



TURKISH NATIONAL SEA LEVEL MONITORING SYSTEM (TUDES)

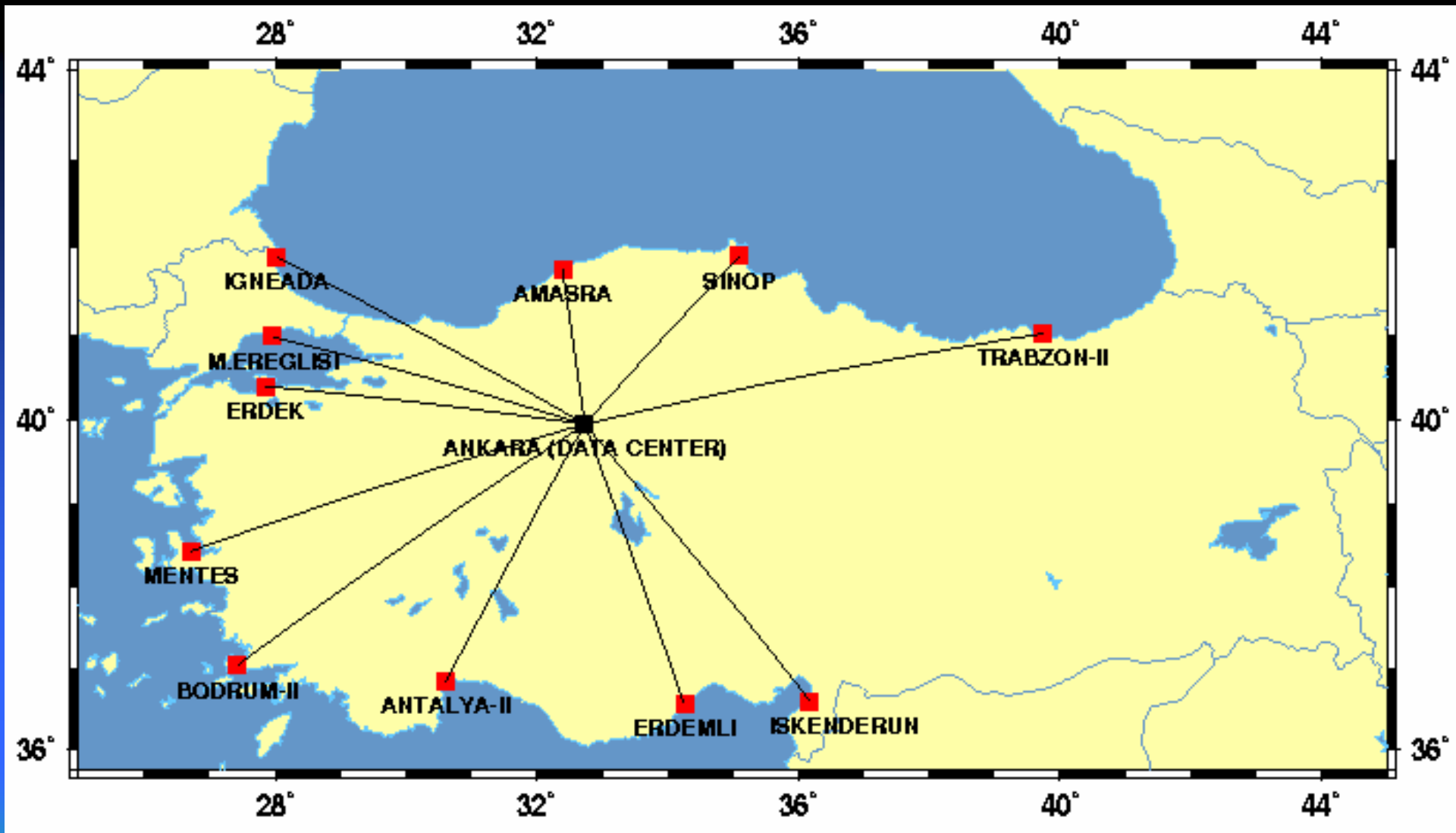
Ayhan TEKGUL¹, Hasan YILDIZ¹, Mehmet SIMAV¹, Emin
OZSOY²

¹General Command of Mapping, Geodesy Department, Cebeci-Ankara/Turkey

²Institute of Marine Sciences, Middle East Technical University, Erdemli-Mersin/Turkey



General Command of Mapping operates Turkish National Sea Level Monitoring System





Iskenderun

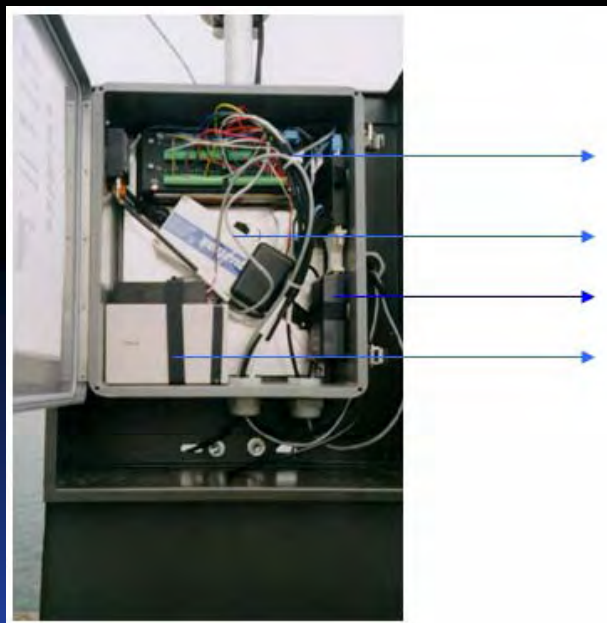


Sinop

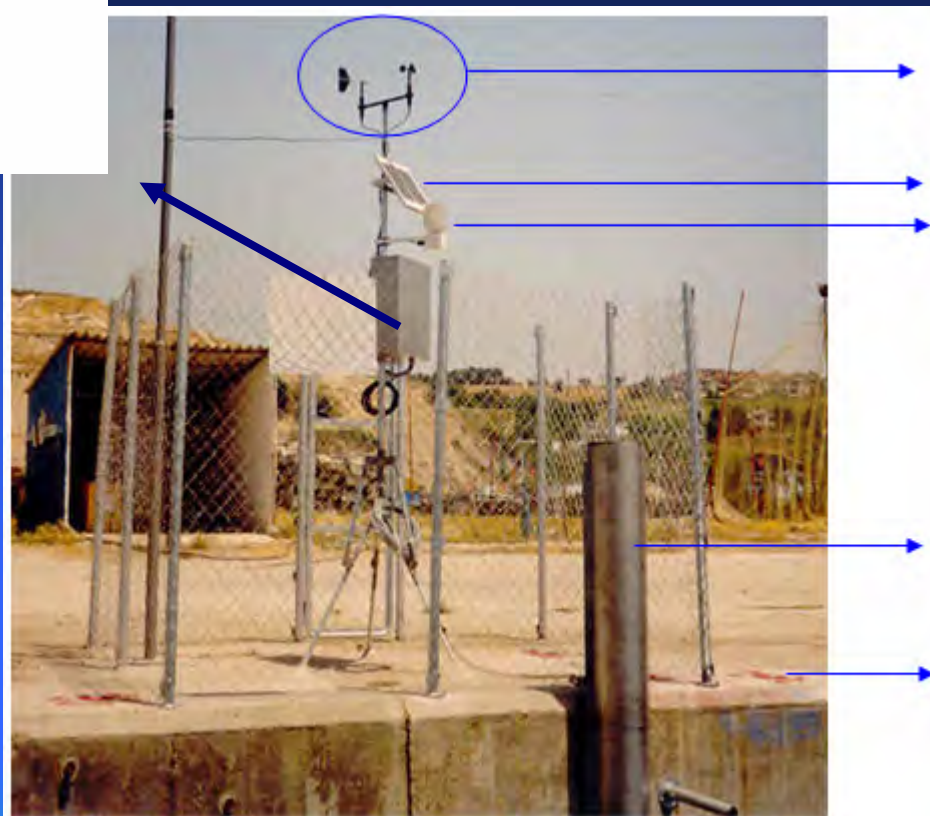


Igneada

Sensor	Accuracy	Measurement Interval
Sea Level	1 mm	10 m
Air Pressure	± 0.5 mbar	600 - 1060 mbar
Air Temperature	± 0.2 at 20 °C	-40 - 60 °C
Relative Humidity	± 2 - 3 RH	0 – 100 %
Wind Speed	± 0.12 ms⁻¹	0 – 50 ms⁻¹
Wind Direction	± 4°	0 – 360 °



- Datalogger
- Control Unit
- Air pressure
- Modem



Wind speed and direction

Solar panel

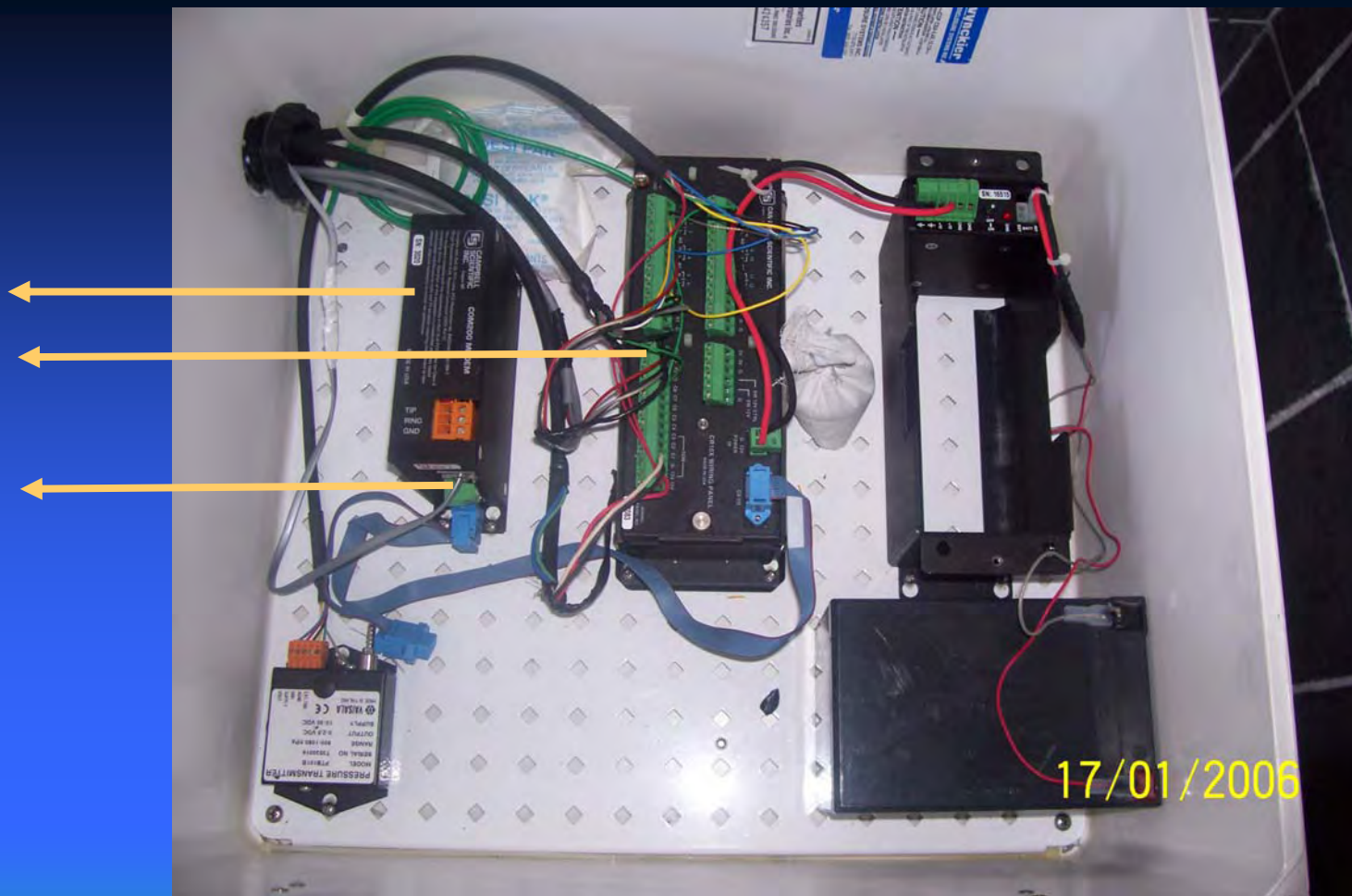
Relative humidity and air temperature

Acoustic sea level sensor

TG benchmark

✓ The data, sampling at every **30 seconds** and averaged over **15 minutes**, are saved in the datalogger and transferred to the data center by **analog wire telephone networks**.

Modem
Datalogger
Telephone
Cable





Data are transferred **twice or three times** a week from TUDES tide gauges.



DATA FILE:

111, 15 , 2.206, 1.659,214.5,9.88,84.3,1021.5,2005,1,.04117
 111,30,2.21,1.672,230.6,10.18,82,1021.6,2005,1,.03088
 111,45,2.217,2.192,193.3,10.07,82,1021.4,2005,1,.03223
 111,100,2.208,2.102,146.3,9.95,80.8,1021.1,2005,1,.03484
 111,115,2.217,2.404,186.1,9.74,81.5,1021.2,2005,1,.03033

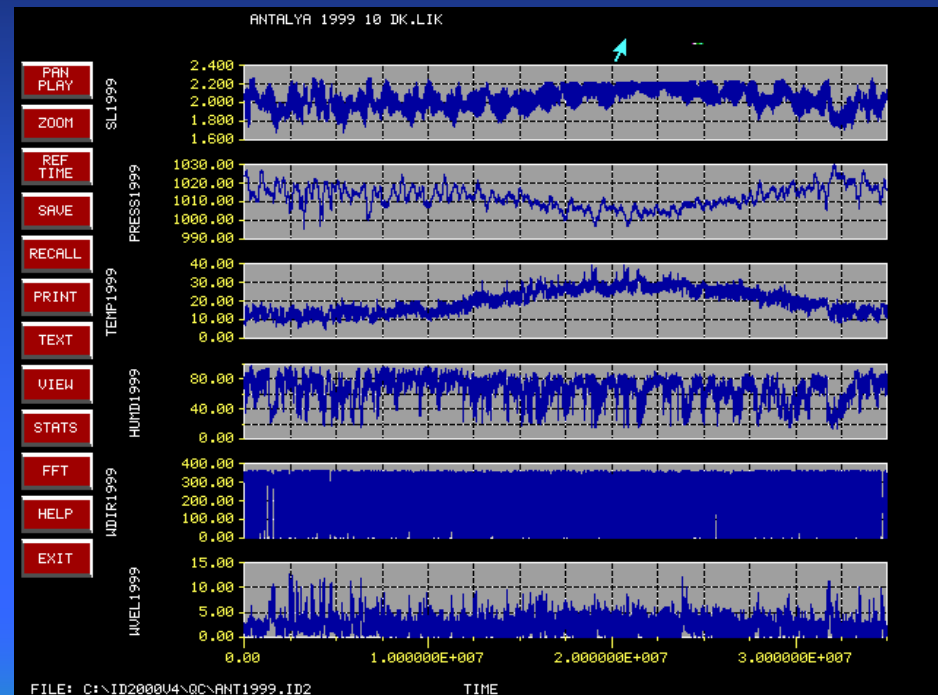
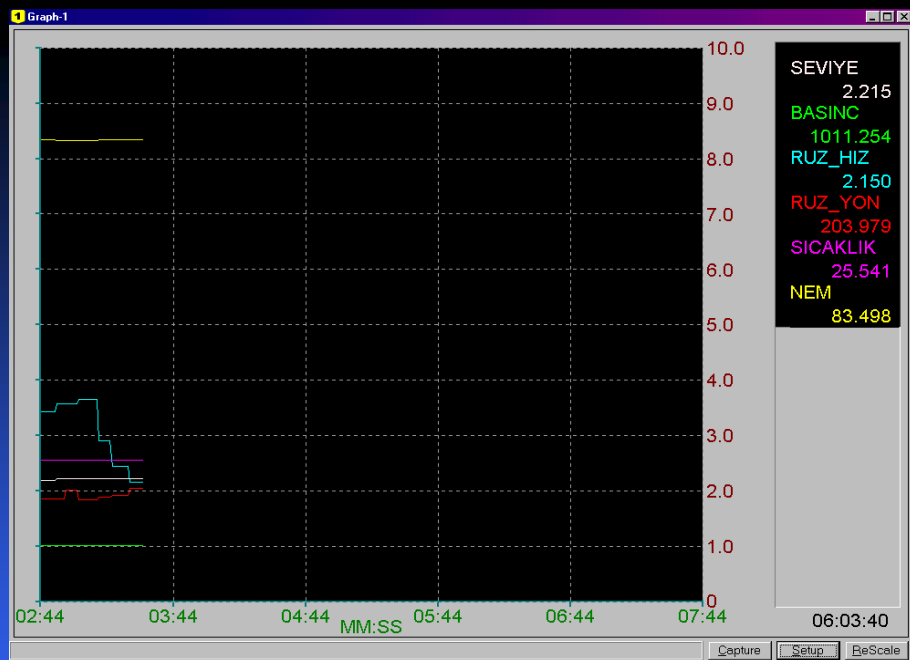
SEQUENCE :

- Data code,
- Hour,
- Sea level (m),
- Wind speed (m/sn),
- Wind direction (degree)
- Air temperature (°C)
- Relative humidity (%)
- Air pressure (mbar)
- Year
- Julian day
- Standart deviation for sea level from 30 sec measurements 7/11

Parameter	Value
SEVIYE	2,1650
ANTALYA	0,00000
Inloc_3	0,00000
BASINC	1006,0
RUZ_HIZ	0,62500
RUZ_YON	69,998
SICARLIK	27,070
NEM	76,931
BATARYA	13,076
Inloc_10	0,00000

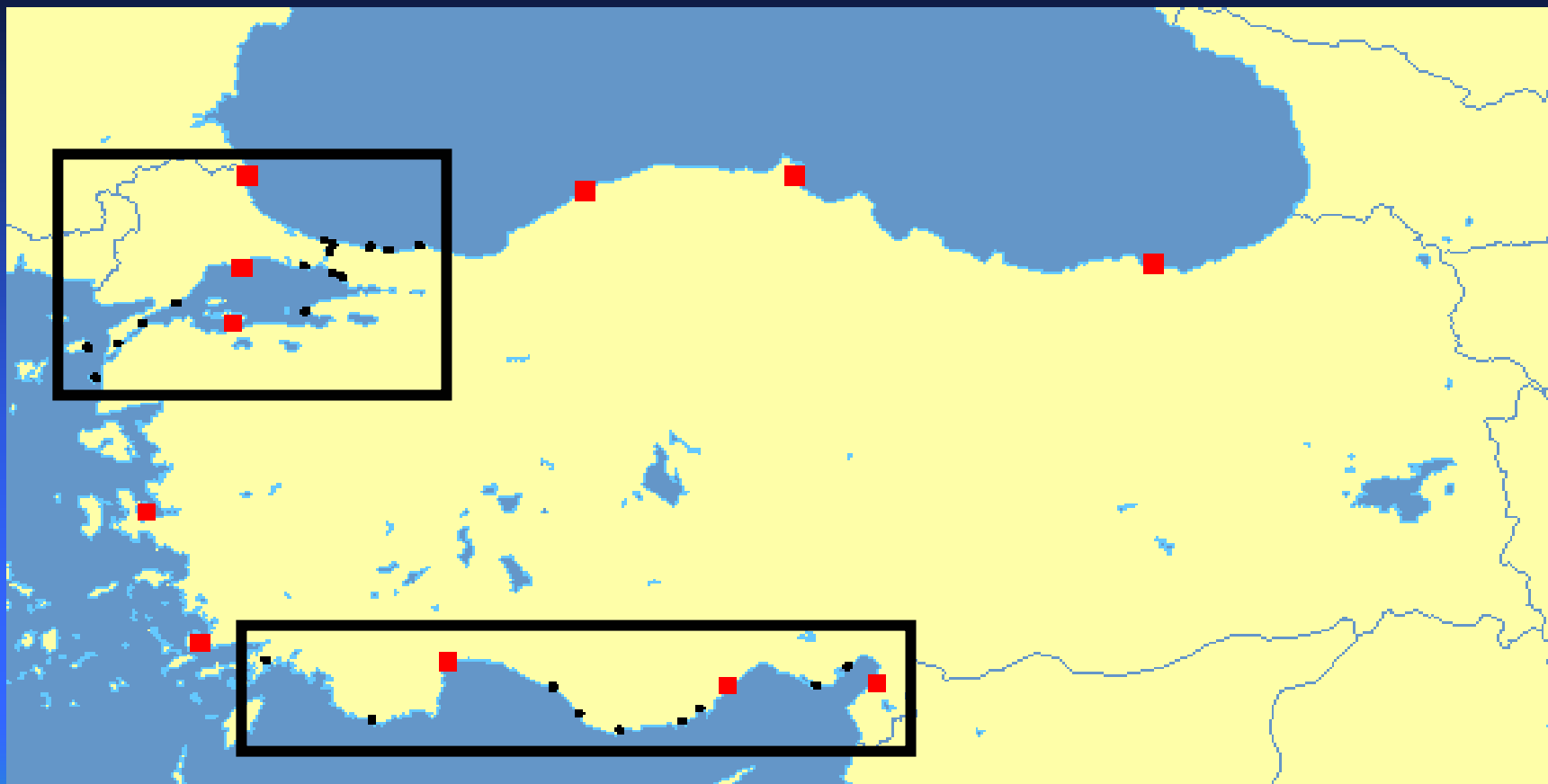


Unexpected anomalies, spikes, instrumental errors, anomalous datum shifts, are checked **visually** right after data are transferred to the data center.





“Meteorology / Oceanography Network of Excellence (MOMA) Pilot Project: Development of Satellite and in-situ Observation, Data Assimilation, Prediction, Early Warning and User Services”





- ✓ GPRS connection is considered for real time transmission
- ✓ The data will be download every 30 minutes automatically to the data center PC.



THANK YOU !