# Elaboration of the Recorded Daily Total Precipitation in Ovacık with ECMWF Products (Antalya, Turkey, 17th of December 2018)

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## Introduction

On the 17th of December 2018, excessive rainfall was severe in Ovacık (Kemer) district of Antalya, which caused material damage only. The system was effective especially in western parts of Antalya. The rainfall amount of 490.8 kg/m$^2$ was measured in Ovacık AWOS at 1131 m altitude in between 24 hours. This value has been recorded as the highest daily total value measured in Turkey. The previous record was belonging to Marmaris (Muğla) measured in 1992 with the amount of 466 kg/m$^2$. In our study; this extreme event is considered to be elaborated by using ECMWF ensemble products.

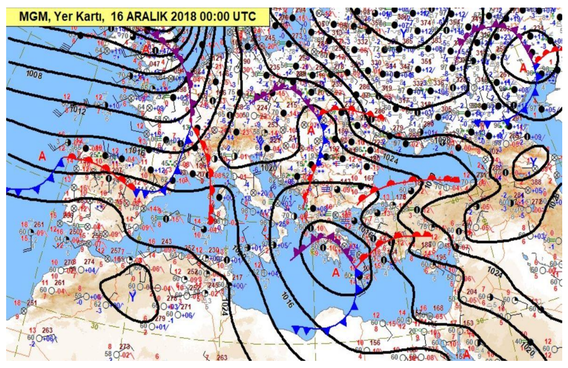


Figure 1. 16.12.2018, 0000 GMT Surface Chart

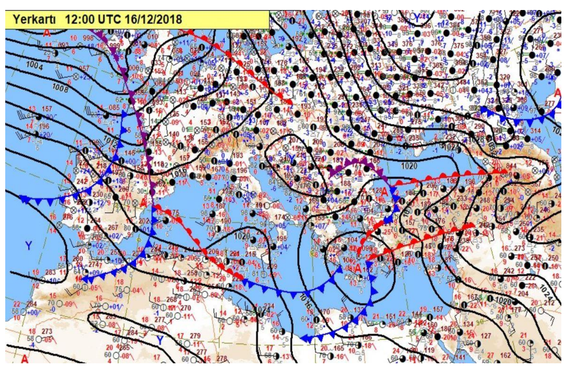


Figure 2. 16.12.2018, 1200 GMT Surface Chart

## Data

- ECMWF IFS and Ensemble Products
- TSMS Surface Observations
- TSMS Antalya Radar Products

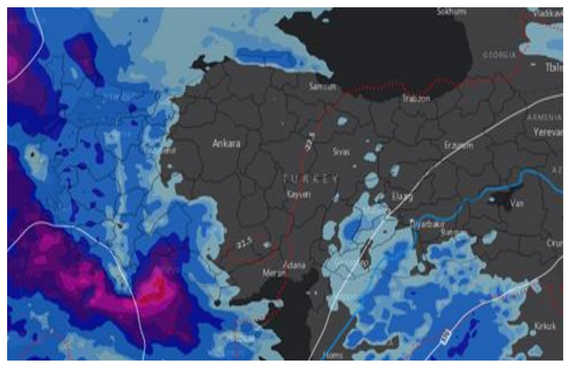

Figure 3. 11.12.2018, 114 mm, total rainfall 24 hours

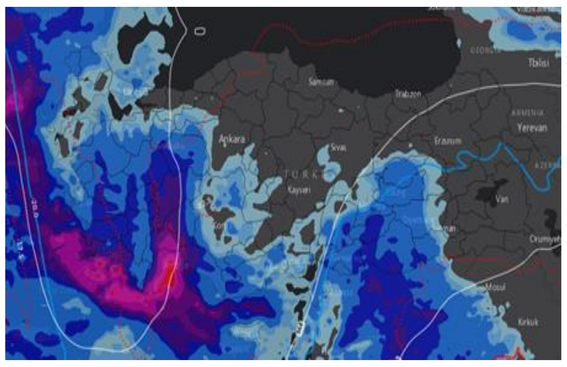

Figure 4. 15.12.2018, 144 mm, total rainfall 24 hours

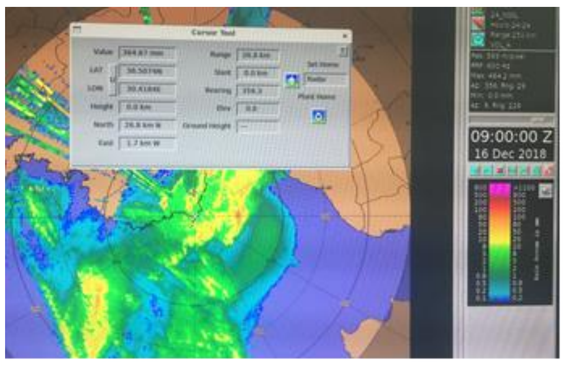


Figure 516.12.2018, 09:00 Z, Antalya Radar Image

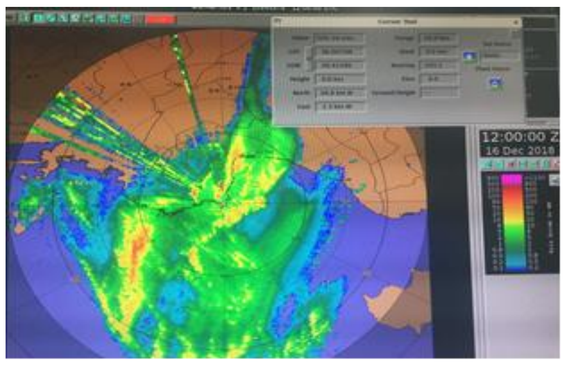


Figure 6. 16.12.2018, 12:00 Z, Antalya Radar Image

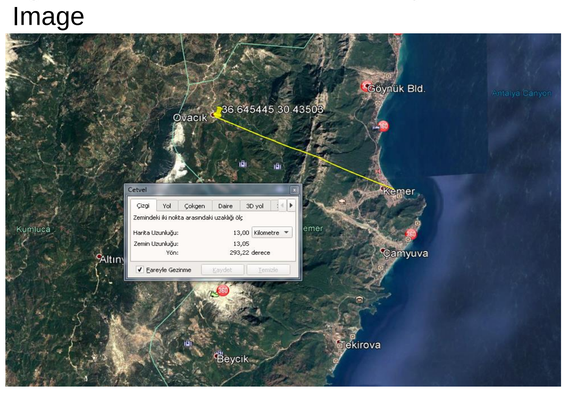


Figure 7. About 13 km from the sea coast, location of AWOS at an altitue of 1331 m

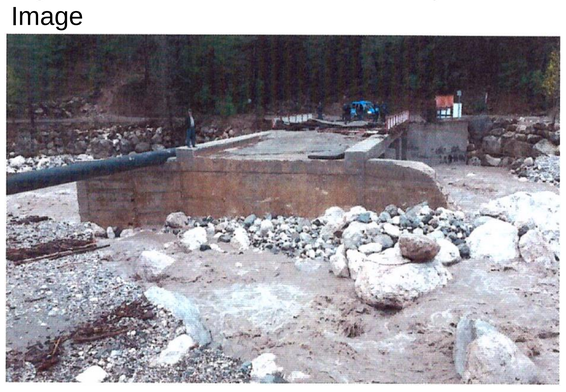

Figure 8. Located on Ağva Creek damaged bridge

## Methodology

In the precipitation records of Kemer Ovacik AWOS, precipitation was measured as 691.6 mm on 17.12.2018 Monday at 05.46 Z. According to the EPS maps, the probability of rainfall over 20m from 5 days ago is estimated to be 60-90%, from 4 days before it is estimated in the range of 90-100%. When we look at the EFI maps, we estimate 0.6 at 5 days before, 0.8 at 4 days before, 0.9 at 1 day before.

Figure 9. 11.12.2018, EPS map posibility of precipitation over 20 mm %60-90

Figure 10. 15.12.2018, EPS map posibility of precipitation over 20 mm %90-100

Figure 11. 11.12.2018, EFI map, value 0,6

Figure 12. 12.12.2018, EFI map, value 0,8

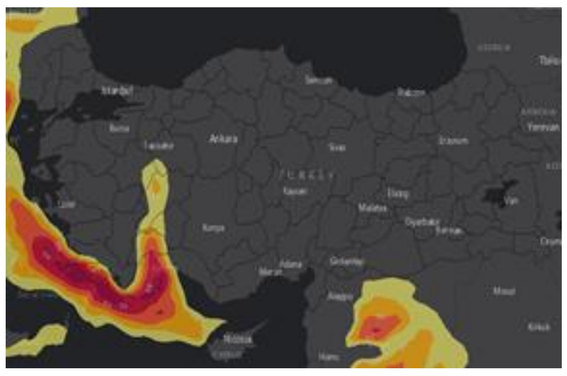

Figure 13. 15.12.2018, EFI map , value 0,9


Figure 14. 14.12.2018, Warning text

Figure 15. Kuzdere neighborhood houses and workplaces damaged

Figure 16. View of Boğa Creek

## Conclusions

We can say that the amount of ECMWF when the IFS model data is analyzed is lower than the observed amount. Forecasters should use satellite and radar images as well as model outputs.

## Contact

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## References

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