The General Circulation of the Levantine Basin

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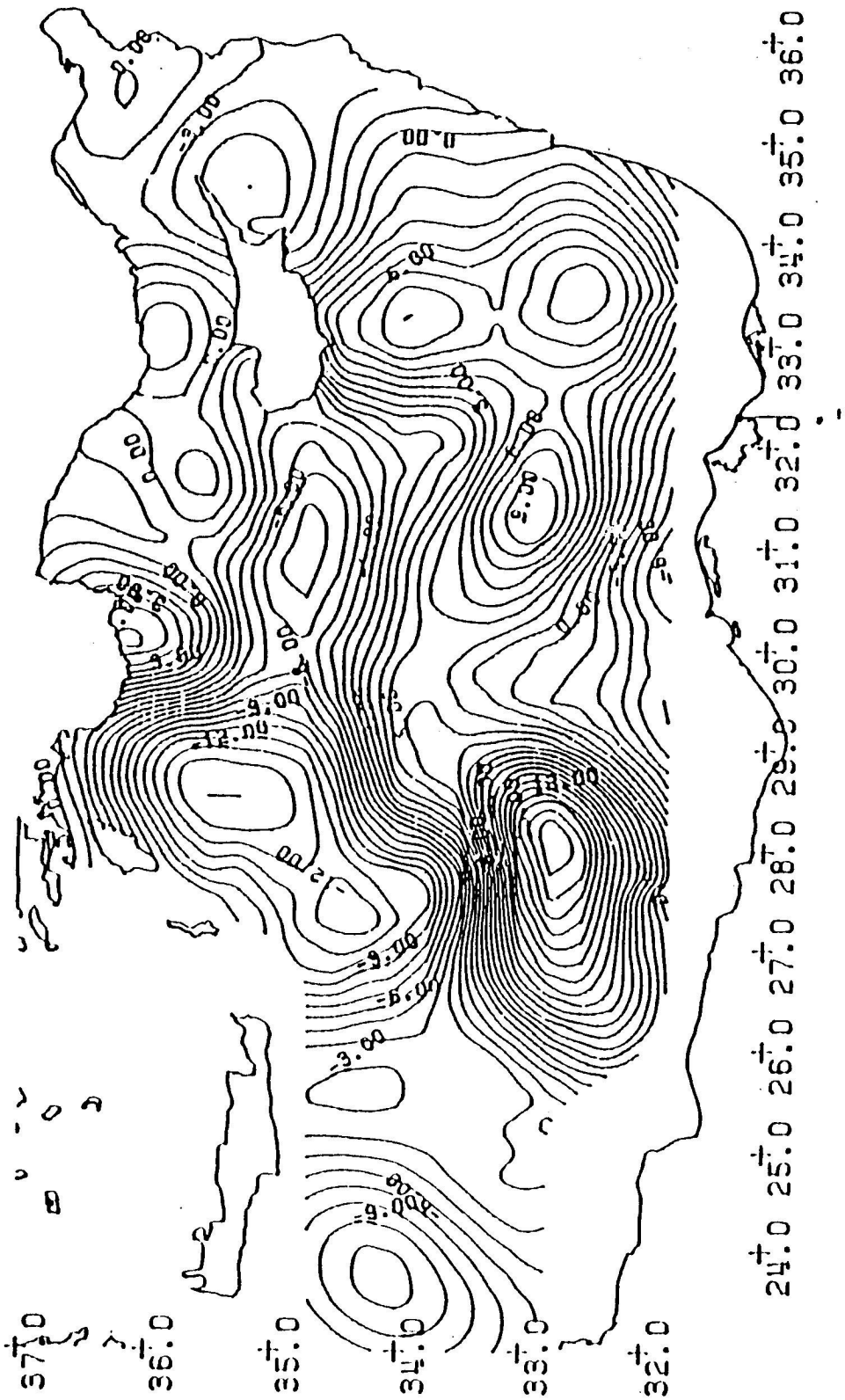
The existing database for the Levantine basin shows the domination of regional circulation by synoptic and mesoscale dynamic features, and appears to considerably different and more complex than its traditional description. The structural complexity of the circulation is associated with the variability in the atmospheric and thermohaline forcings and nonuniformity of the water masses within the entire basin.

The Levantine basin general circulation consists of a series of major quasi-permanent, sub-basin scale gyes which are interconnected and interacted with each other by meandering jets, filaments and smaller scale eddy fields (Fig. 1). The cyclonic Rhodes gyre occupies the region to the south-southeast of the Rhodes and extends up to Cyrpus in the east, and usually consists of more than one separate centers within its interior. It is bordered on the north by the coastally attached meandering jet-like Asia Minor Current (AMC), and by a series of anticylonic gyres in the south. the anticyclonic eddy, situated to the south of the Rhodes gyre, is called the Mersa Matruh gyre whereas the region to the south of Cyprus is occupied by the multi-centered anticylonic Shikmona gyre. The flow, the so-called Mid-Mediterranean jet, enters into the basin from the south of Crete as an extension of the North African Current. The jet bifurcates on its way to the eastern end of the basin and is also entrained by the gyral circulations. One branch flows north by encircling the Rhodes gyre and eventually joins the westerly flowing coastal jet of the AMC along the Turkish coast. The second branch of the jet flows around the Mersa Matruh anticyclonic gyre and emerges, later on, as a northwesterly flow to the southeast of Cyprus and penetrates further north to contribute partially to the AMC. The main branch continues eastward to form part of the anticyclonic Shikmona gyre located to the south of Cyprus and then, upon impinging on the eastern periphery of the basin, is diverted mainly southward. Only a small part of the flow turns northward and eventually enters the Latakia basin. Two weaker mesoscale features are presented in the Latakia basin: a cyclonic eddy attached to the eastern coast of Cyprus and an anticyclonic eddy near the Syrian-Turkish coast, extending toward the Bay of Mersin on the north. The northerly flow proceeds between these two eddies and forms partially the origin of the westerly flowing meandering AMC in the Cilician basin. However, this part of the flow is weak and AMC is principally fed to the west of Cyrpus by the bifurcation of the Mid-Mediterranean jet. The Gulf of Antalya and neighboring coastal regions are occupied by several mesoscale anticyclonic eddies located near the coast. These eddies are frequently merged together and form a larger scale anticyclonic feature in the region between the Cilician basin and the Anaximander sea mouth.


GEOPOTENTIAL ANOMALY O. M.
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OCT 85
37.0
36.0
35.0
34.0
33.0
32.0
24.0
25.0
26.0
27.0
28.0
29.0
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31.0
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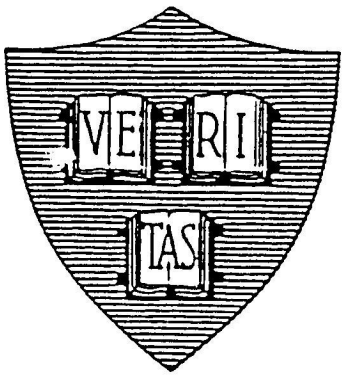
Fig. 1



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