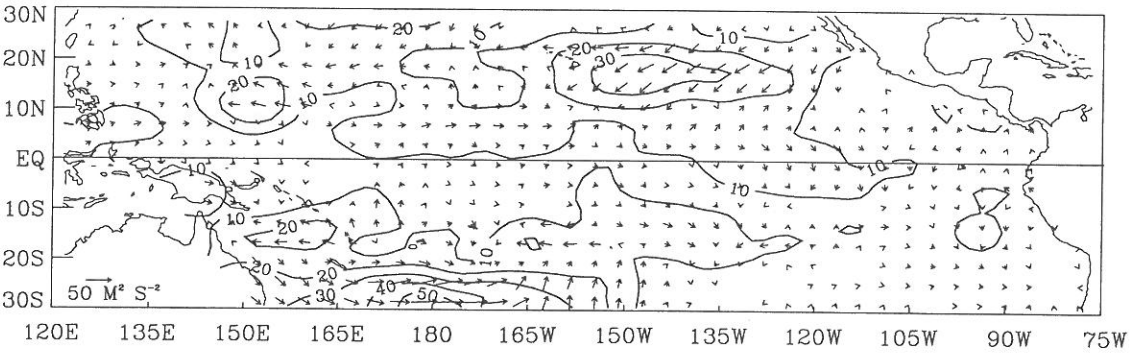
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) April 1994



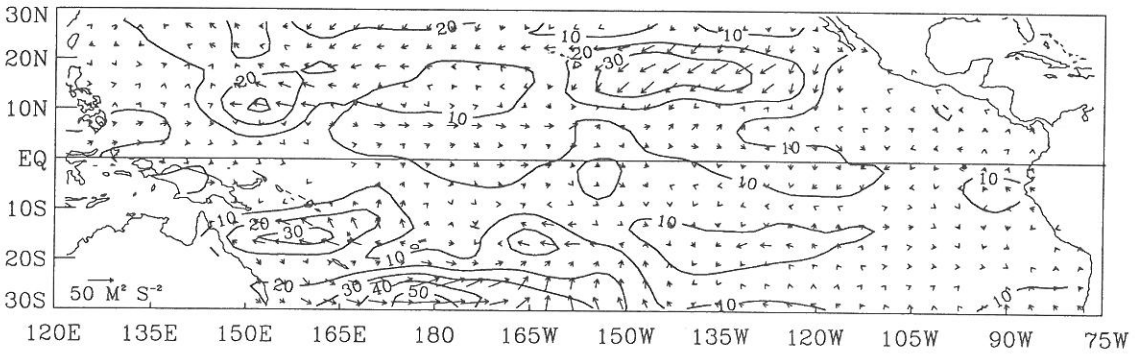
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) May 1994



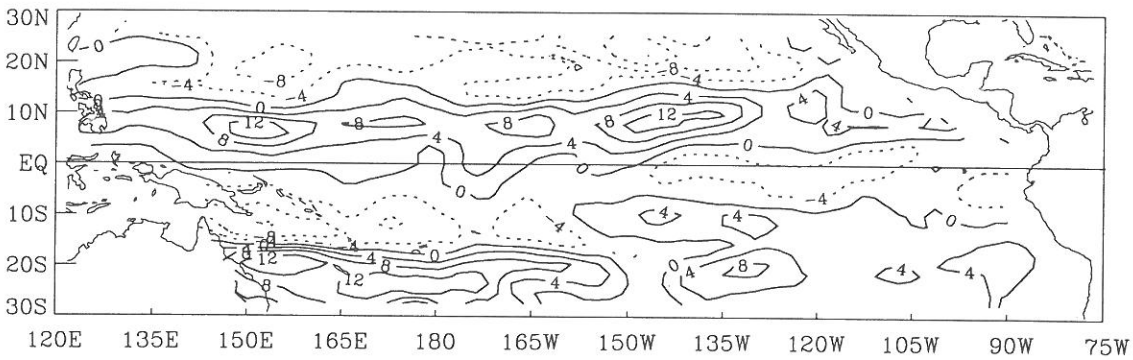
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) May 1994



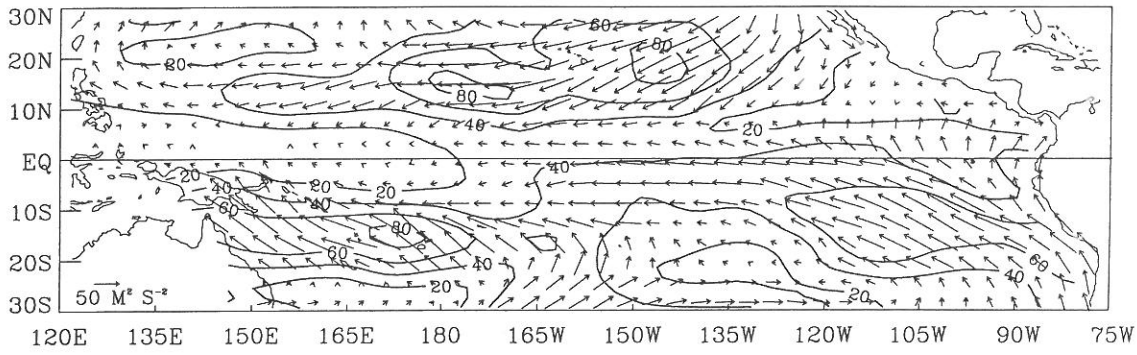
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) May 1994



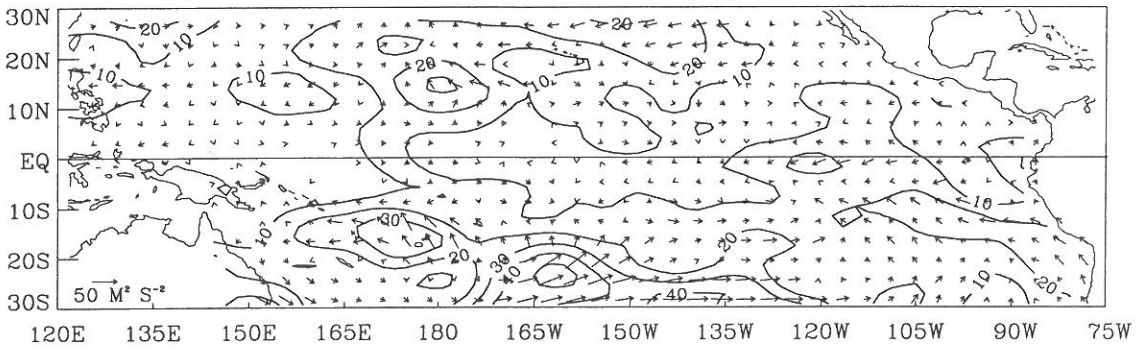
Wind Stress Curl ($x10^{-8}$ N M^{-3}) May 1994



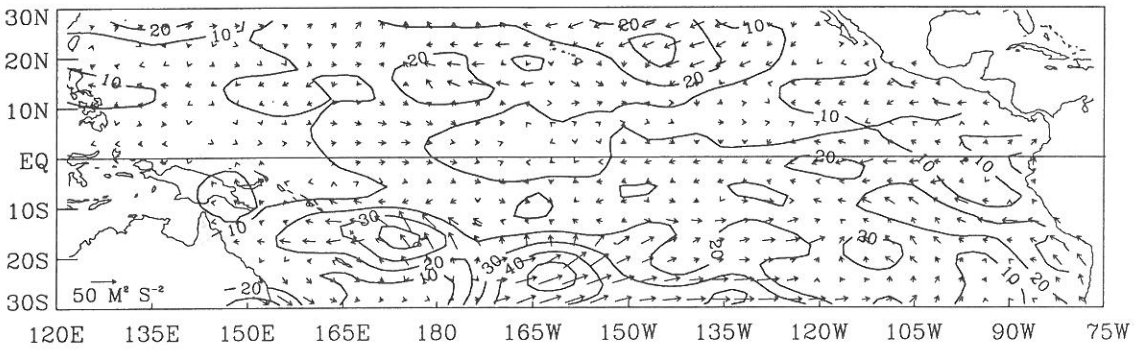
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) June 1994



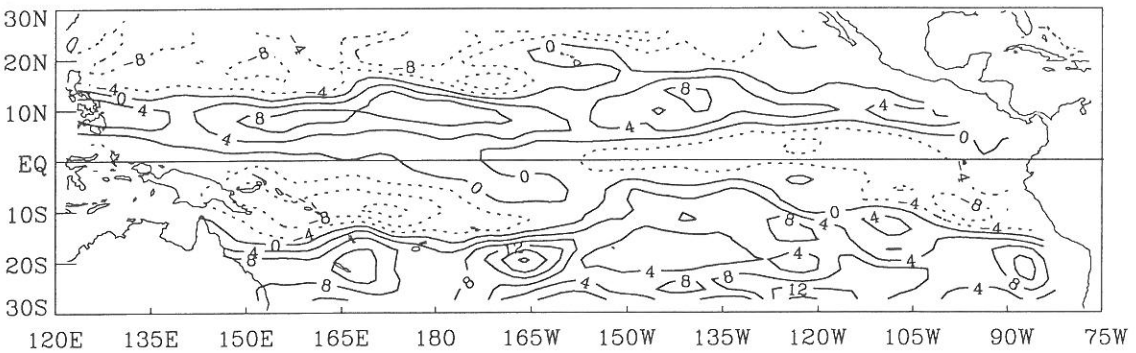
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) June 1994



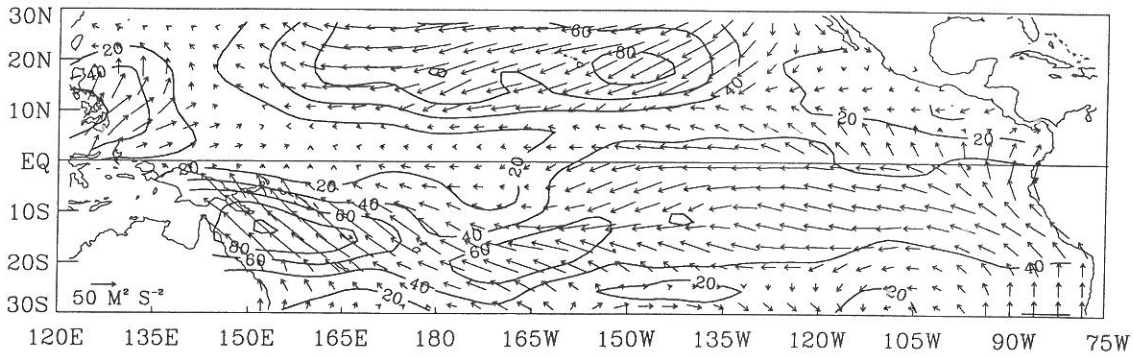
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) June 1994



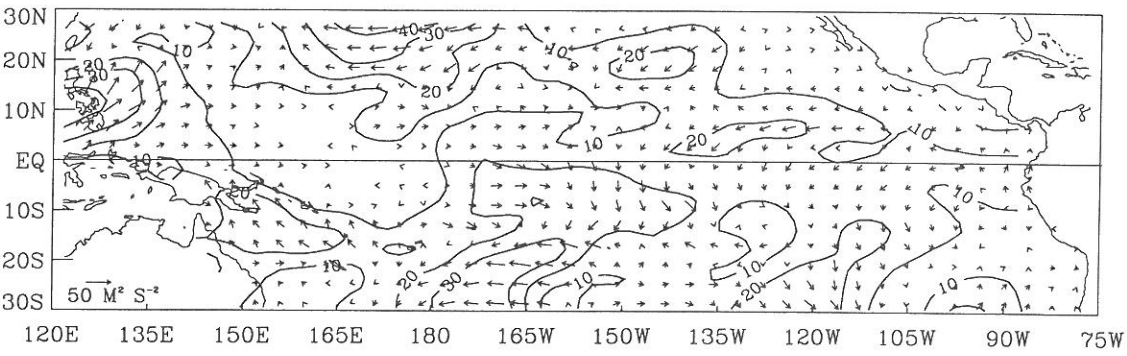
Wind Stress Curl ($x10^{-8}$ N M^{-3}) June 1994



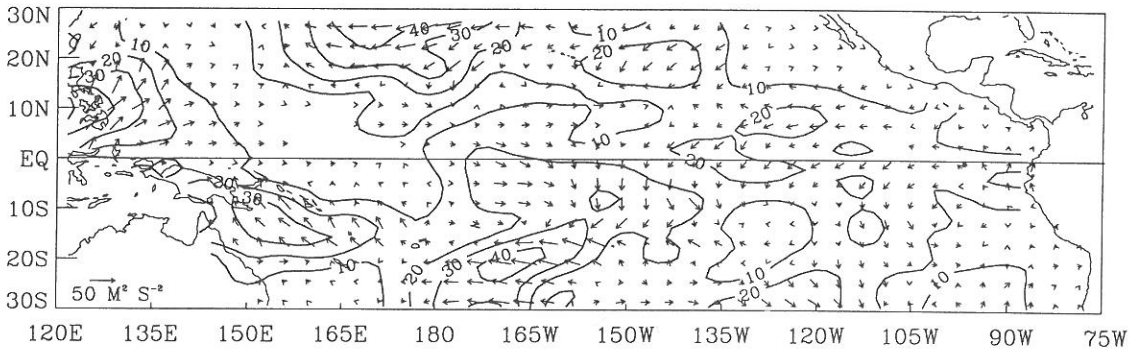
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) July 1994



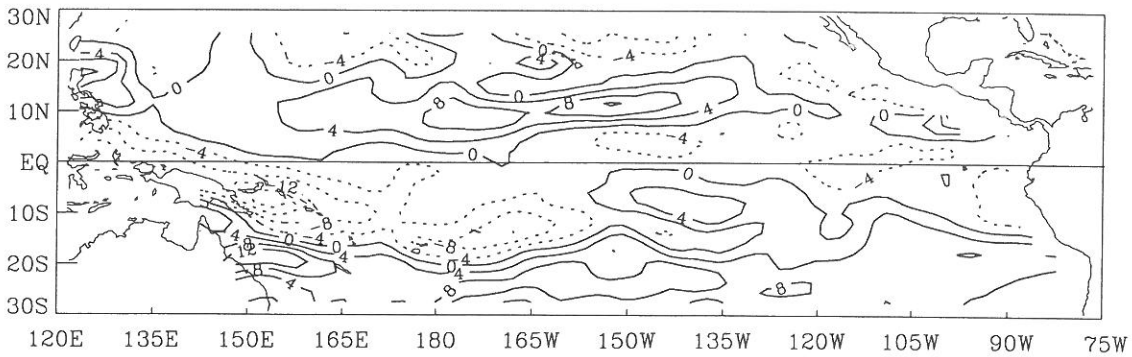
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) July 1994



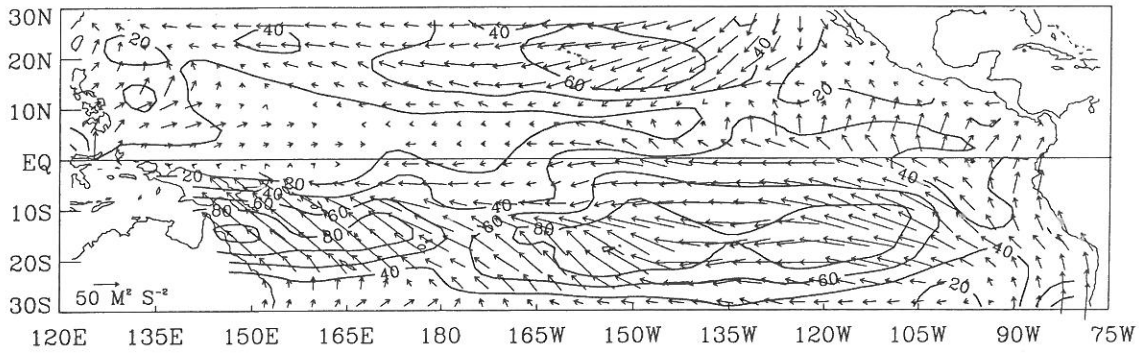
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) July 1994



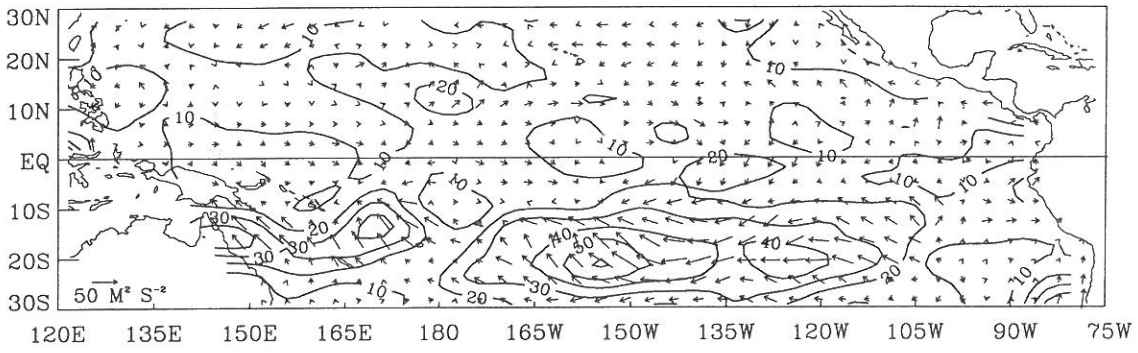
Wind Stress Curl ($x10^{-8}$ N M^{-3}) July 1994



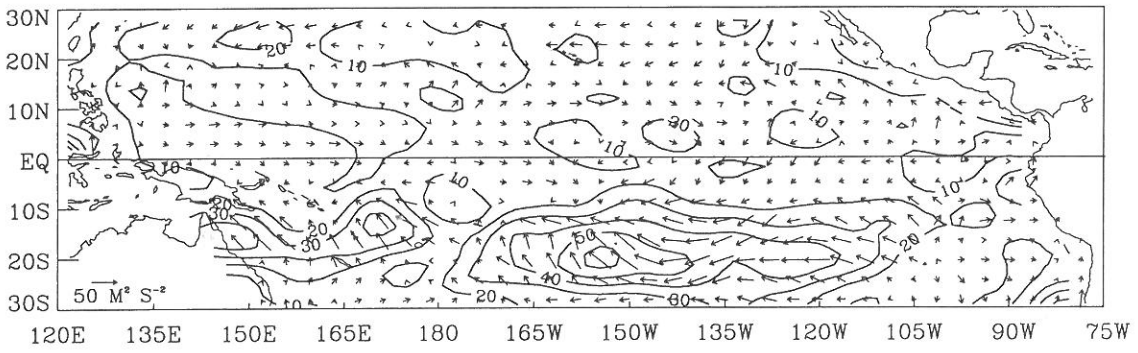
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) August 1994



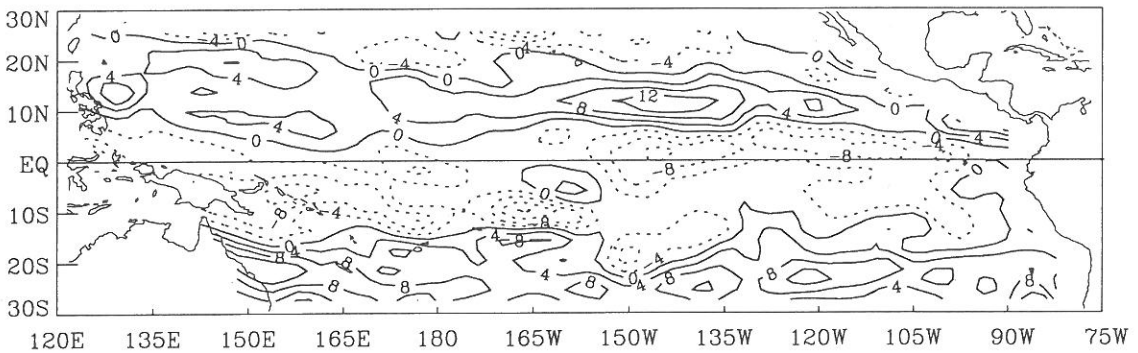
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) August 1994



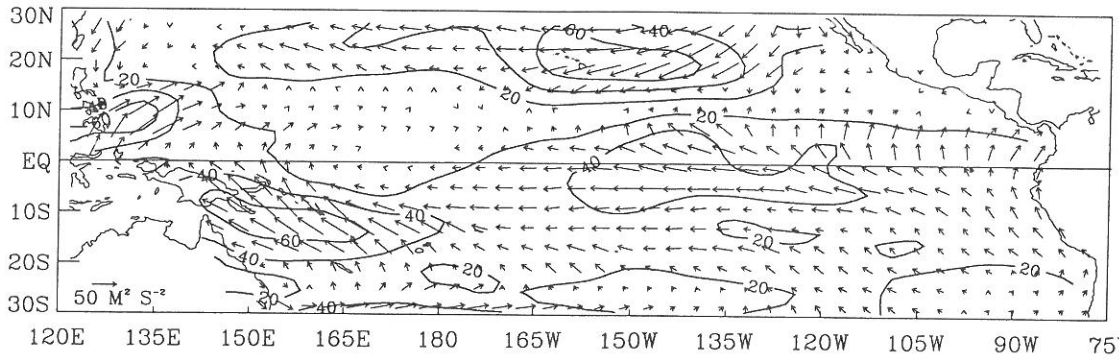
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) August 1994



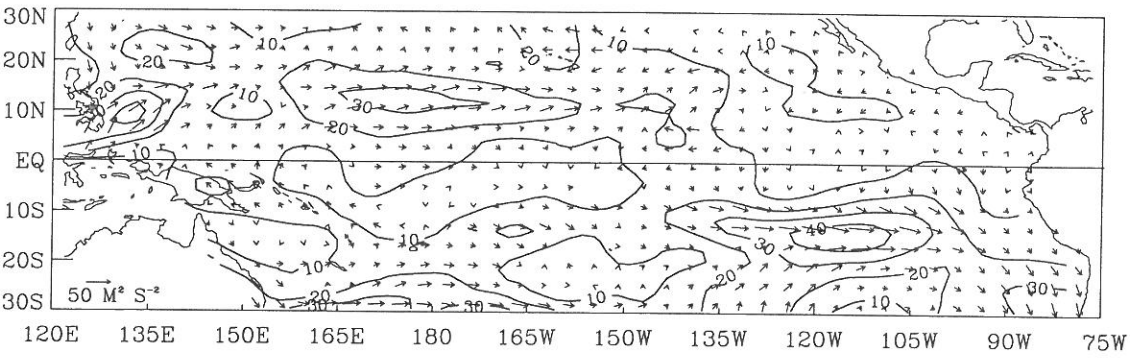
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) August 1994



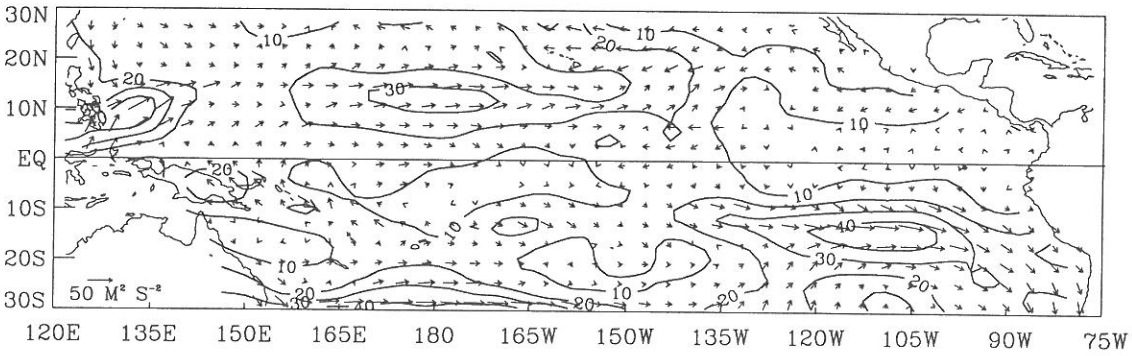
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) September 1994



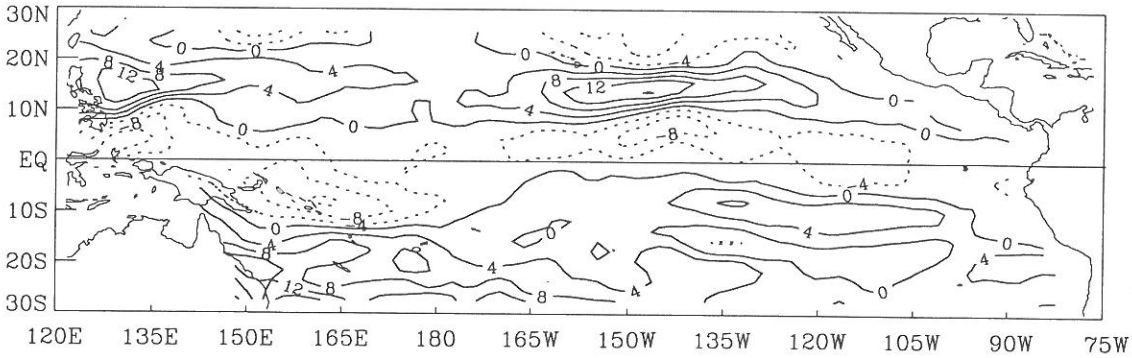
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) September 1994



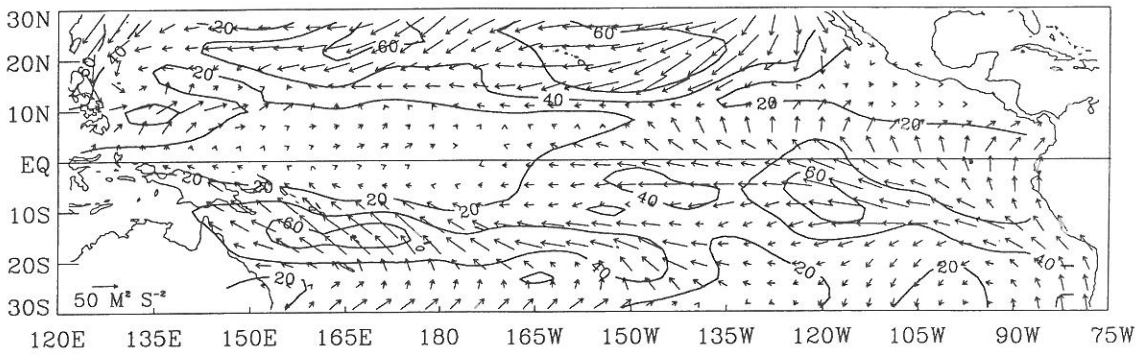
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) September 1994



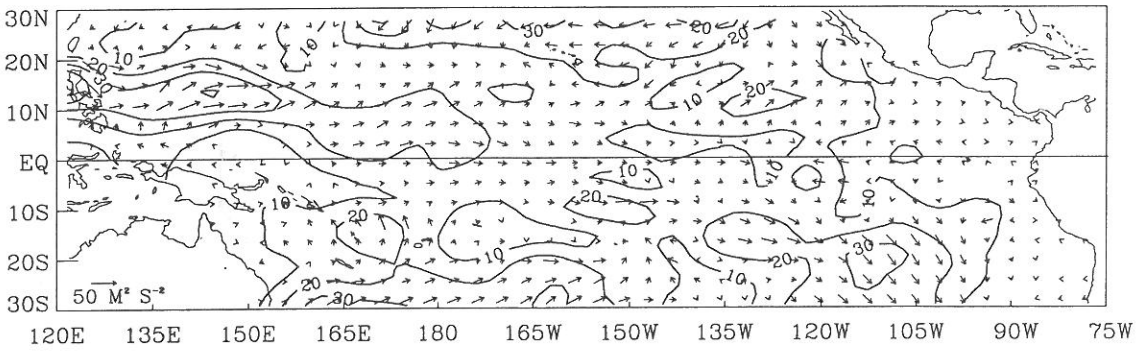
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) September 1994



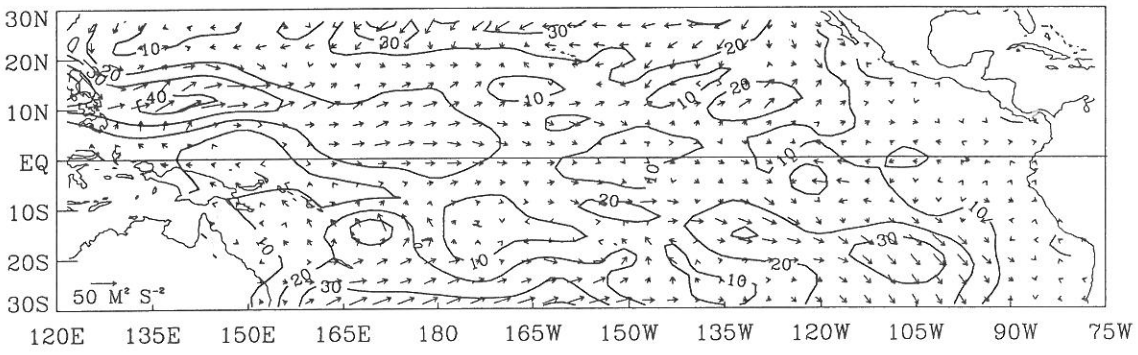
Monthly Mean Pseudo-stress ($M^2 S^{-2}$) October 1994



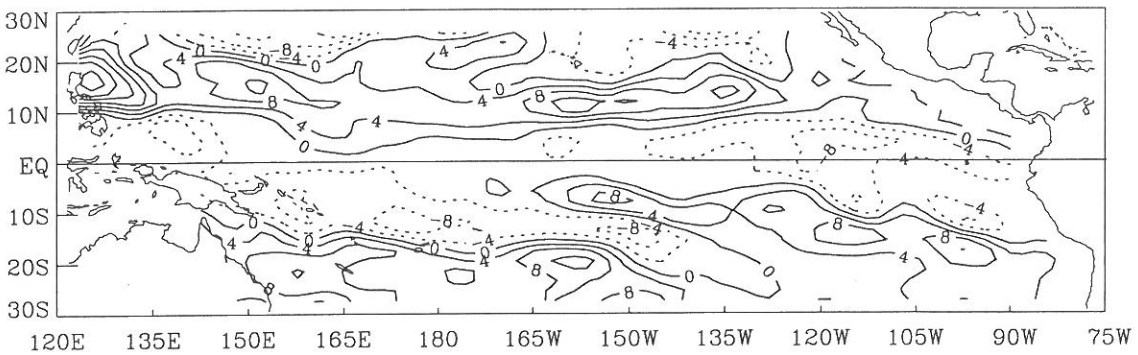
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2 S^{-2}$) October 1994



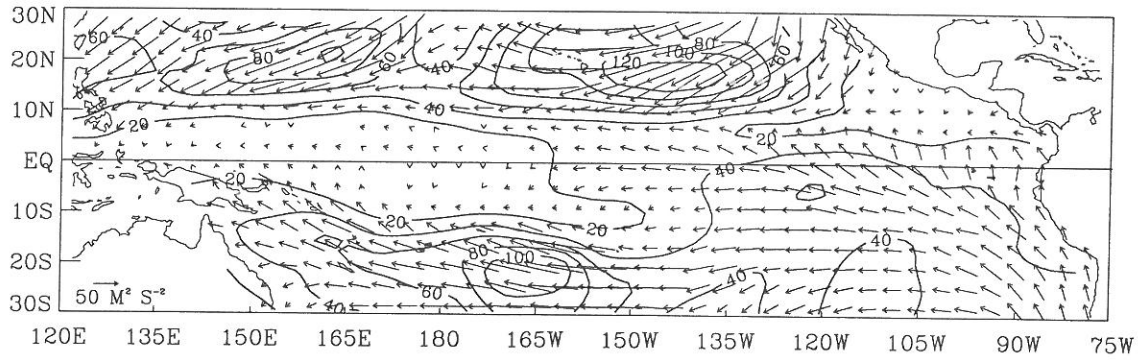
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2 S^{-2}$) October 1994



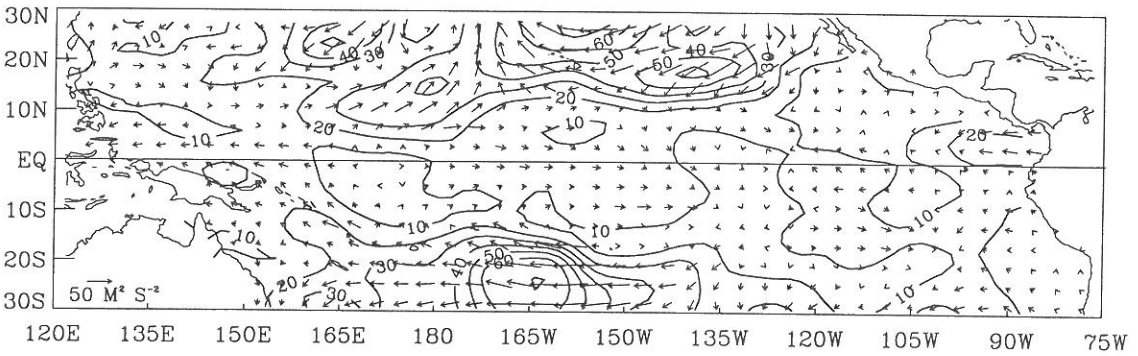
Wind Stress Curl ($x10^{-8}$ N M^{-3}) October 1994



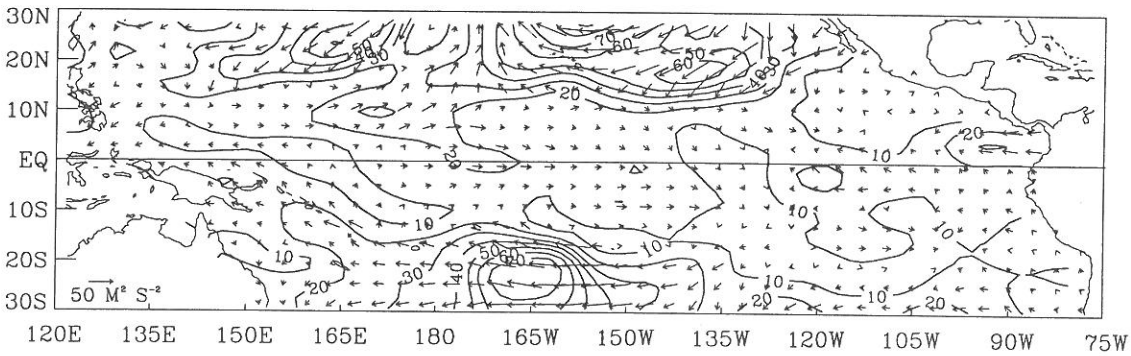
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) November 1994



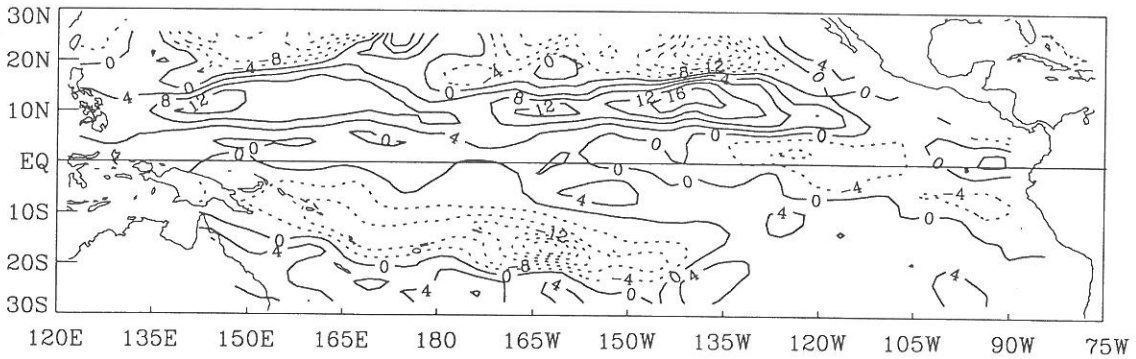
Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) November 1994



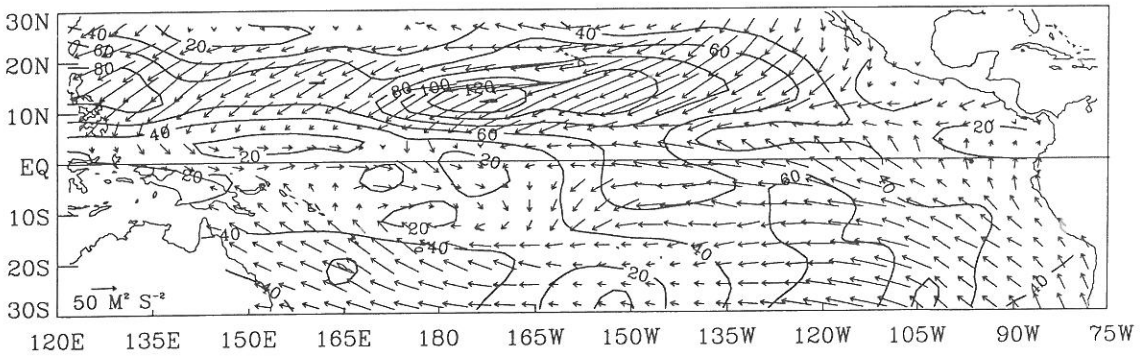
Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) November 1994



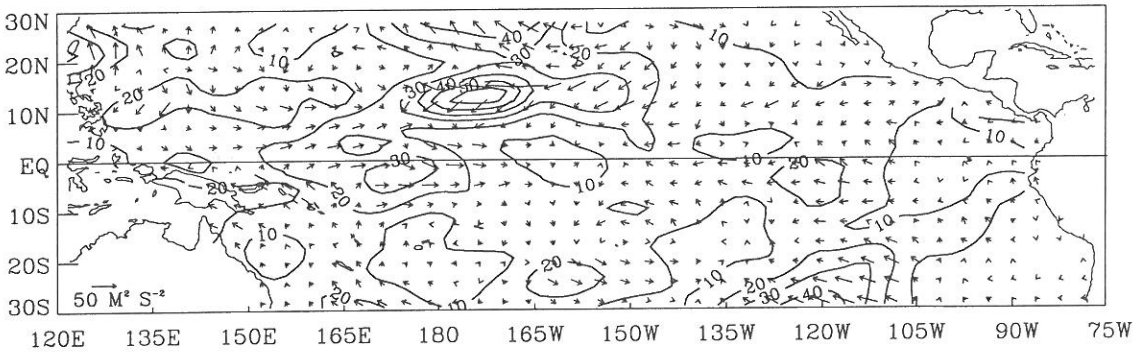
Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) November 1994



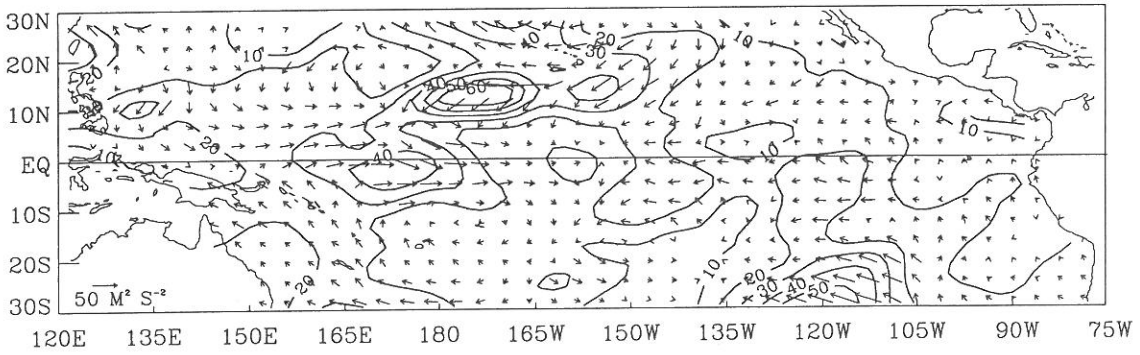
Monthly Mean Pseudo-stress ($M^2\ S^{-2}$) December 1994



Pseudo-stress Anomaly from 1985-1994 Mean ($M^2\ S^{-2}$) December 1994



Pseudo-stress Anomaly from 1966-1995 Mean ($M^2\ S^{-2}$) December 1994



Wind Stress Curl ($x10^{-8}\ N\ M^{-3}$) December 1994