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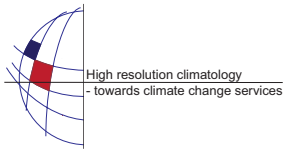

Investigation of 700-hpa Geopotential Height Atmospheric Circulation Patterns in Iran

A. Kashki (1)

(1) Dept. of Geography, Faculty of Humanities, University of Isfahan, Isfahan, Iran(r.kashki@yahoo.com), (2) Dept. of Geography, Faculty of Humanities, University of Isfahan, Isfahan, Iran(porcista@geog.ui.ac.ir), (3) Dept. of Geography, Faculty of Humanities, University of Isfahan, Isfahan, Iran(h.climate@yahoo.com)

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A.kashki (Ph.D Candidate of Climatology, Dept. of Geography, University of Isfahan, Iran)
S.A.Masoodian (Associated professor of Climatology, Dept. of Geography, University of Isfahan, Iran)
S.M.Hosseini(M.A. Student of Climatology, Dept. of Geography, University of Isfahan, Iran)

This study investigates 700-hpa height fundamental atmospheric circulation patterns in Iran. The Statistical tools employed are clustering analysis with Ward Linkage method. In the current study, circulation to environment classification approach was used. The data was collected from NCEP/NCAR Reanalysis gridded data (2.5 [U+0652][U+0652] * 2.5 [U+0652] degree) from 1970-2005. The area under analysis is located between 0[U+0652] to 70[U+0652] N and 0[U+0652] to 100 E[U+0652]. The data was collected subdaily 700-hpa geopotential height. Hierarchical Clustering Analysis of geopotential height indicates 4 distinct circulation patterns. Among these circulation patterns, the first one begins from 17th of December and ends in 2nd of March. This pattern occurs in 21% days of year. It is definitely winter pattern. The second pattern is related to transitional seasons. The second circulation pattern begins from 3rd of March to 2nd of May. Again, from 19th of October to 16th of December was its second period of occurrence. In 32.5% days of year, this pattern happens. The third pattern is regarded to warm period of year. This pattern begins from 3rd of May and ends in 4th of Jun. Also, its second period was from 21st of September to 18th of October. This pattern occurs in 16.9% days of year. The fourth pattern is concerned to summer. It begins from 5th of Jun and ends in 20th of October. The last pattern occurs in 29.5% days of year. The cold circulation patterns show more variability compared to those of the warm circulation patterns.

Key Words: Circulation Patterns, Hierarchical Clustering Analysis, Ward Linkage, 700-hpa Geopotential Height, Iran.