Cloud Mapping by Using the Data from Different Observing Systems

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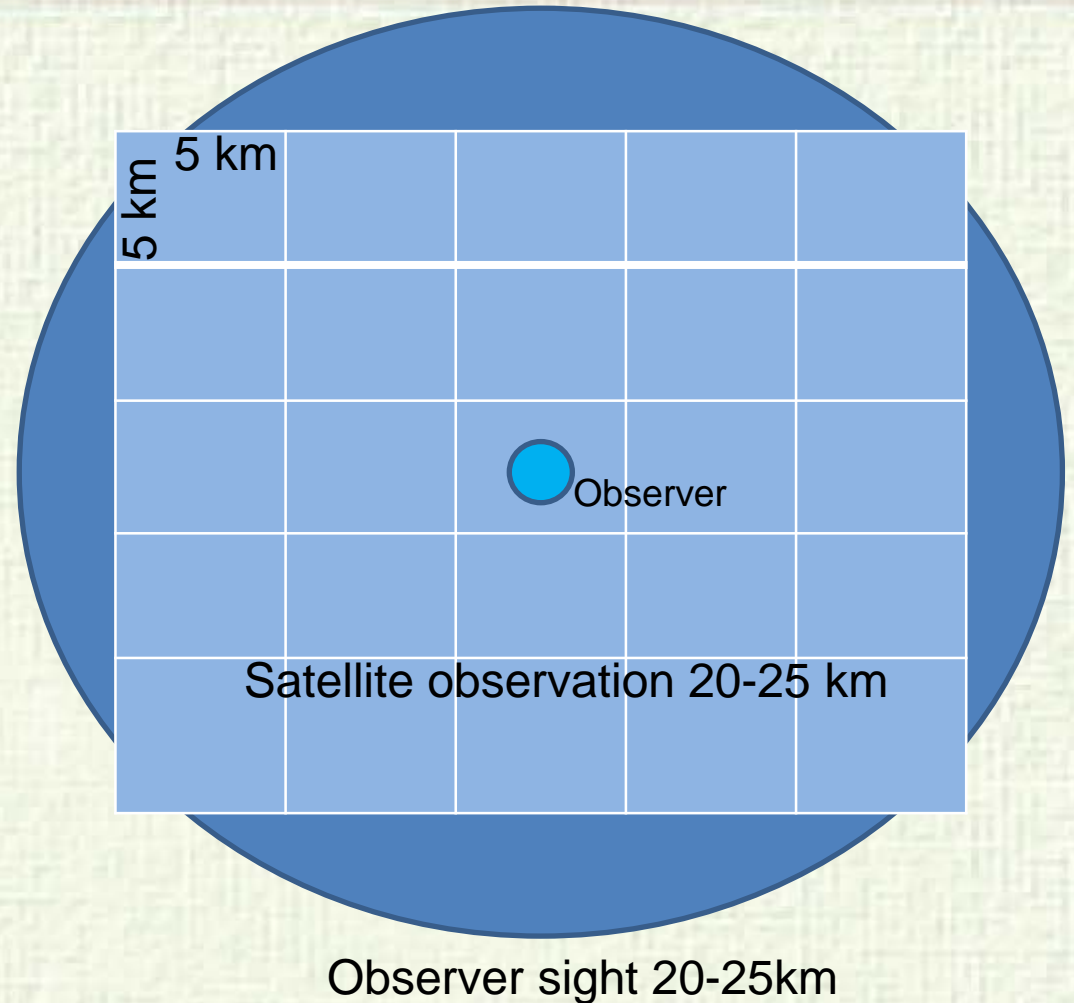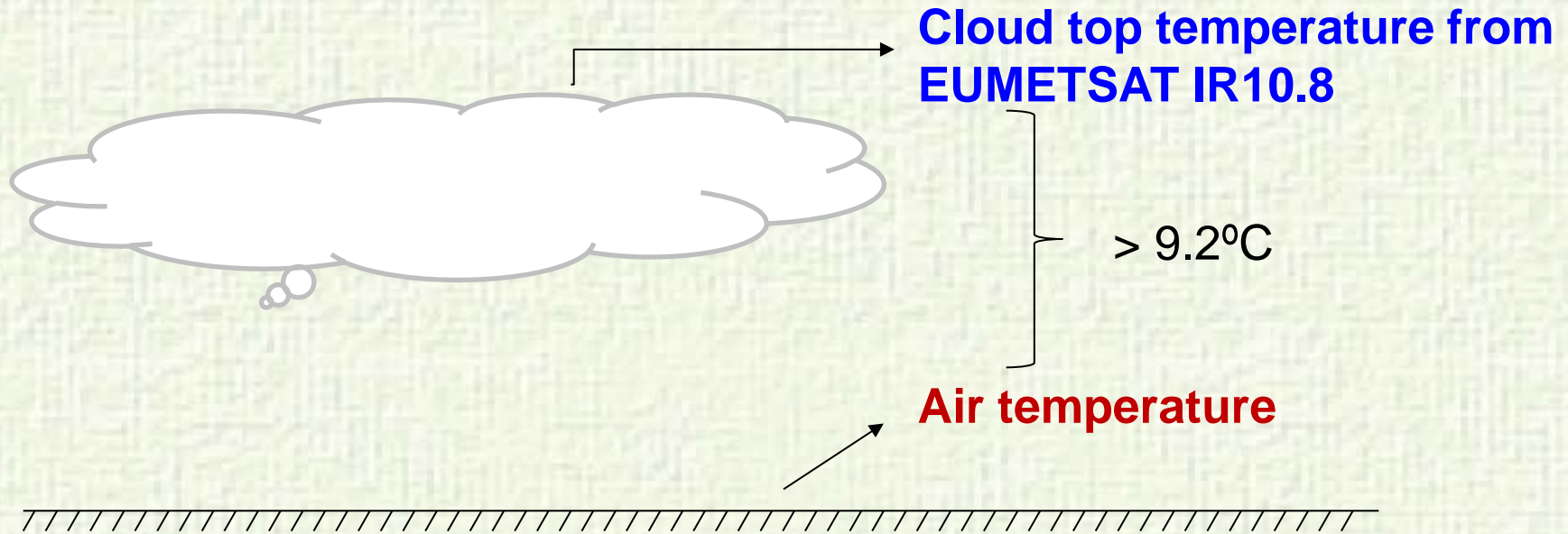**By using the observational data from the existing observing systems, we have developed the algorithm to estimate the cloud information and to make interpolation for the areas in which there is no observational data.**

DATA AVAILABLE FROM OBSERVING SYSTEMS

- **Observational data from ceilometers, weather radars, meteorological satellites, automatic weather stations, manned observing stations and lightning detection systems.**

- **Algorithm to generate a cloud map covering whole country including the information of cloud coverage, cloud type, height of cloud base, and cloud thickness.**

EUMETSAT channel IR 10.8 data is used to determine cloud existence through the difference with ground temperature and EUMETSAT cloud top temperature
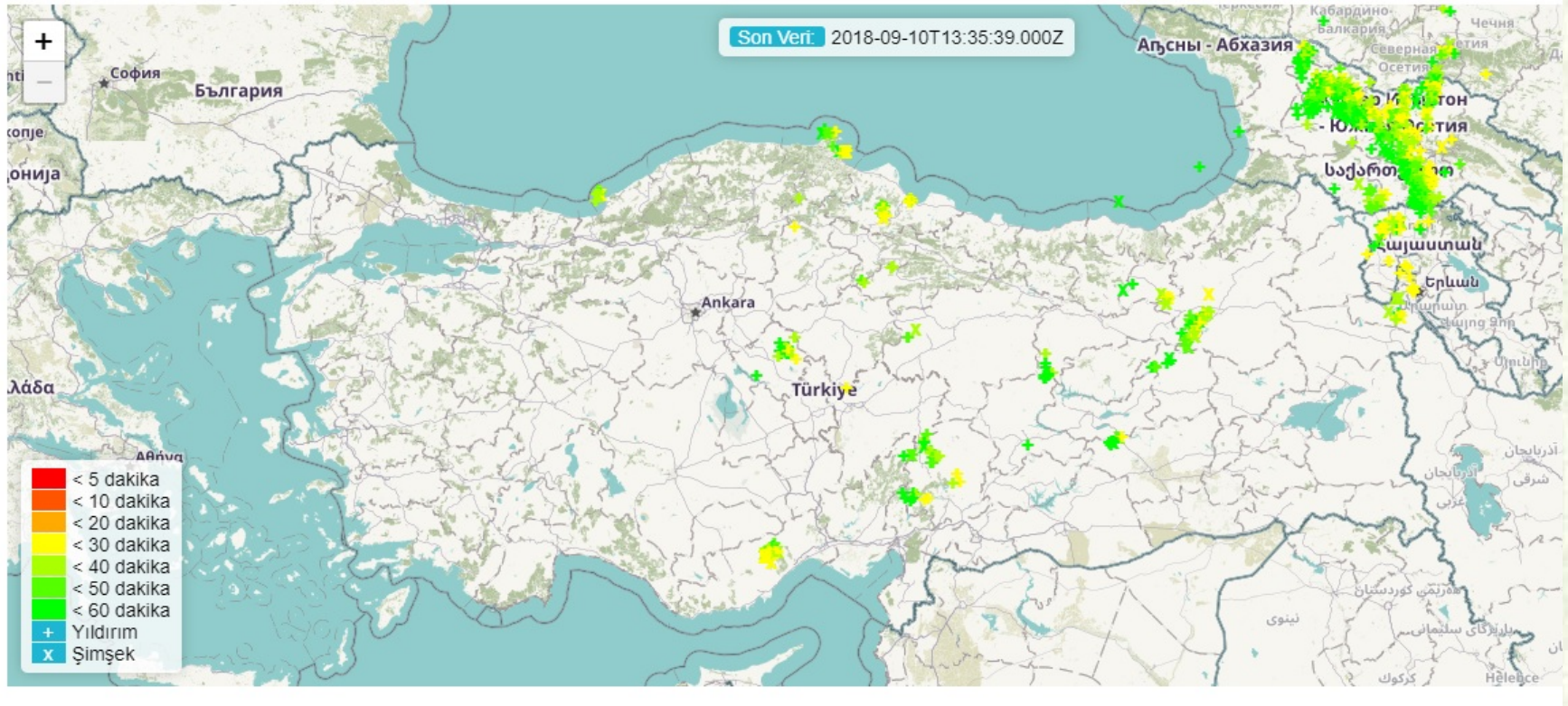
5 km

5 km

Observer

Satellite observation 20-25 km

Observer sight 20-25km

Cloud top temperature from EUMETSAT IR10.8

> 9.2ºC

Air temperature

The difference between air temperature and cloud top temperature is lower than the threshold 9.2ºC then it is accepted as that point is cloud for the station
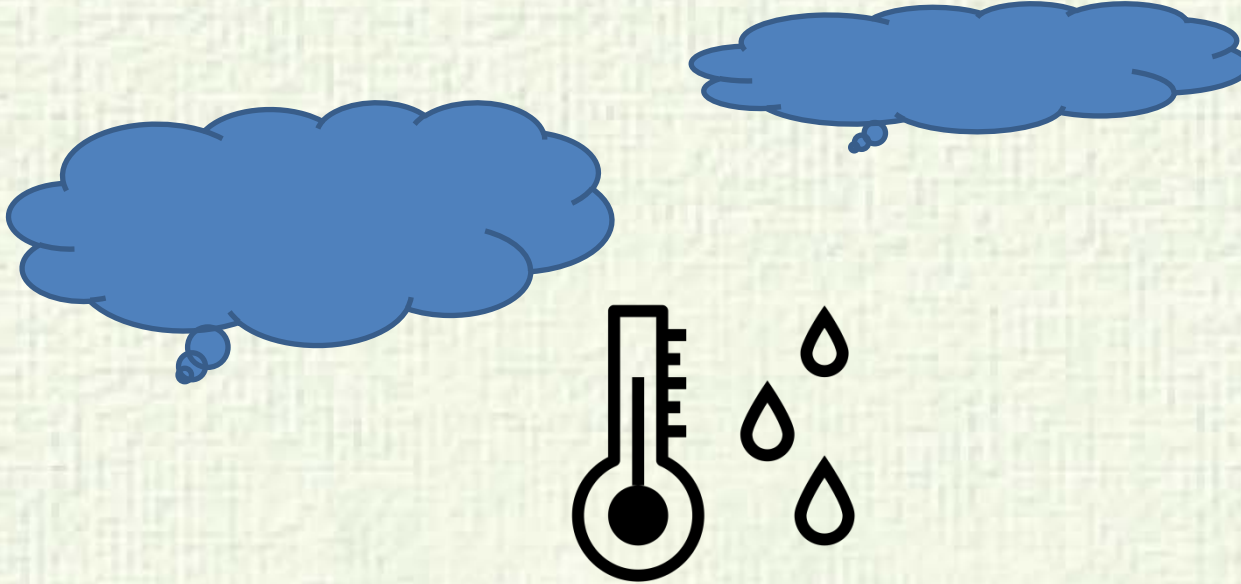
Radar MAX data is controlled over station to check whether precipitation is possible for that station.

ESTIMATION ALGORITHM

Lightning echo data around the station is used to define cloud type to CB for that station
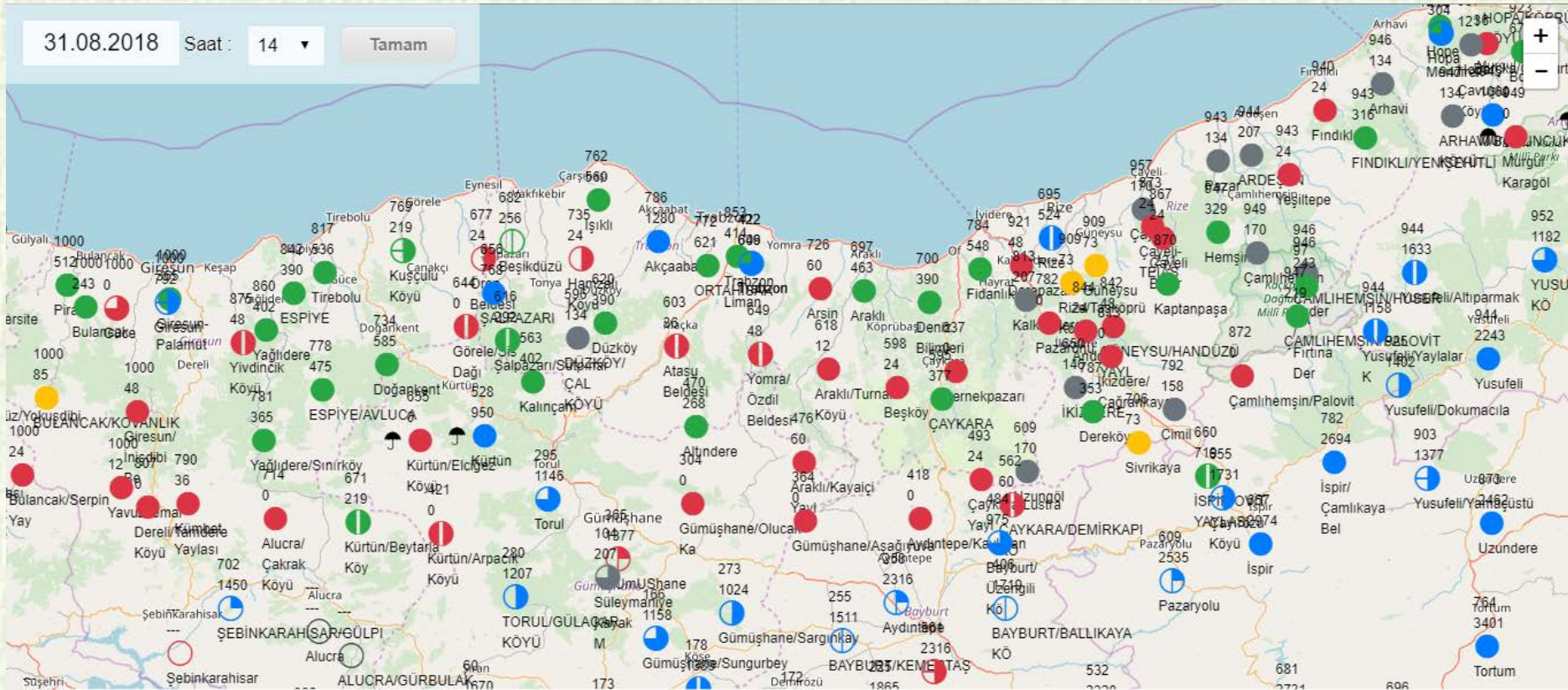
Air temperature with dew point is used to estimate possible lowest and highest cloud base for the automatic station point

Colour	Cloud Bottom	Visibility
(red)	200 ft	800 m
(yellow)	300 ft	1600 m
(gray)	700 ft	3700 m
(green)	2500 ft	8000 m
(blue)	> 2500 ft	> 8000 m
(black)	---	---

Created data is classified from blue to red based on the cloud base height.

Each marker is a station with estimated cloud cover and other values.

By clicking on a marker, a pop-up appears that includes more detailed information.

Thank you for your attention

Any questions?