

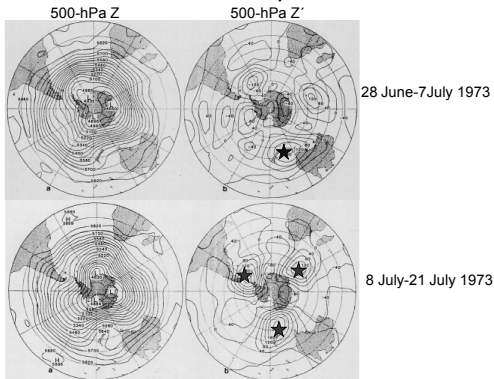
Variabilidad de Baja Frecuencia

- Variabilidad subanual – Bloqueos
- Variabilidad Interanual
 - Southern Annular Mode (SAM)
 - Modos "Pacific-South American (PSA)"
 - Antarctic Circumpolar Wave (ACW)
- Características distintivas de la variabilidad interanual en la región antártica y los océanos australes

Anticiclones de Bloqueo

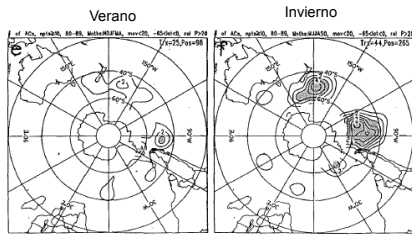
- Son aquellos anticiclones que se localizan en algún lugar de las latitudes medias y persisten allí por varios días.
- Están asociados a debilitamientos de los vientos del oeste.
- Condiciones locales o de escala planetaria pueden favorecer este comportamiento.

Dos Casos de Bloqueo



(Trenberth and Mo, MWR 1985)

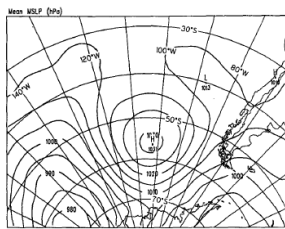
Anticiclones de bloqueo en el HS



Número de Anticiclones que duran mas de 2 días, con anomalías en el centro de más de 20 hPa y que se mueven menos de 20° por día

Sinclair (1996)

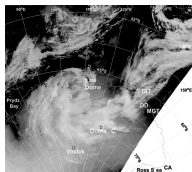
Anticiclones en el Pacífico Sudeste



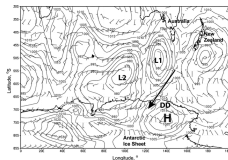
Composición de los anticiclones en el Pacífico SE en el invierno

Sinclair (1996)

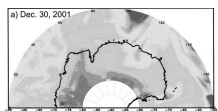
Bloqueos y precipitación en la Antártida



Mosaico AVHRR (resolución 4 km) en Antártica del Este, 0135 UTC, 29 Dic 2001, DIT: Dibble Iceberg Tongue, DD: Dumont d'Urville, MGT: Mertz Glacier Tongue, and CA: Cape Adare.



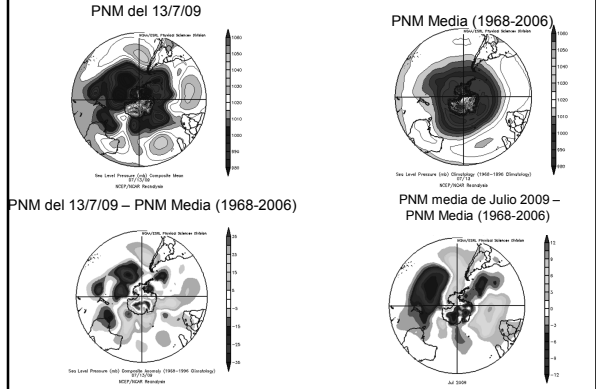
MSLP (hPa) y vectores viento en sigma 0.991 28 Dic 2001 (0000 UTC), DD: Dumont d'Urville



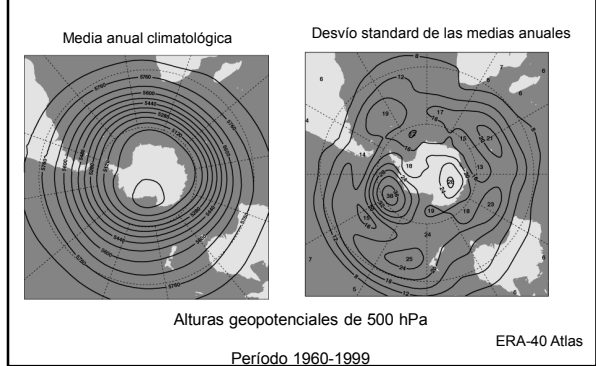
Agua precipitable el 9 de Enero de 2002

Massom et al. (2004)

Variabilidad climática en escalas interanuales



Variaciones inter- anuales de la Circulación atmosférica del Hemisferio Sur



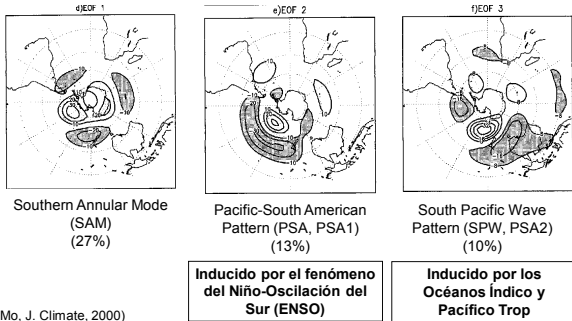
Técnica de funciones ortogonales empíricas

- The Empirical Orthogonal Function (EOF) technique aims at finding a new set of variables that capture most of the observed variance from the data through a linear combination of the original variables.

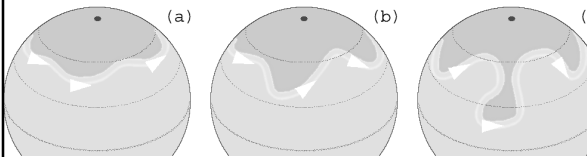
$$Q(x, y, t) = \sum_{k=1}^K EOF_k(x, y) \cdot PC_k(t)$$

- Kutzbach, J. E., 1967: Empirical eigenvectors of sea-level pressure, surface temperature and precipitation complexes over North America. *J. ppl.Meteor.*, 6, 791-802.
- Von Storch, H., and F. W. Zwiers, 1999: *Statistical Analysis in Climate Research*, Cambridge University Press, Cambridge

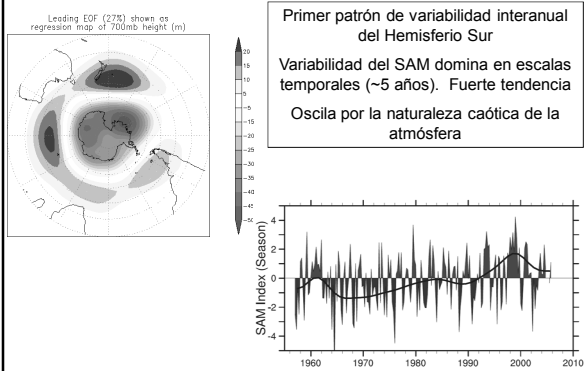
Patrones principales de variabilidad interanual obtenidos a partir de un análisis de EOF de los campos trimestrales de alturas geopotenciales en 500 hPa

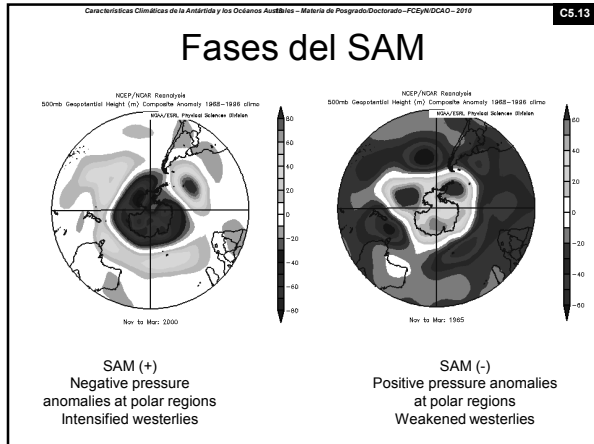


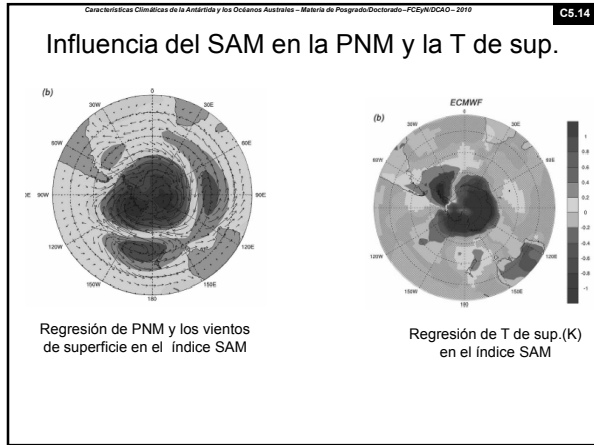
Los tres patrones están asociados con ondas de Rossby planetarias

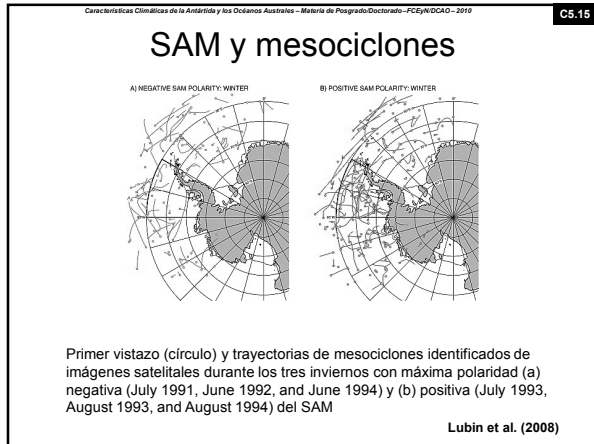


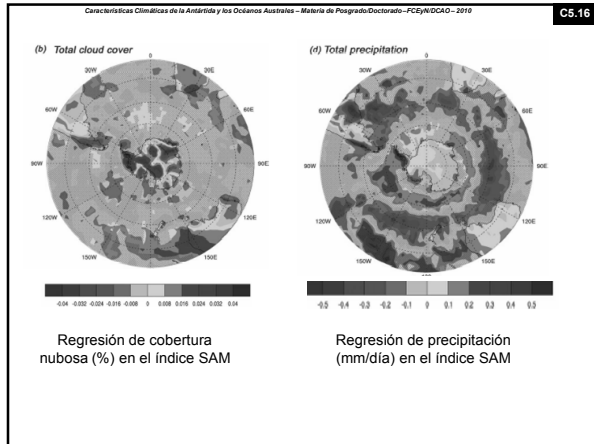
SOUTHERN ANNULAR MODE (SAM)

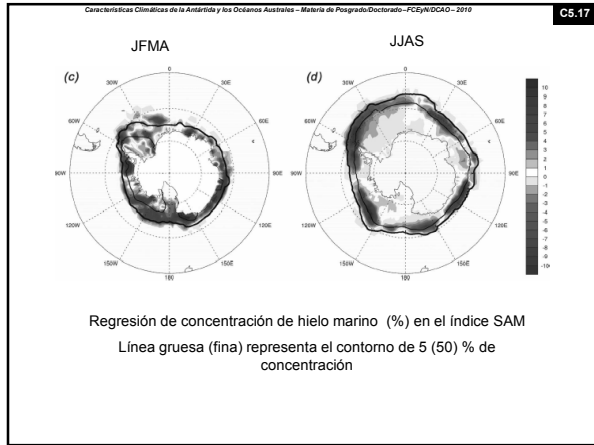








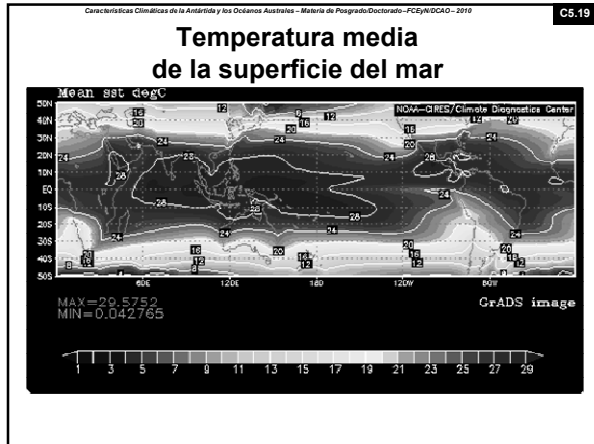


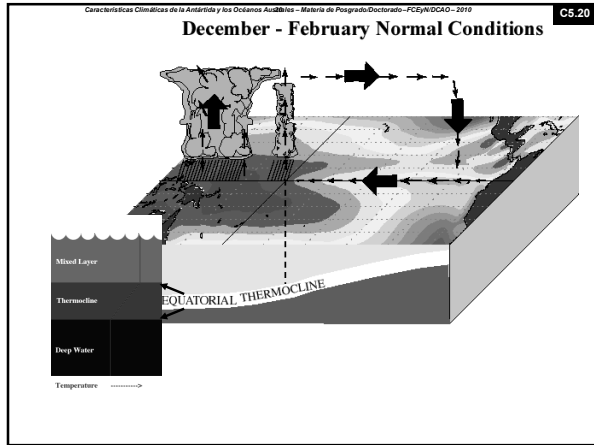


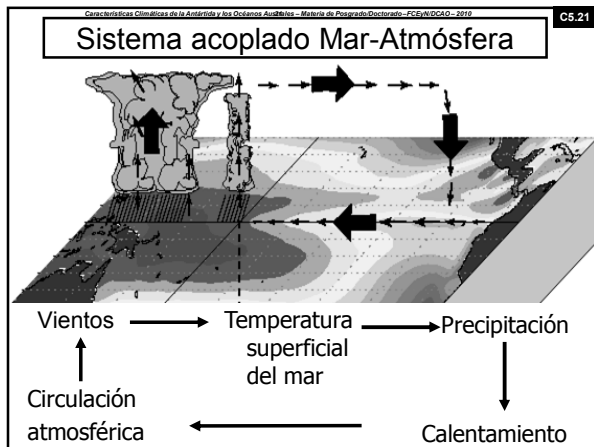
Características Climáticas de la Antártida y los Océanos Australes – Materia de Posgrado/Doctorado – FCEYN/DCIAO – 2010 C5.18

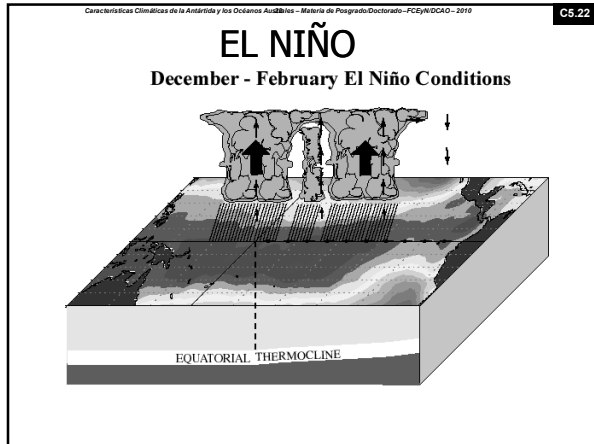
Fenómeno del Niño-
Oscilación del Sur

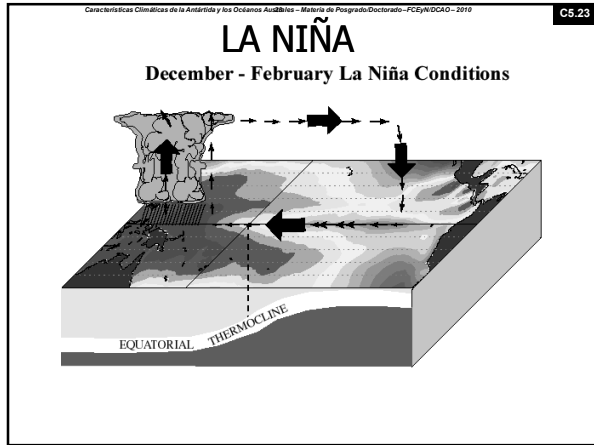
(ENSO)

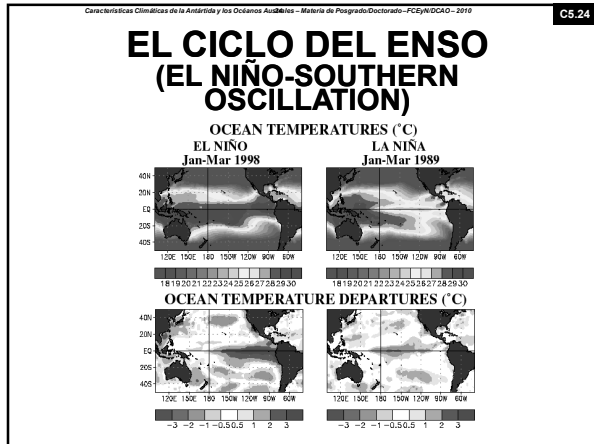


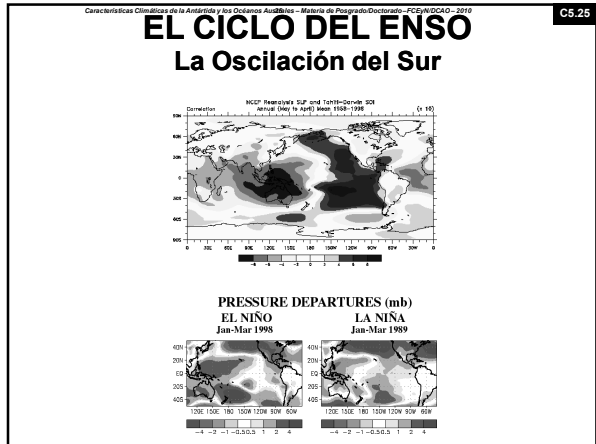


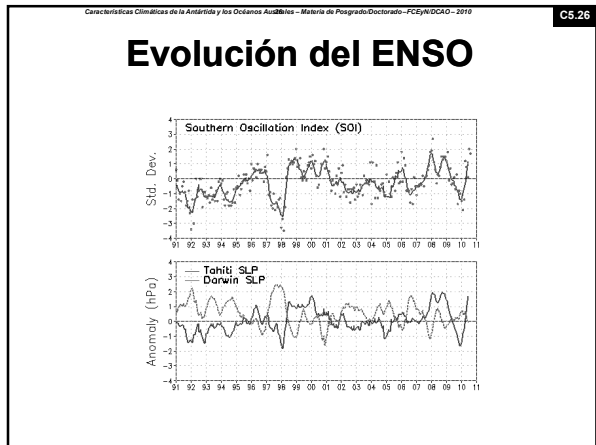


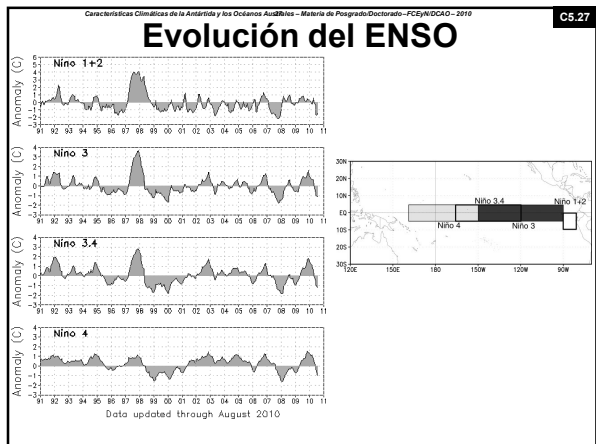


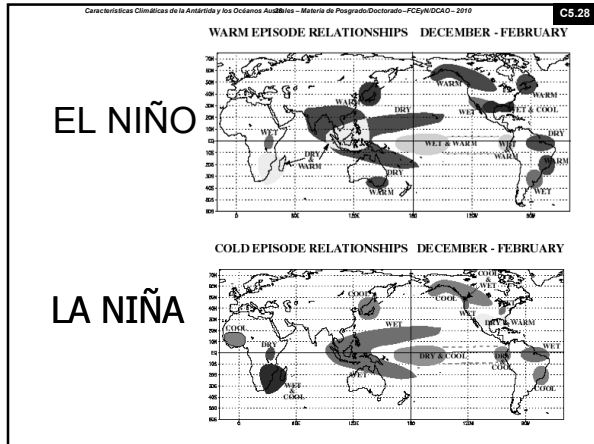


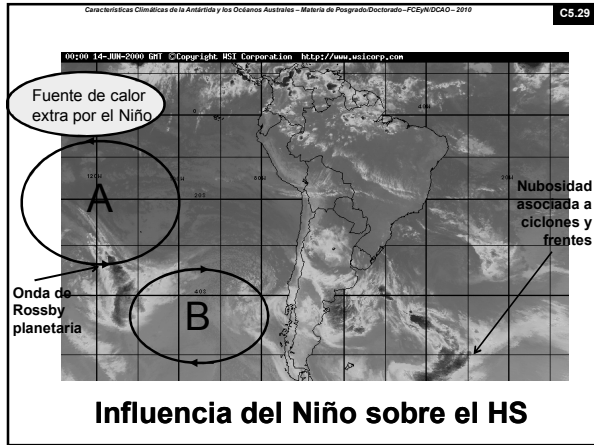


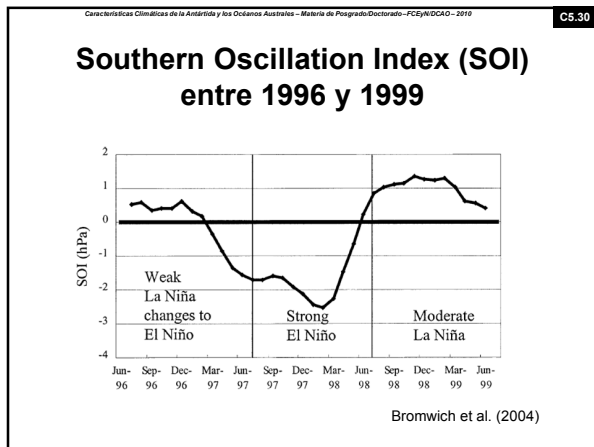




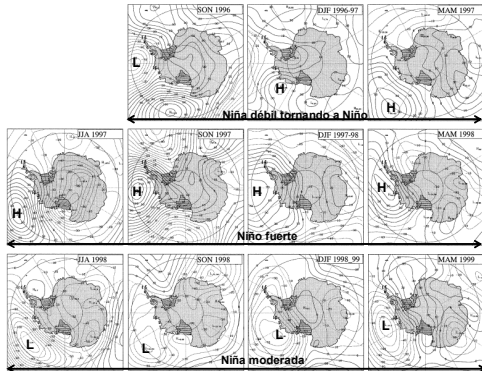


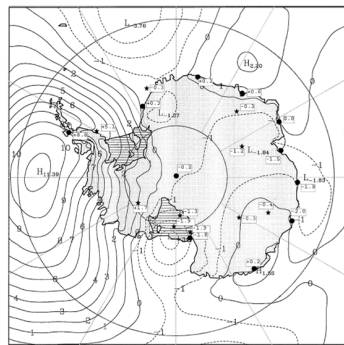




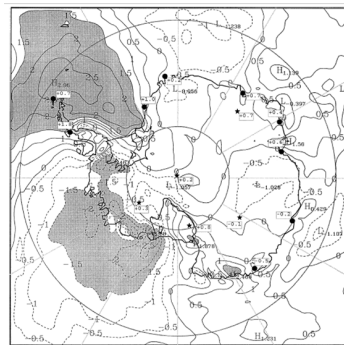


Secuencia de anomalías trimestrales de anomalías de altura geopotencial de 500 hPa

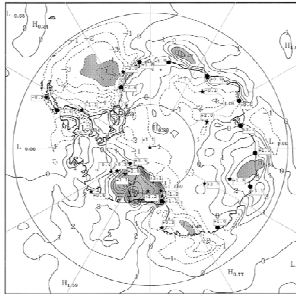




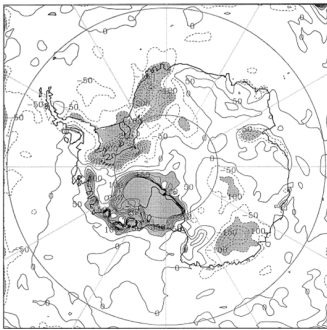
Diferencias de viento meridional entre Julio 1997 - Junio 1998 (Niño) - Junio 1998 y Junio 1999 (Niña)



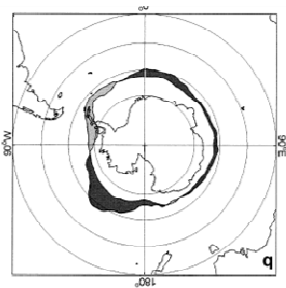
Diferencias de viento meridional entre Julio 1997 - Junio 1998 (Niño) y Junio 1998 y Junio 1999 (Niña)



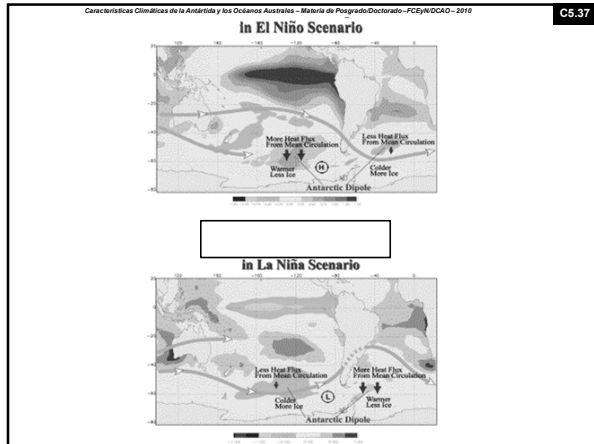
Diferencias de temperatura de superficie entre MAM 1997 (Niño) y MAM 1999 (Niña)

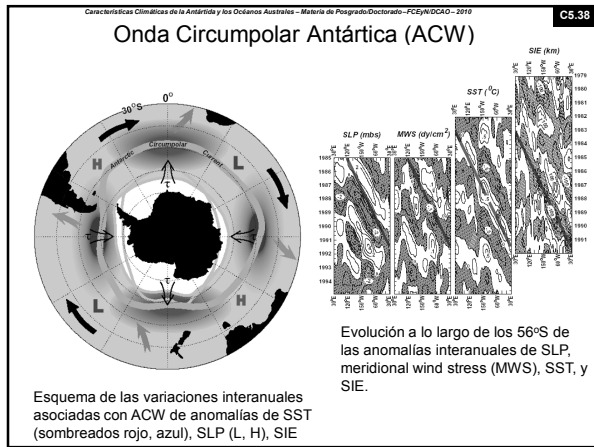


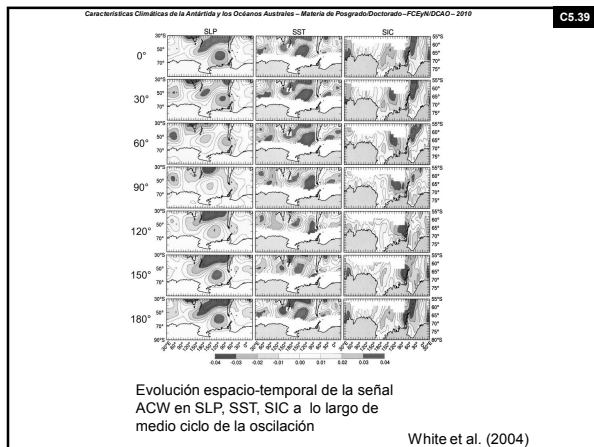
Diferencias de precipitación entre DEF 1998/1999 (Niña) y DEF 1997/1998 (Niño)



Anomalías de extensión de hielo marino (SIE) durante la Niña
 Aumentos (decrecimientos) de SIE en oscuro (claro) con respecto a la posición climatológica

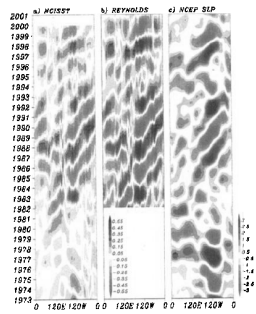






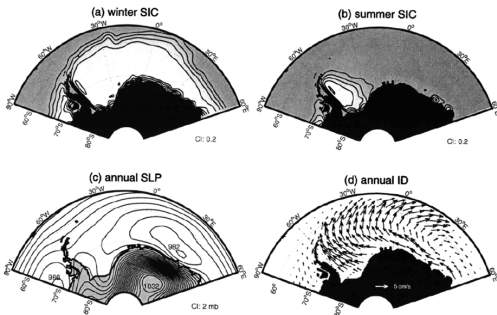
Variabilidad de baja frecuencia de la ACW

Hovmoeller de las anomalías de SST y SLP a lo largo de los 56°S



Carril and Navarra (2001)

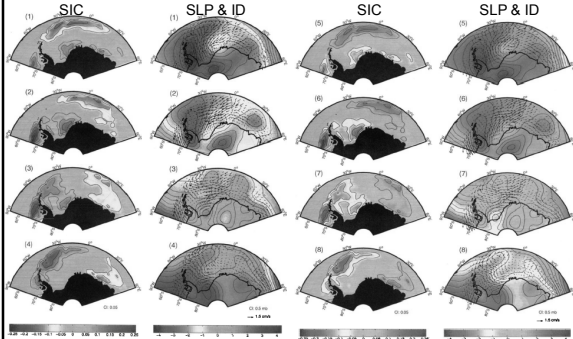
Variabilidad atmósfera-océano-hielo en el Mar de Weddell



Medias climatológicas (1979-1998)

Venegas and Drinkwater (2001)

Variabilidad atmósfera-océano-hielo en el Mar de Weddell

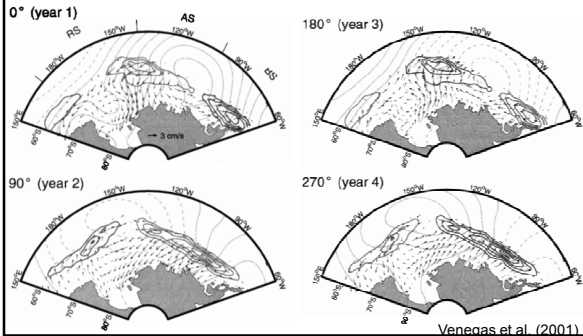


Evolución cada 6 meses del patrón dominante

Venegas and Drinkwater (2001)

Variabilidad interanual atmósfera-océano-hielo en el sector del Pacífico Sur

Patrones espaciales reconstruidos de SIC (rojo, azul), SLP (verde), ID (vectores)



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