ANALYSING OF RAINFALL DISTRIBUTION IN ANKARA BY REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS

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In this study, it is intended to investigate factors that is affecting distribution of rainfall within the city and Geographic Information Systems (GIS) tools are used to make digital layer from products of satellite and Radar which are today's commonly used monitoring tools in Remote Sensing Method (RSM). Secondarily; it is intended to determine the relationship between surface rainfall measurements and remote sensing measurements which are obtained from satellite and radar. Finally; it is aimed to determine how urbanization is affected the distribution of rainfall over the city by examining these relationships on city base.

It is proposed that results of this study can be primarily an input for city planners for correctly improving and planning of cities and also for reduction - prevention studies against to natural disasters which are related to the climate and especially depending on rainfall. Furthermore, it can be provided a base within the scope of coping studies which are made with the trilogy of prevention, mitigation and adaptation against to climate change that has become a problem in our century.

For the study, precipitation events which are occurred in Ankara are examined on June 6 in the year 2010. For the date of June 6 in 2010, output of numerical prediction models, surface observations and Radar PPI data have been obtained and ECMWF model outputs, Radar PPI data and surface observations have been mapped in the GIS and analyzed.

Ankara'da dolu yağışı

Başkent genelinde etkili olan dolu yağışı, hayatı olumsuz etkiledi. Kent genelinde etkili olan yağışlar, Batıkent, Demetevler, Yenimahalle ve Etlik'te yoğun olarak gerçekleşti.

16:10 | 06 Haziran 2010

Zaman zaman ceviz büyüklüğünde olan dolu nedeniyle bazı yerleri su basarken, alt ve üst geçitte oluşan trafik kilitleri, sürücülere zor anlar yaşattı.

FOTOĞRAFLAR İÇİN TIKLAYIN

Devlet Meteoroloji İşleri Genel Müdürlüğü yetkililerinden alınan bilgiye göre, gece saat 24'e kadar aralıklarla etkili olacak yağışlar, hafta boyunca da devem edecek. Kuvvetli yağışlar nedeniyle hava sıcaklığında da azalma bekleniyor.

Hava sıcaklığının bugün Ankara'da en düşük 16, en yüksek 25 derece aralığında olmasının tahmin edildiği belirtildi.

Haberin diğer fotoğrafları için tıklayın

Newspaper related to hail event in Ankara

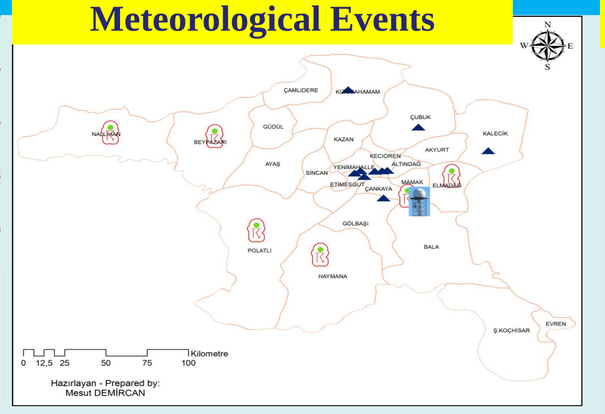
HAIL

dolu	**Gölbaşı** Ankara Province **Türkiye** (39.79 N, 32.81 E) **06-06-2010** (Pazar) **12:00** UTC (+/- 3 saat)
dolu	**Çubuk** Ankara Province **Türkiye** (40.24 N, 33.03 E) **06-06-2010** (Pazar) **12:00** UTC (+/- 3 saat)
dolu	**Kızılcahamam** Ankara Province **Türkiye** (40.47 N, 32.65 E) **06-06-2010** (Pazar) **12:00** UTC (+/- 3 saat)
dolu	**Kalecik** Ankara Province **Türkiye** (40.10 N, 33.41 E) **06-06-2010** (Pazar) **12:00** UTC (+/- 3 saat)
dolu	**Ankara** Ankara Province **Türkiye** (39.99 N, 32.84 E)

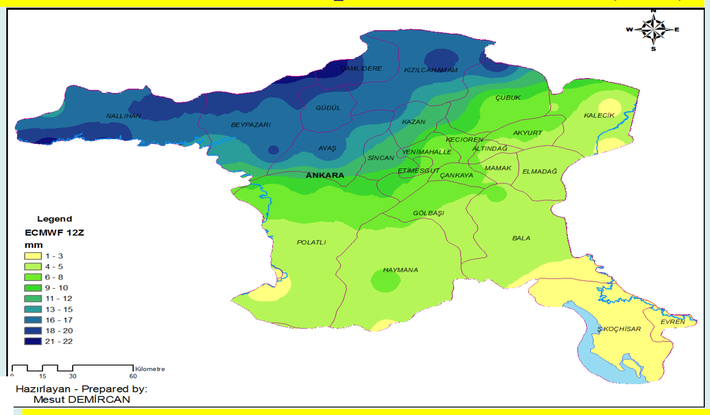
HAIL

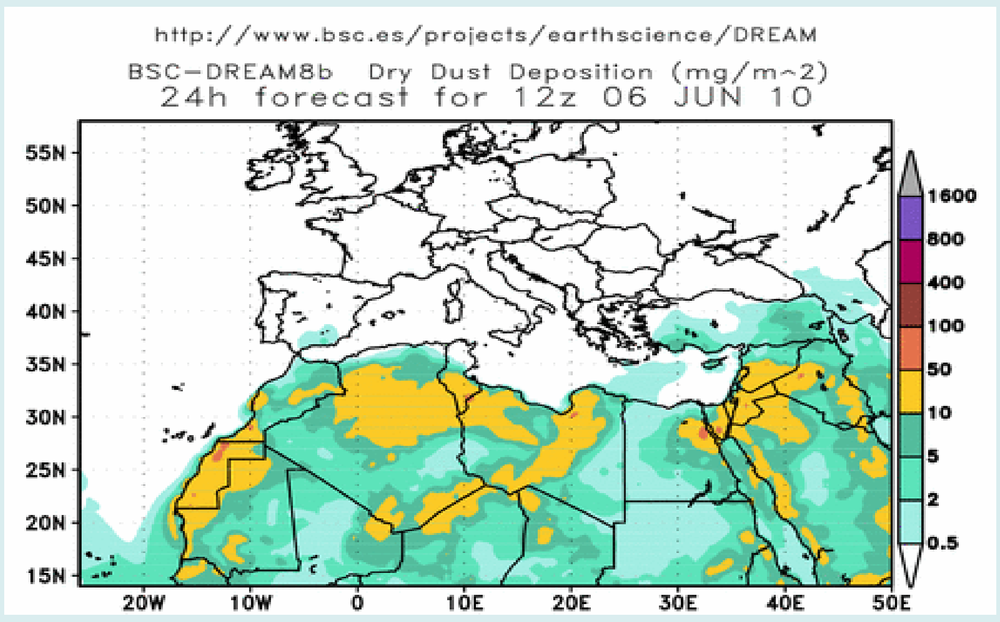
06.06.2010	Ankara/Bölge	Dolu
06.06.2010	Esenboğa/Ankara	Dolu
06.06.2010	Güvercinlik/Ankara	Dolu

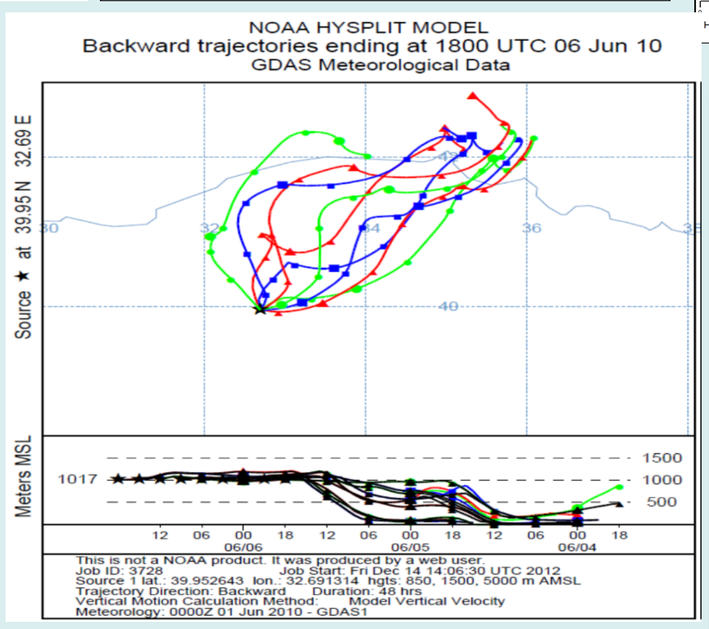
Meteorological Events



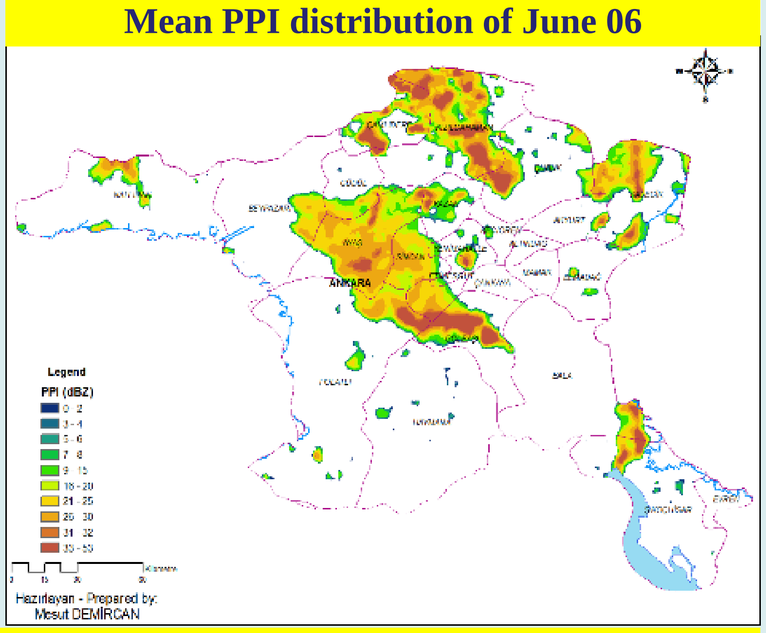
ECMWF Total Precipitation Forecast (12Z)



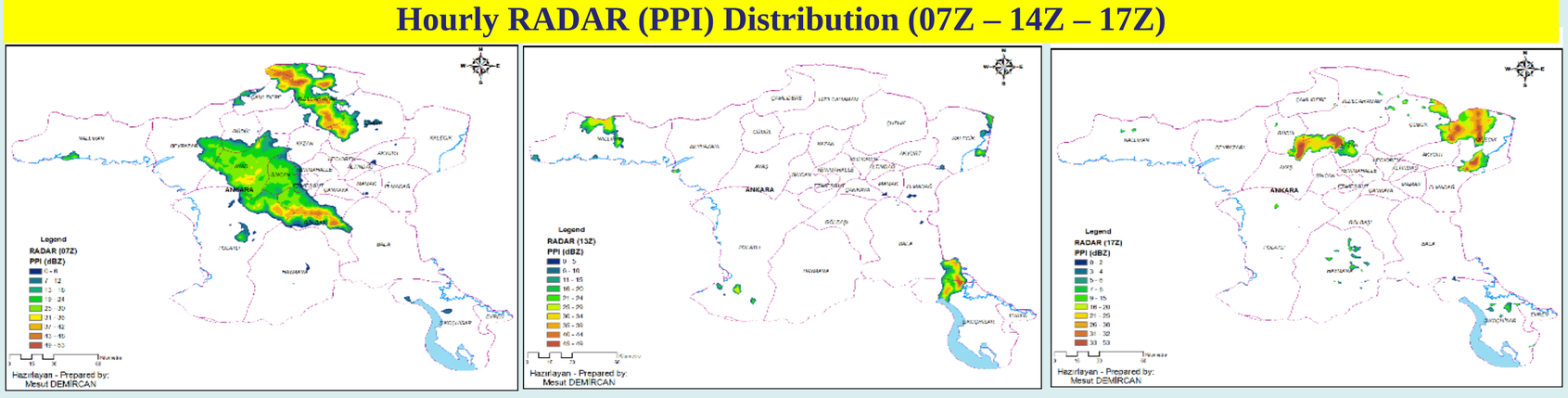




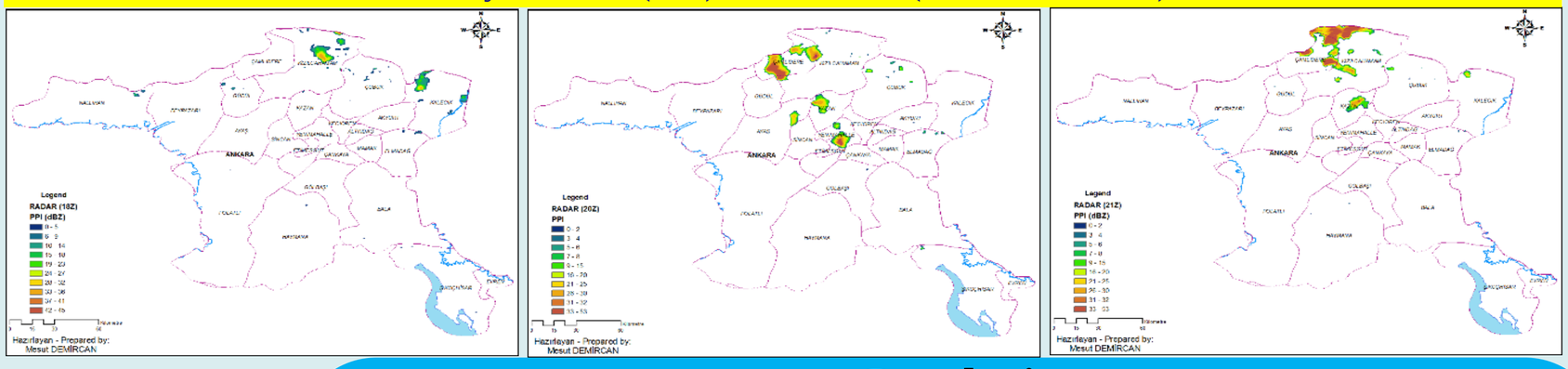
Mean PPI distribution of June 06



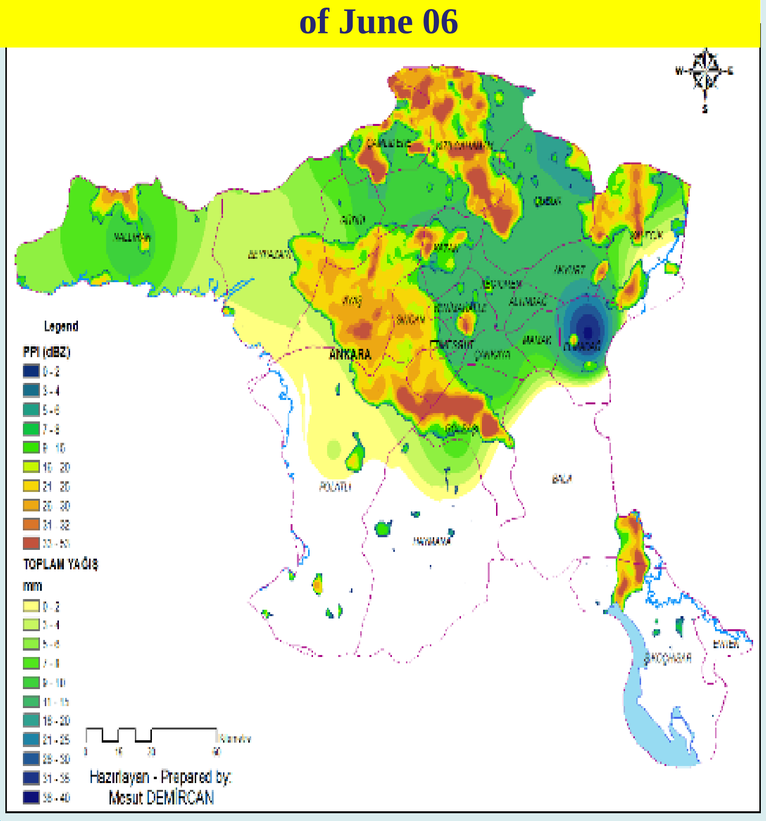
Hourly RADAR (PPI) Distribution (07Z – 14Z – 17Z)



Hourly RADAR (PPI) Distribution (18Z – 20Z – 17Z)



Mean PPI and Total Precipitation distribution of June 06



Conclusion

In the sample analysis it is observed that rainfall zones have moved according to the movement of the frontal system and they are not concentrated especially in the east parts of Ankara. In sampling dates, it is interesting to consider that the dust transportation along with frontal systems which are brings rainfall is observed in Atmospheric Dust Forecasting System maps. It is thought that the systems which are cause precipitation, topographical structure of the city and dust transportation from the Saharan Desert have been more effective in the formation of precipitation.

GIS is important systems to prepare risk and mitigation maps for extreme events. Furthermore GIS can use to monitoring, preventive precaution and rescue planning in Disaster and Emergency Management Centre (DEMC) during a disaster situation. GIS can use different layer such as risk, actual situation, rod, hospital, etc. at same time. GIS can search and show possible best solution for DEMC studies.

The issues, to use RADAR and Meteorological Models data in GIS is format of data that these data can not use directly in GIS systems. Due to this RADAR and models data can distribute to user standard format such as NetCDF or GIS readable format.