

DISCIPLINA: VARIABILIDADE CLIMÁTICA: CONCEITOS E APLICAÇÕES PARA A AMÉRICA DO SUL

Linha de Pesquisa: Dinâmica e gestão ambiental em zona subtropical

Carga-horária: 60 h.....**Créditos:** 04

Ementa: Variabilidade climática. Padrões de teleconexão oceanoatmosfera:ENOS, PDO, NAO, AMO, GMAT. Efeitos da variabilidade da Temperatura da Superfície do Mar (TSM) no clima da América do Sul. Aplicações de estatística básica à compreensão da variabilidade climática na América do Sul.

Bibliografia

- AMBRIZZI, T. El Niño/Oscilação Sul e teleconexões atmosféricas no hemisfério austral. São Paulo: USP/IAG, 2003. (Tese de Livre-Docência).
- ASHOK, K. et al. El Niño Modoki and its possible teleconnection. *Journal of Geophysical Research*. Vol. 112, C11007 (27p.), 2007.
- BERBERRY, E.H.; NOGUÉS-PAEGLE, J.; HOREL, J.D.: Wavelike Southern Hemisphere extratropical teleconnections. *Journal of the Atmospheric Sciences*. Vol. 49, p. 155-177, 1992.
- BJERKNES, J. Atmospheric teleconnections from the equatorial Pacific. *Monthly weather review*. Vol. 97, n. 3, p. 163-172, mar. 1969.
- CAVALCANTI, I.F.A. et al. (org.). *Tempo e clima no Brasil*. São Paulo: Oficina de Textos, 2009.
- DESER, C.; ALEXANDER, M. A.; XIE, S.-P.; PHILLIPS, A.S. Sea Surface Temperature variability: patterns and mechanisms. *Annual Review of Marine Science*. Vol. 2, p. 115-143, 2010.
- GRIMM, A.M.; AMBRIZZI, T. Teleconnections into South America from the Tropics and Extratropics on Interannual and Intraseasonal timescales. In: VIMEUX, F.; SYLVESTRE, F.; KHODRI, M. *Past climate variability in South America and Surrounding Regions: from the last glacial maximum to the Holocene*. 14^a ed. USA: Springer, 2009, p. 159-191.
- LIEBMANN, B. et al. An observed trend in Central South American Precipitation. *Journal of Climate*. Vol. 17, p.4357-4367, nov. 2004
- MANTUA, N.J., et al. A Pacific decadal climate oscillation with impacts on salmon. *Bulletin of the American Meteorological Society*, Vol. 78, p. 1069- 1079, 1997.
- MARENGO, J.A. Long-term trends and cycles in the hydrometeorology of the Amazon basin since the late 1920s. *Hydrological processes*. N. 23, p. 3236-3244, 2009.
- McPHADEN, M.J.; LEE, T.; McCLURG, D. El Niño and its relationship to changing background conditions in the tropical Pacific Ocean. *Geophysical Research Letters*. Vol. 38, L15709 (4p.), 2011.
- McPHADEN, M.J. A 21st Century shift in the relationship between ENSO SST and warm water volume anomalies. *Geophysical Research Letters*. Vol. 39, L09706 (5p.), 2012.
- MENDONÇA, F. & DANNI-OLIVEIRA, I.M. *Climatologia: noções básicas e climas do Brasil*. São Paulo: Oficina de textos, 2007. 206p.
- NOBRE, P.; SHUKLA, J.. Variations of sea surface temperature, Wind stress, and rainfall over the Tropical Atlantic and South America. *Journal of Climate*. Vol. 9, p. 2464-2479, out. 1996.

- RODRIGUES, R.R.; HAARSMA, R.J.; CAMPOS, E.J.D.; AMBRIZZI, T. The impacts of inter-El Niño variability on the Tropical Atlantic and Northeast Brazil climate. *Journal of Climate*. Vol. 24, n. 13, p. 3402-3422, jul. 2011.
- ROGERSON, P.A. *Métodos estatísticos para Geografia: um guia para o estudante*. 3^aed. Porto Alegre: Bookman, 2012.
- SOUZA, E.B. et al. On the influence of the El Niño, La Niña and Atlantic Dipole pattern on de Amazonian rainfall during 1960- 1998. *Acta Amazônica*. Vol. 30, n. 2, p. 305-318, 2000.
- UVÖ, C.B.; et al. The relationship between Tropical Pacific and Atlantic SST and Northeast Brazil Monthly precipitation. *Journal of Climate*, vol. 11, p. 551-563, abr. 1998.
- WELLS, N. *The atmosphere and ocean: a physical introduction*. 2^aed. Chichester: John Wiley & Sons, 1998

Bibliografia complementar

- BLACKMON, M.L., LEE, Y.-H; J.M.; WALLACE, J.M.: Horizontal structure of 500 mb height fluctuations with long, intermediate and short time scales. *Journal of Atmospheric Science*, vol. 41, p. 961-979, 1984a.
- _____, ____, ____; HSU, H. -H. Time variations of 500 mb height fluctuations with long, intermediate, and short time scales as deduced from lag correlation statistics. *Journal of Atmospheric Science*, vol. 41, p. 981-991, 1984b.
- COCKELL, C. (org.) *Sistema Terra-Vida: uma introdução*. São Paulo: Oficina de Textos, 2011.
- ESRL/PSD/NOAA. Monthly/Seasoanal Climate Composites. Disponível em <<http://www.esrl.noaa.gov/psd/cgi-bin/data/composites/printpage.pl>>. Acesso em 31 out. 2013.
- KAGAN, B. A. *Ocean-atmosphere interaction and Climate Modeling*. Tradução M. A. Chazin. Cambridge: Cambrigde University Press, 1995.
- MAKARIEVA, A.M.; et al. Where do winds come from? A new theory on how water vapor condensation influences atmospheric pressure and dynamics. *Atmospheric Chemistry and Physics*. Vol. 13, p. 1039-1056, 2013.
- MAKARIEVA, A.M.; et al. Why does air passage over forest yield more rain? Examining the coupling between rainfall, pressure, and atmospheric moisture content. *Journal of Hydrometeorology*. Vol. 15, p. 411-426, 2014.
- SUGUIO, K. As mudanças paleoclimáticas da terra e seus registros com ênfase no Quaternário. In: *Variabilidade e mudanças climáticas: implicações ambientais e socioambientais*. Maringá: Eduem, 2000. P.29-47.
- WILKS, D.S. *Statistical Methods in the Atmospheric Sciences*. 2^a ed. San Diego - CA: Elsevier, 2006