

## **Studying of Regional Scale Forcing on the Spatial Pattern Formation of Heavy Snowfall Hazard in the Gilan Plain (Case Study Feb 2014)**

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### **Abstract**

Heavy snow is one of the atmospheric hazards that sometimes occur in Gilan province. In this study, the maximum height of heavy snow location that occurred in February 2014 in Gilan province was recognized and the cause of the event was analyzed. For investigating this phenomenon, data from NCEP/NCAR (reanalysis), local synoptic stations, MODIS satellite image and WRF model were used. The results showed that the formation of a secondary high pressure center in the local scale, due to the cold advection forcing of Caucasus topography and the movement of cold air from Caucasus Mountains to the Kura plain caused to flow eastward wind cross with West-ward streams by polar high-pressure air mass which is located on the northeast of the Caspian Sea. The convergence of surface wind as the convergence band along the western shore of the Caspian Sea enters to a small range in the southern of Anzali Wetland. Cloud band is in accordance with the wind convergence zone that can be seen in the image of Terra satellite MODIS sensor and the Gilan radar precipitation intensity image. The maximum latent heat flux core on the Southern zone of the Caspian Sea as the thermodynamic forcing confirms the impact of regional factors on the spatial pattern of maximum snow depth in the East regions of Gilan.

Keywords: *Heavy snow, WRF numerical model, Secondary high pressure, Gilan plain.*

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