האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

SYNOPTIC CLIMATOLOGY OF THE MEDITERRANEAN - 40458

Last update 02-11-2017

HU Credits: 3

Degree/Cycle: 2nd degree (Master)

Responsible Department: geography

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: Prof. Uri Dayan

Coordinator Email: msudayan@mscc.huji.ac.il

Coordinator Office Hours: Wed. 11:30-12:30

Teaching Staff:
Prof Uri Dayan

Course/Module description:
Fundamentals and explaining the concept of Synoptic Meteorology
Israel and the global circulation system.
Dynamic conditions leading to upper air support toward development of a surface winter storm
Synoptic and Dynamic conditions during summer and winter.
Evolution of a cold spell over the EM and its dissipation.
Synoptic and Dynamic conditions characterizing the transitional seasons.

Course/Module aims:
Understanding of the relationships existing between surface and upper layers of synoptic systems and their ensuing weather. .

Learning outcomes - On successful completion of this module, students should be able to:
Understanding of the relationships existing between surface and upper layers of synoptic systems and their ensuing weather. .

Attendance requirements(%):
100

Teaching arrangement and method of instruction: Frontal teaching

Course/Module Content:
See course description above

Required Reading:
NR

Additional Reading Material:
Dayan, U., R. Shenhav and M. Graber. (1988) The Spatial and Temporal Behavior of the Mixed Layer in Israel. Journal of Applied Meteorology, 27, December 1988, pp. 1382-1394.
Damato, F., Planchon, O. and Dubreuil, V., 2003: A remote-sensing study of the

inland penetration of sea-breeze fronts from the English Channel, Weather, 58(6), 219-226.
Lensky, I. M. and U. Dayan: Continuous detection and characterization of the Sea Breeze in clear sky conditions using Meteosat Second Generation, Atmos. Chem. Phys. Discuss., 11, 33357-33377, doi:10.5194/acpd-11-33357-2011, 2011.
Alpert, P., B.U. Neeman and Y. Shay-El, 1990: Climatological analysis of Mediterranean cyclones using ECMWF data, Tellus (1990), 42A, 65-77.
P. Alpert, B.U. Neeman and Y. Shay-El, "Intermonthly variability of cyclone tracks in the Mediterranean", J. Climate, 3, 1474-1478, 1990.
Zangvil, A., Druyan, P., 1990. Upper air trough axis orientation and the spatial distribution of rainfall over Israel. International Journal of. Climatology 10, 57–62.
Ziv B. U Dayan,., Y. Kushnir ,C. Roth, and Y. Enzel (2006): Regional and Global Atmospheric Patterns Governing Rainfall in the Southern Levant. International Journal of Climatology .26, 55-73.
Ziv, B., U. Dayan, and D. Sharon (2004): A Mid-Winter, Tropical Extreme Flood-Producing Storm in Southern-Israel: Synoptic Scale Analysis. Meteorology and Atmospheric Physics DOI, 10.1007/s00703-003-0054-7.
Dayan, U.., B. Ziv, A. Margalit, E. Morin and D. Sharon (2001): A Severe Autumn Storm Over the Middle-East: Synoptic and Mesoscale Convection. Theoretical and Applied Climatology, 69, 103-122.
Kahana, R., B. Ziv, Y. Enzel and U. Dayan (2002): Synoptic Climatology of Major Floods in the Negev Desert, Israel. International Journal of Climatology 22, 867-882.
Krichak, SO, Alpert, P., Krishnamurti, TN, (1997a): Interaction of topography and tropospheric flow – A possible generator for the Red Sea trough? Meteorol. Atmos. Physics, 63, 149-158.
12. Krichak, SO, Alpert, P., Krishnamurti, TN, (1997b): Red Sea Trough/Cyclone development – Numerical investigations, Meteorol. Atmos. Physics, 63, 159-169.
Rubin , S., B. Ziv and N. Paldor, 2007: Tropical plumes over Eastern north Africa, as a source of rain in the Middle East, Monthly weather Review, 135, 4135-4148.
Dayan, U. and E. Morin (2006): Flash Flood-Producing rainstorms over the Dead Sea, Israel: A Review, in Enzel, Y., Agnon, A., and Stein, M., eds., New Frontiers in Dead Sea paleoenvironmental research: Geological Society of America Special Paper 401, doi: 10.1130/2006/2401(04).
Morin, E., N. Harats, Y. Yacoby, S. Arbel, M. Getkar, A. Arazi, T. Grodek, B. Ziv, and U. Dayan (2007): Studying the Extremes: Hydrometeorological Investigation of a Flood- Causing Rainstorm over Israel. Advances in Geosciences, 12, 1-8.
Kahana, R., B. Ziv, U. Dayan, and Y. Enzel (2004): Atmospheric Predictors for Major Floods in the Negev Desert, Israel. International Journal of Climatology 24, 1137-1147.

Grading Scheme:

Additional information: