

*Annex 2*

*Groundwater Level Monitoring*



## Annex 2 GROUNDWATER LEVEL MONITORING

The Republic Hydro-Meteorological Institute (HMI) is the responsible agency regarding groundwater monitoring in Macedonia. The contents of the groundwater monitoring performed by HMI are measurement of groundwater levels for the first (shallowest) aquifer and groundwater quality analysis

There are 108 groundwater level monitoring stations, but only 63 stations are operated as shown in Table B.25. Out of 63 stations, only 47 stations are recorded continuously as shown in the following table and Figure B.55.

Valley	Number of monitoring stations	Continuous recording stations
Polog (Poloshko Pole)	18	10
Skopje (Skopsko Pole)	14	5
Ovche Pole (Sveti Nicole)	9	4
Kochani (Kochansko Pole)	15	9
Strumica & Radovish (Strumichko Pole)	25	5
Bitola (Bitolsko Pole)	17	6
Struga & Ohrid (Strushko Pole)	10	8
Total	108	47

The groundwater levels of the first aquifers are measured every 5 days and in the last day of the month. The measured data are compiled and analyzed, and are reported on the annual reports of the HMI.

The relationships between groundwater levels and rainfalls are analyzed for all stations, which are being recorded continuously, as shown in Figure AN.2. The delay of 1 to 3 months from the maximum groundwater levels to the maximum rainfalls was observed. This fact is also justified in Macedonia. This delay of groundwater levels of shallow aquifers, especially unconfined or shallowest aquifers, is generally recognized.

SKOPSKO POLE

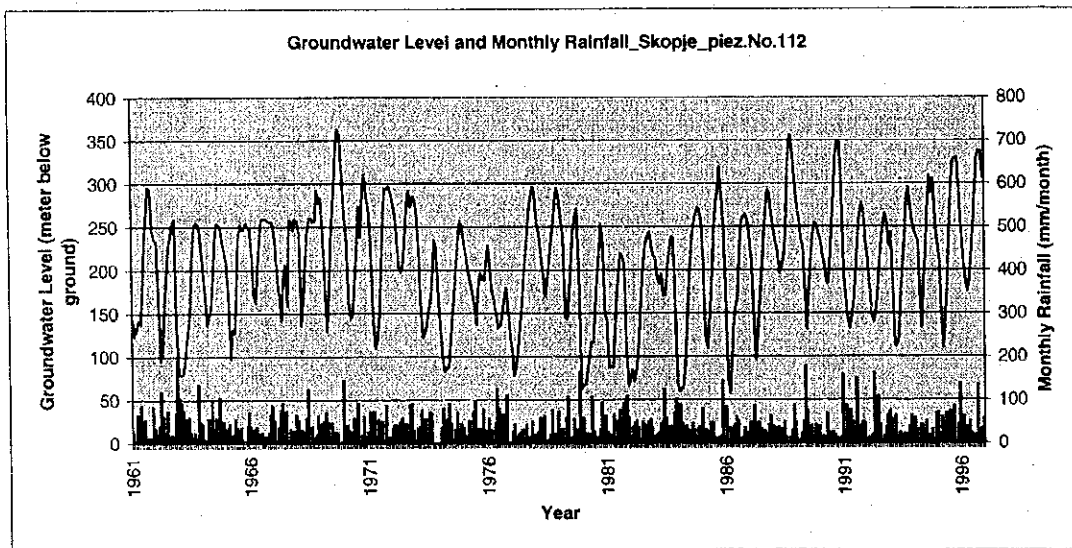
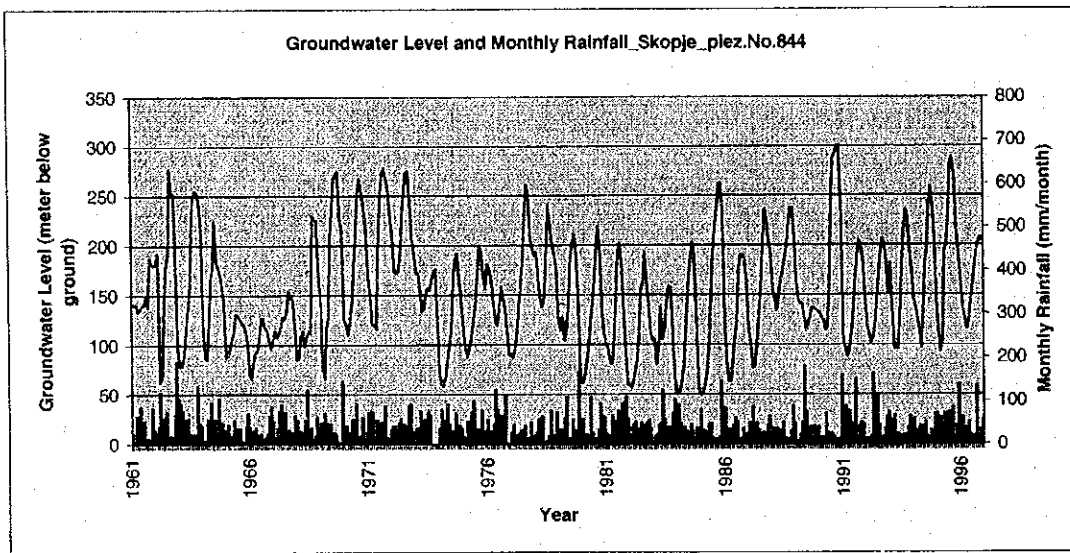
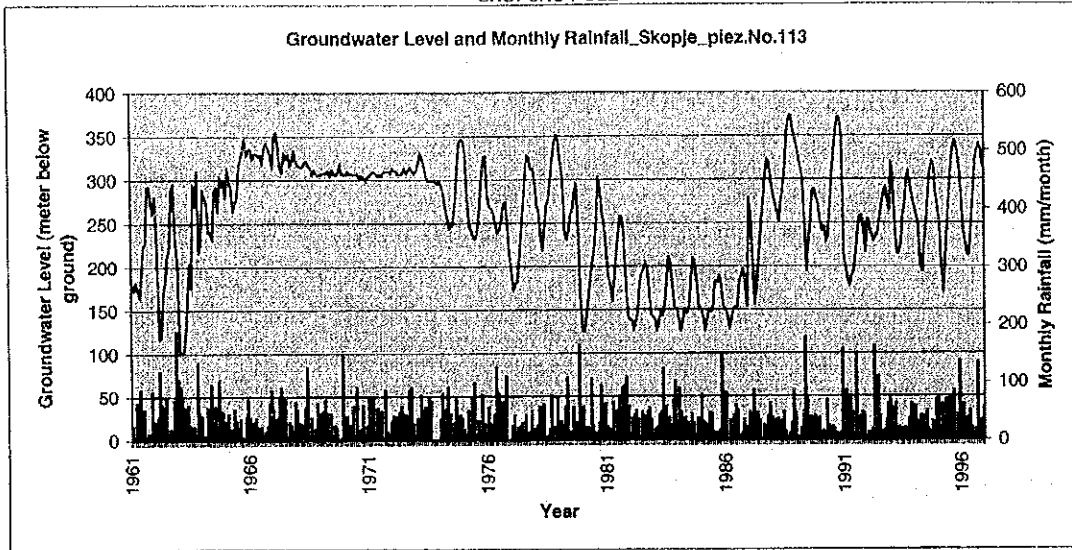
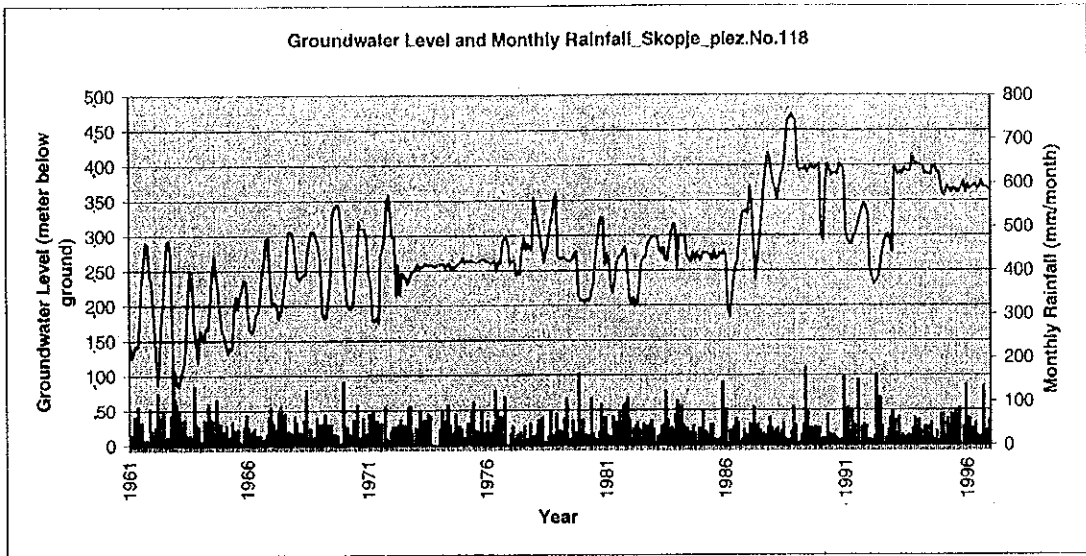


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (1/12)

SKOPSKO POLE



OVCHE POLE

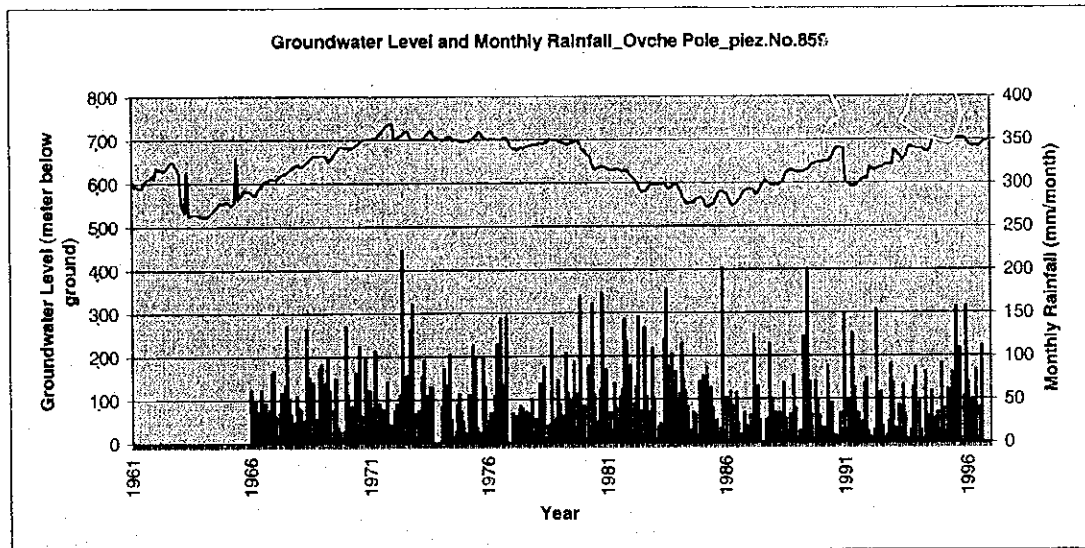
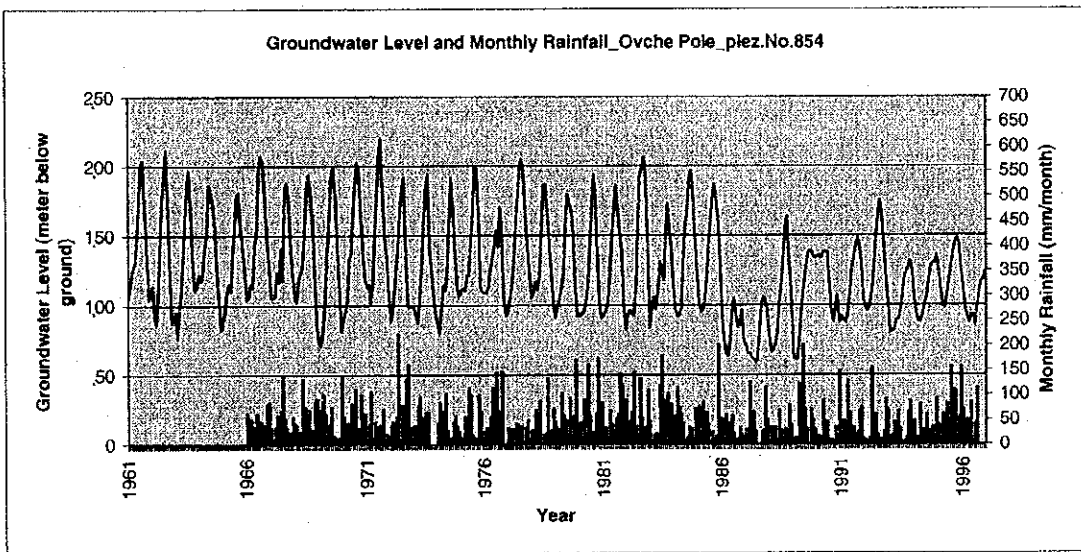
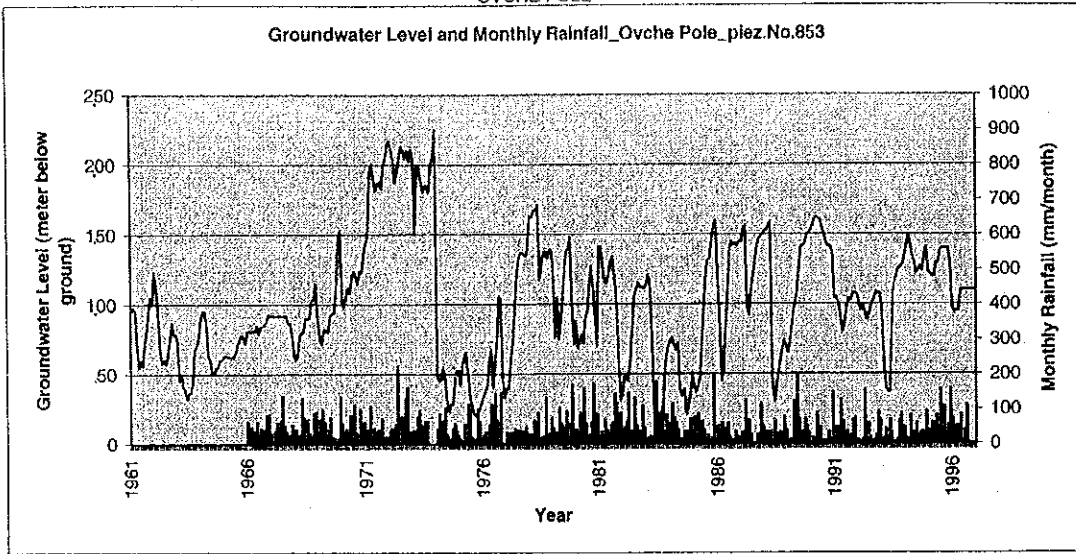
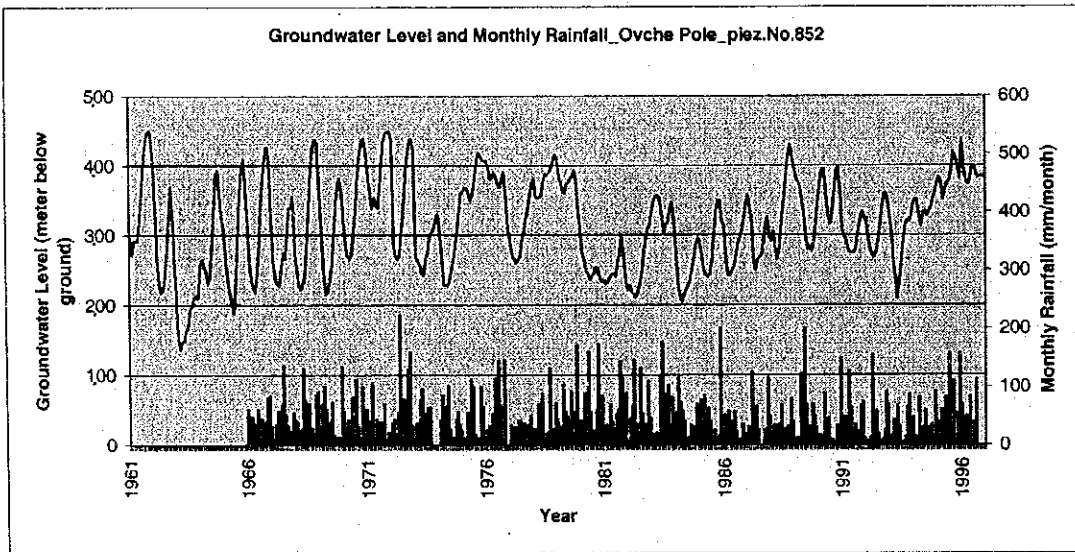


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (2/12)

OVCHE POLE



Groundwater Level and Monthly Rainfall\_Ovche Pole\_piez.No.852



POLOSHKO POLE

Groundwater Level and Monthly Rainfall\_Tetovo\_piez.No.519

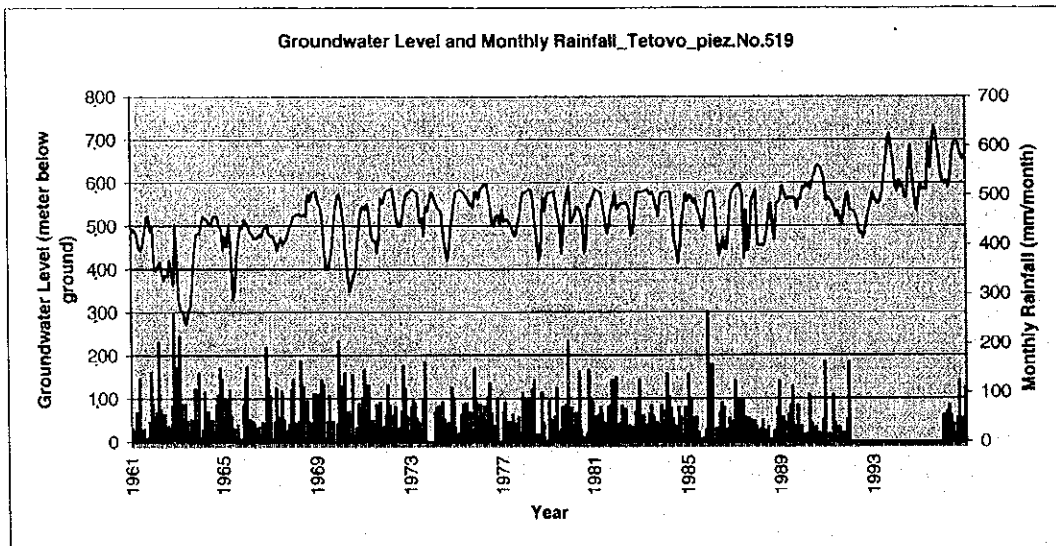


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (3/12)

POLOSHKO POLE

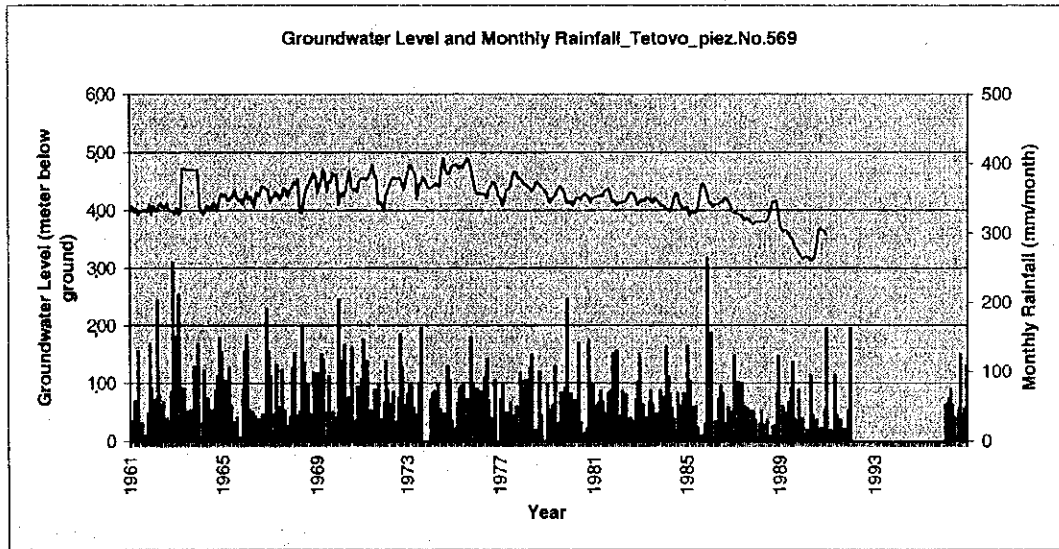
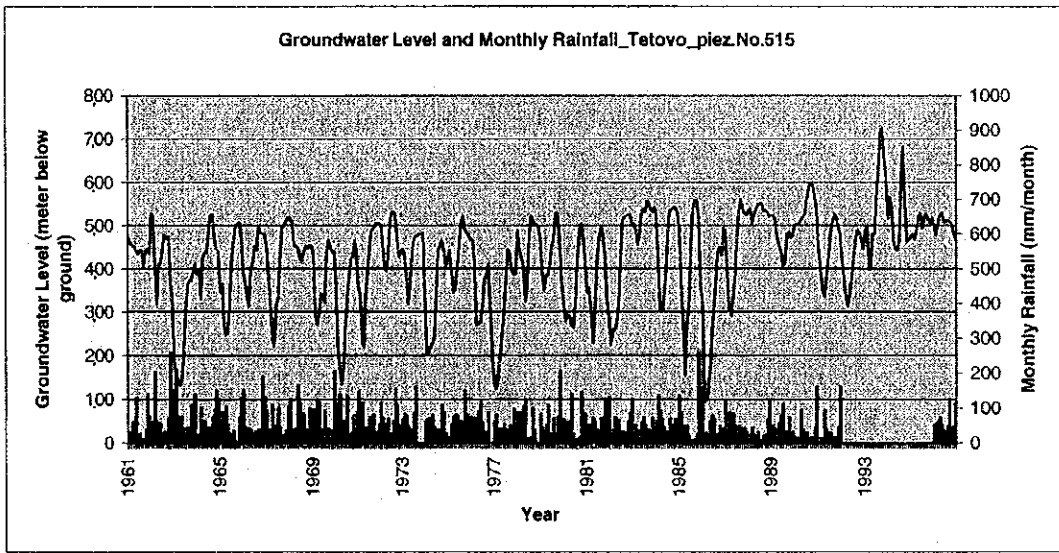
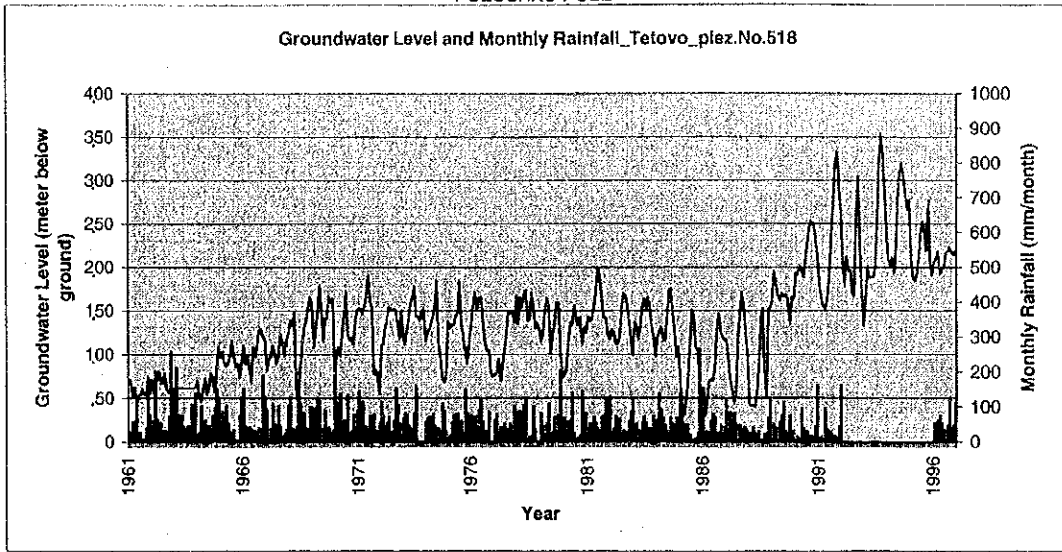
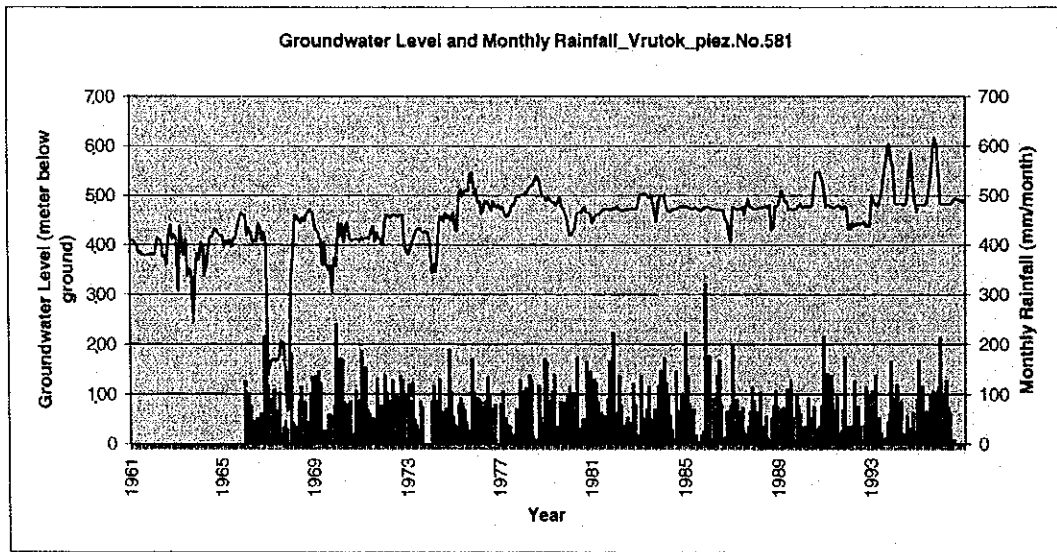
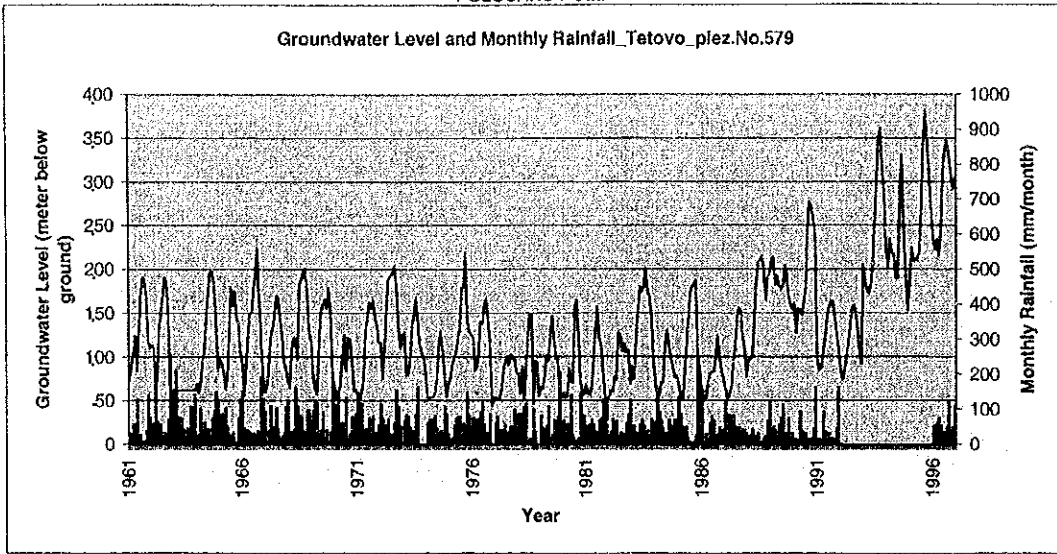


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (4/12)



POLOSHKO POLE



OHRIDSKO POLE

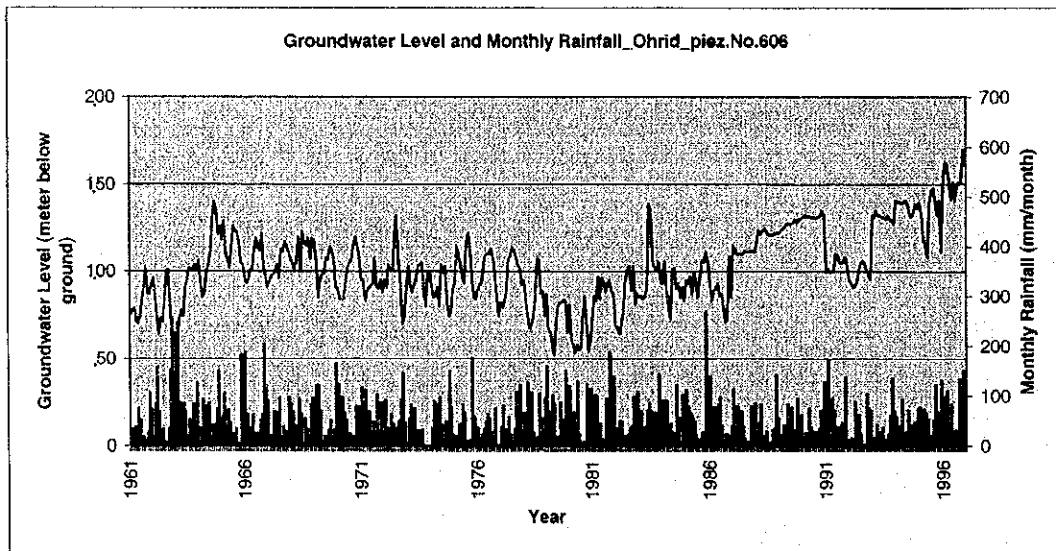


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (5/12)



OHRIDSKO POLE

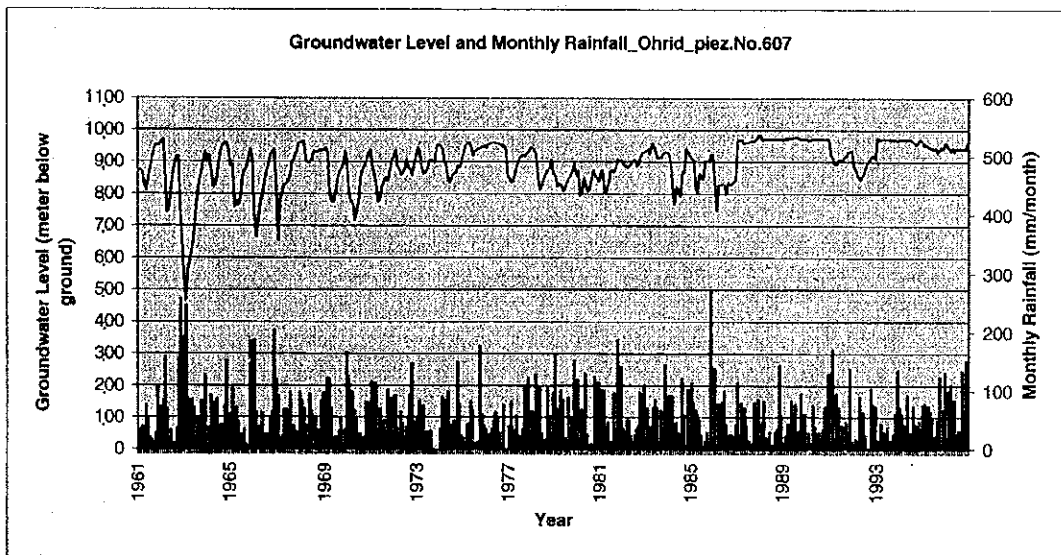
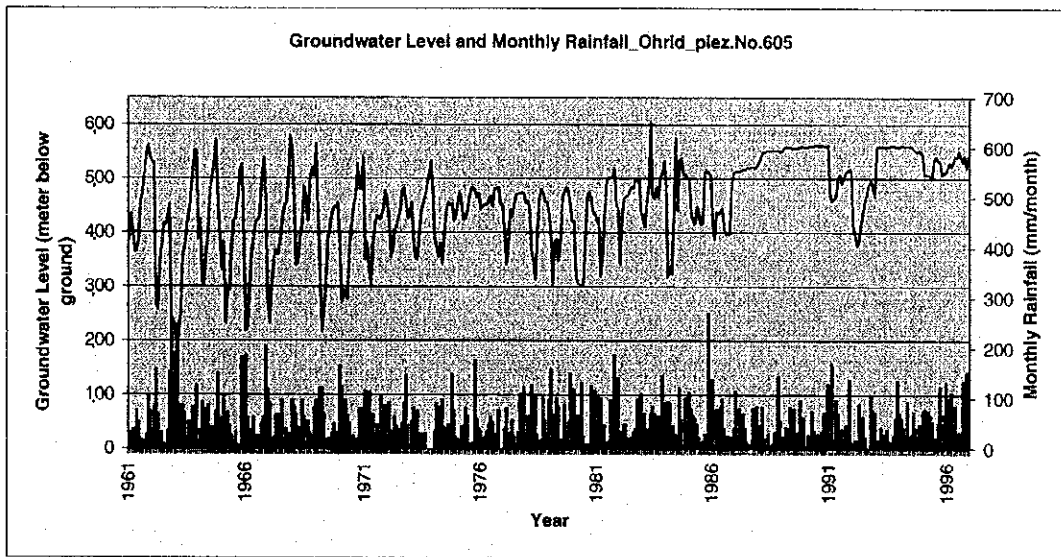
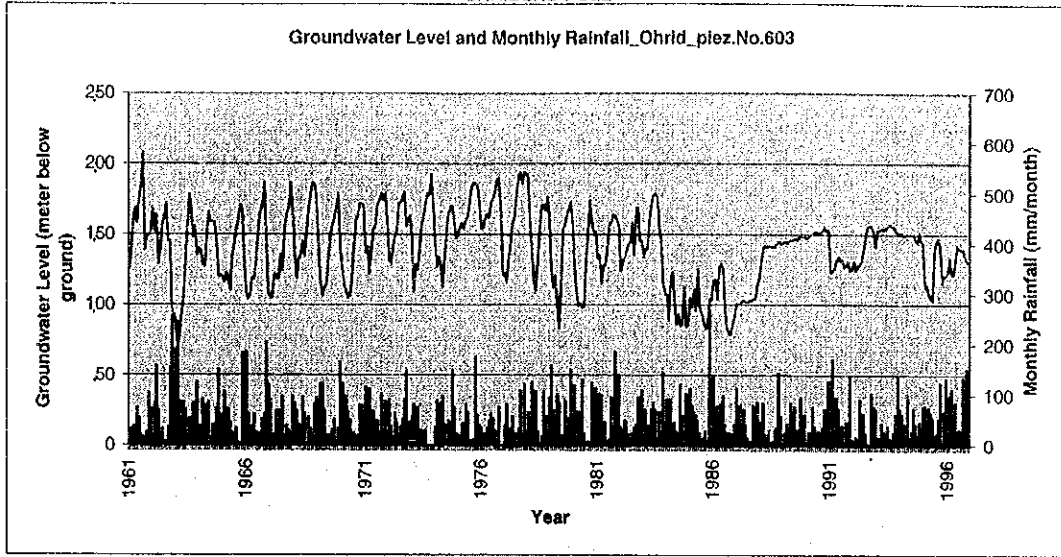


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (6/12)

STRUSHKO POLE

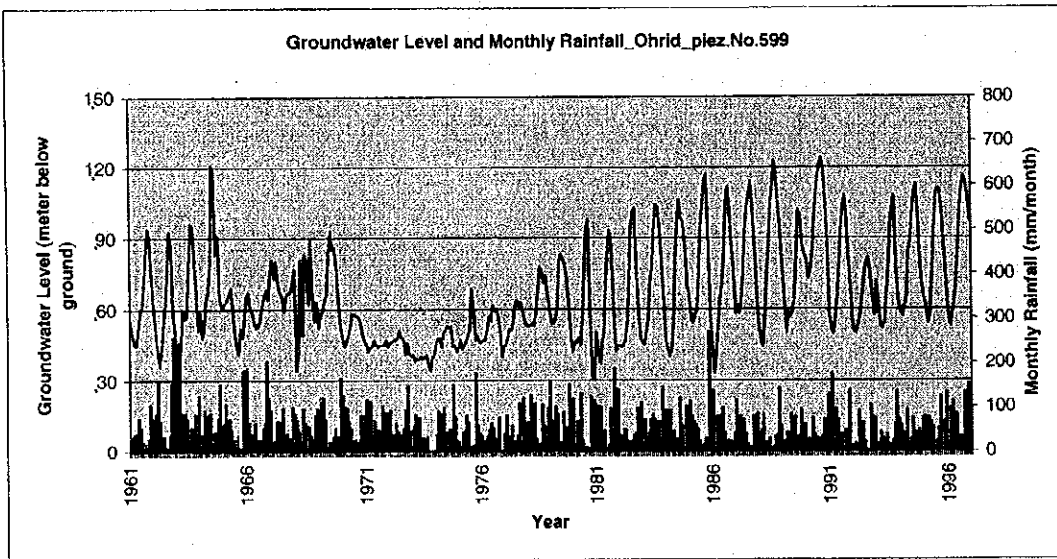
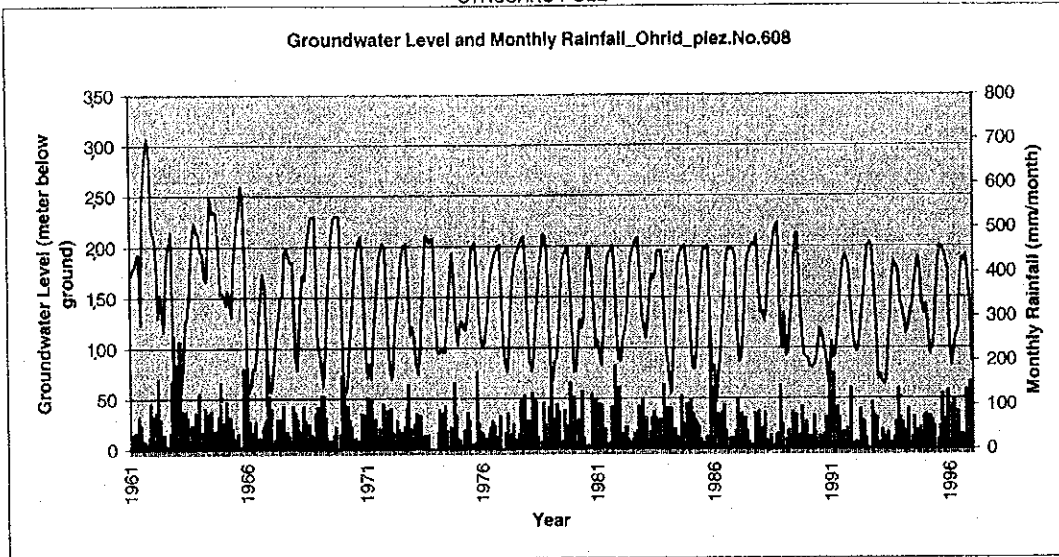


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (7/12)

KOCHANSKO POLE

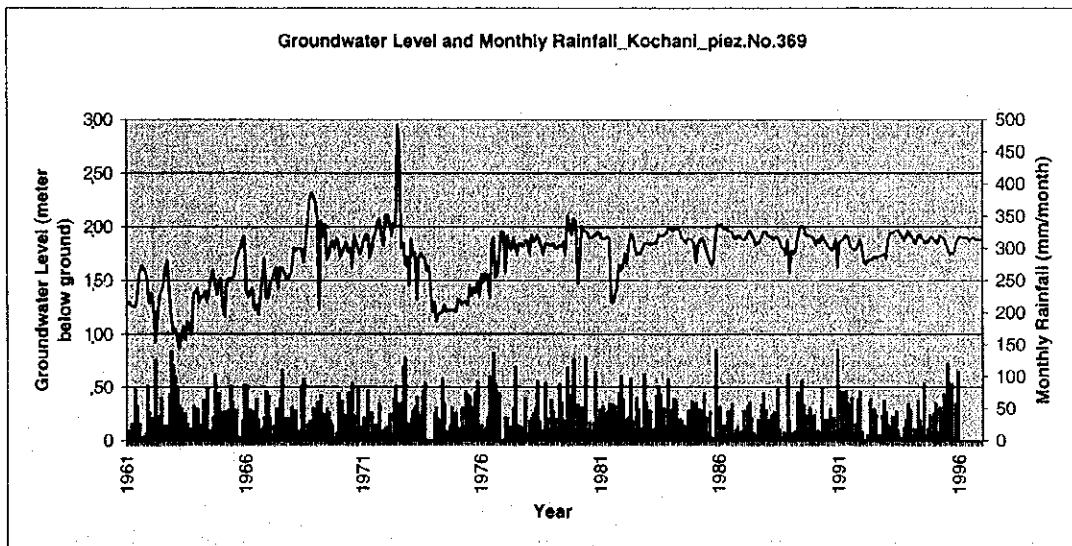
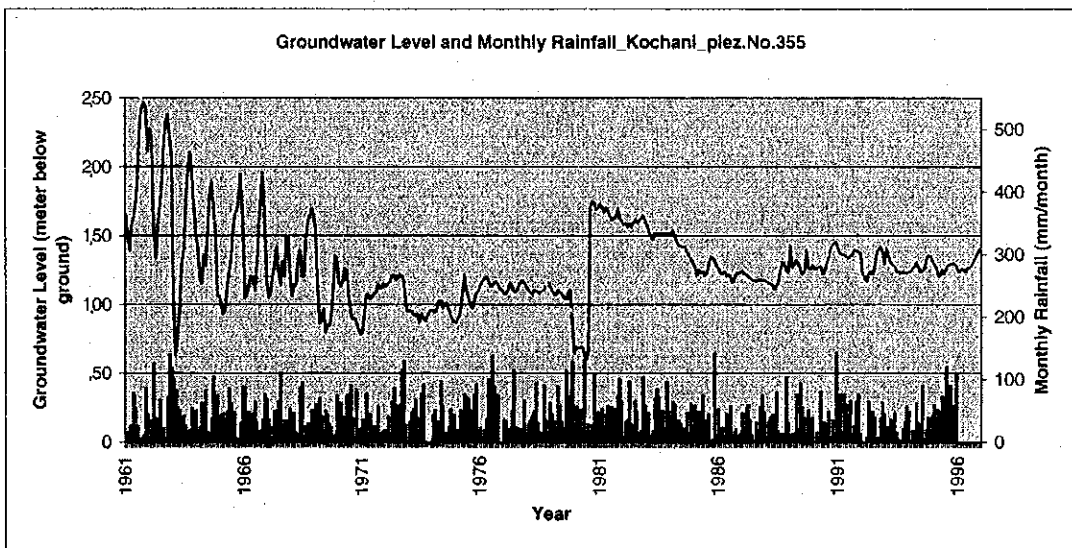
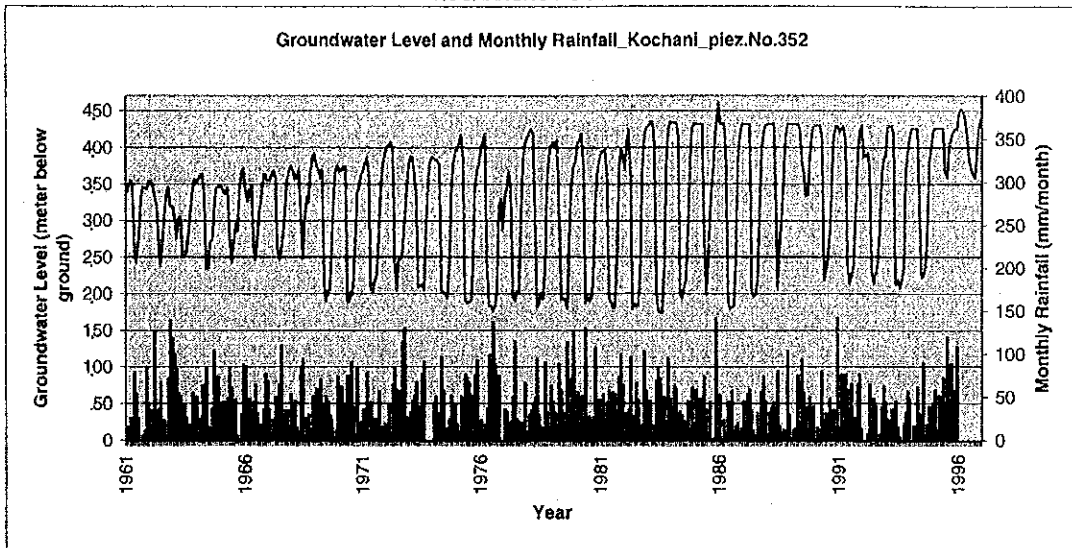


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (8/12)

KOCHANSKO POLE

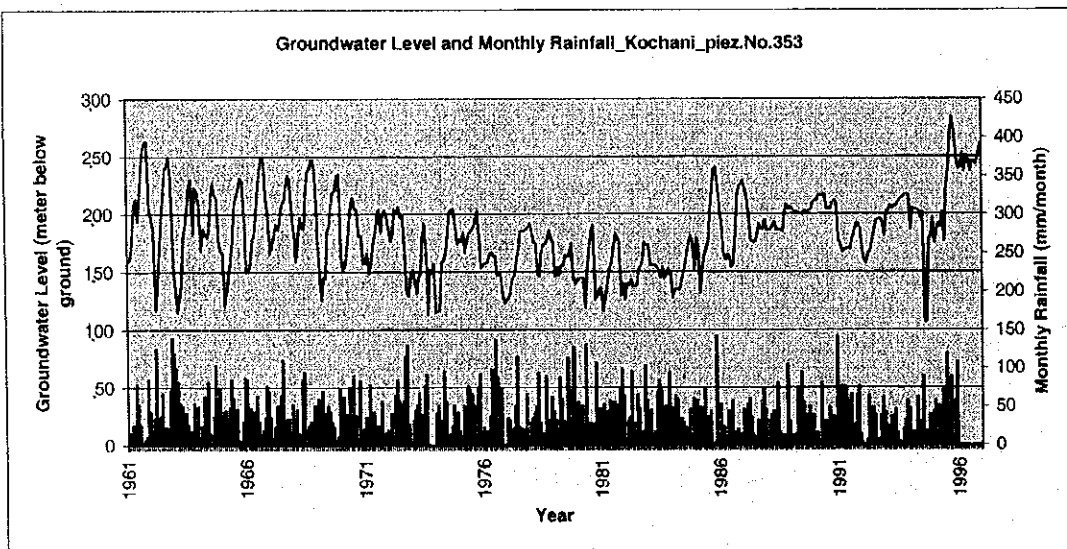
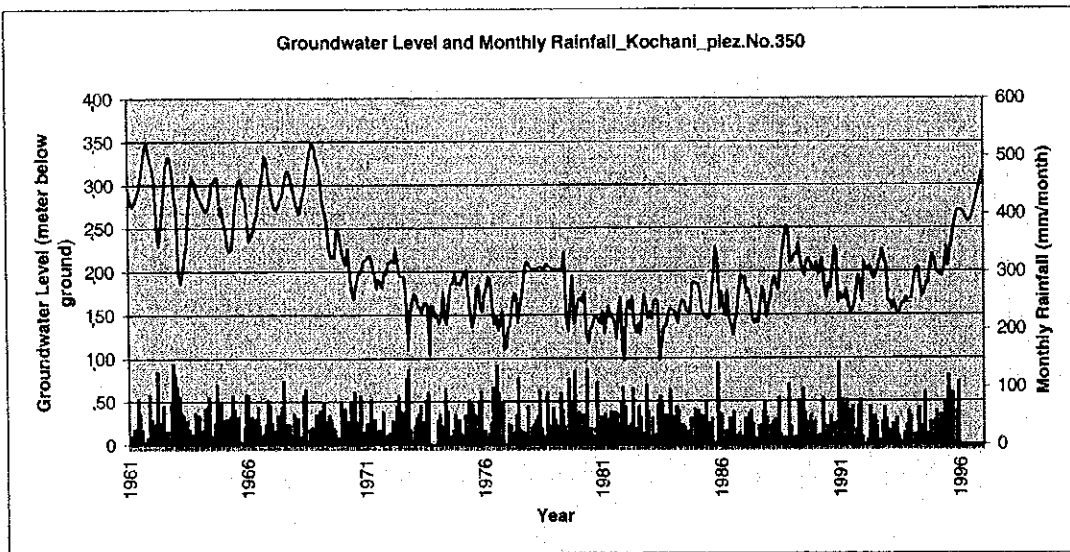
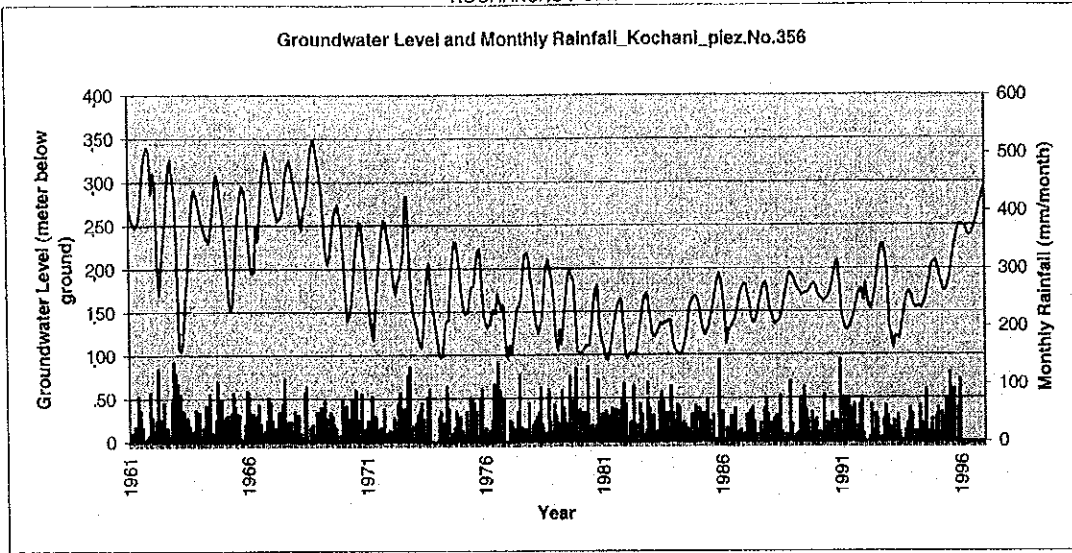


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (9/12)

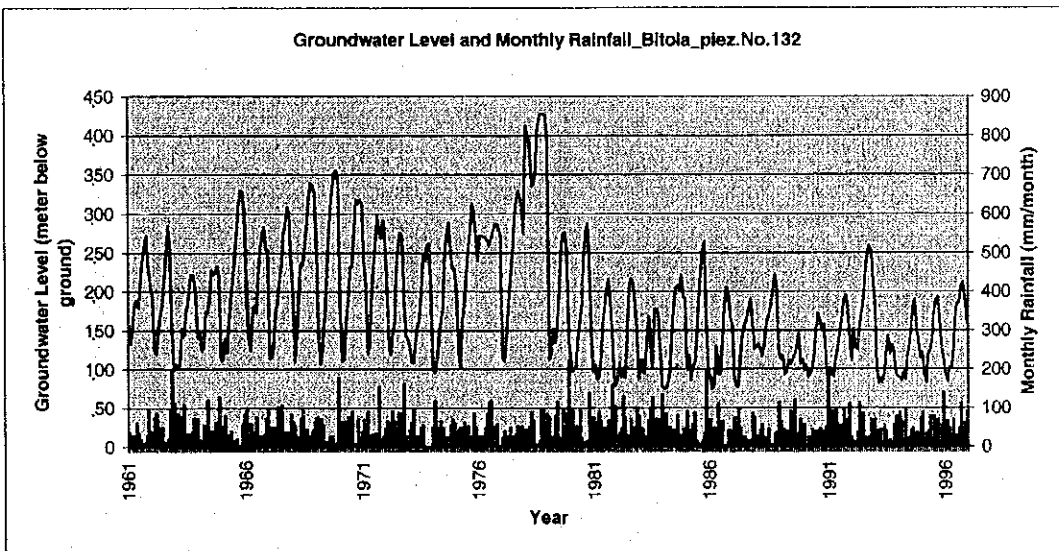
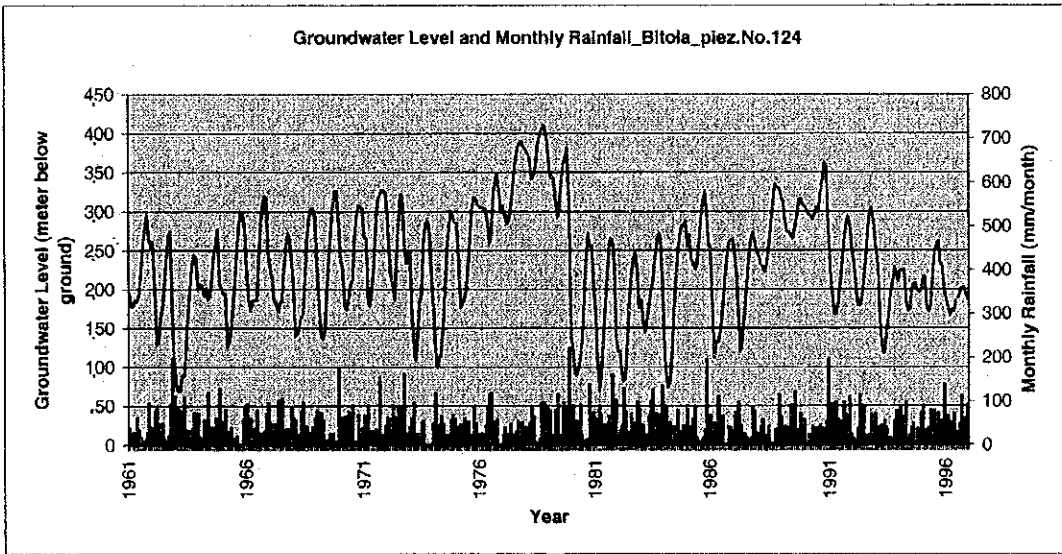
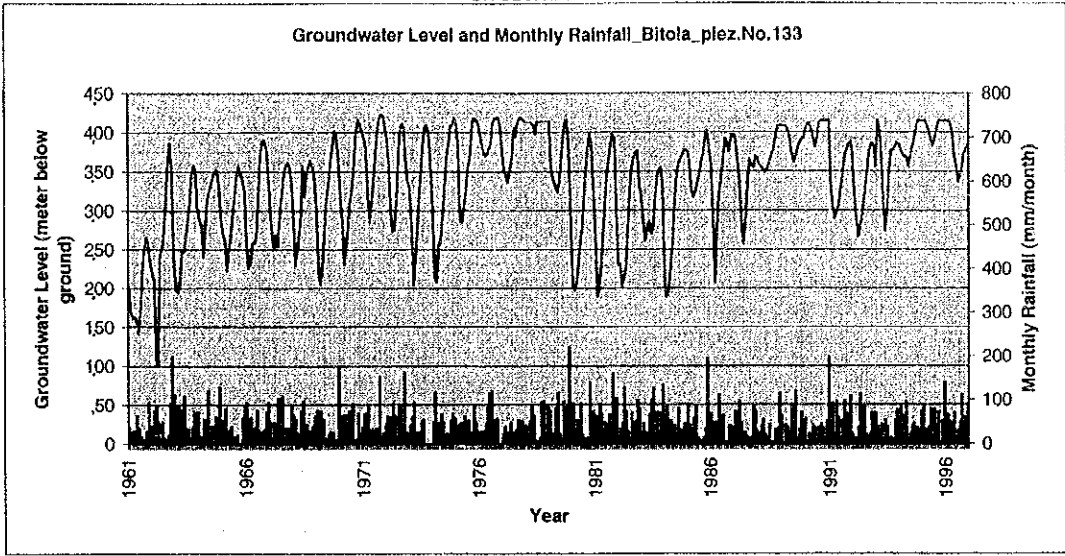
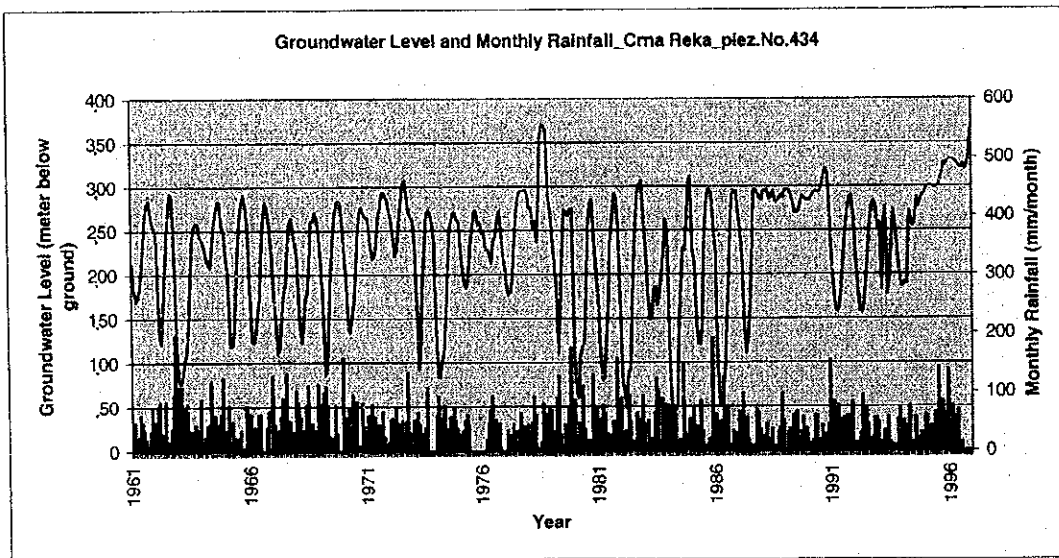
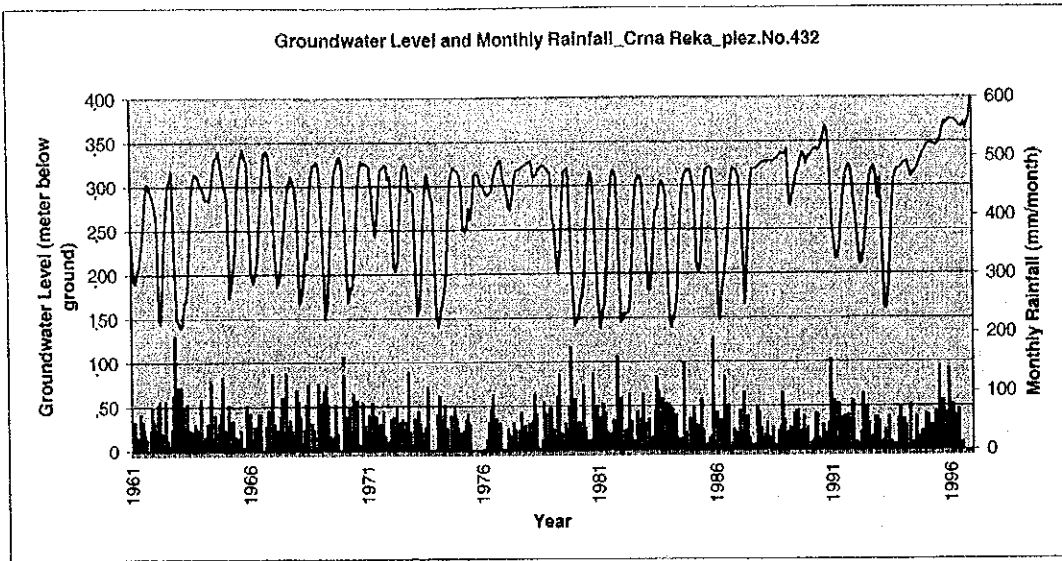


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (10/12)



STRUMICHKO POLE

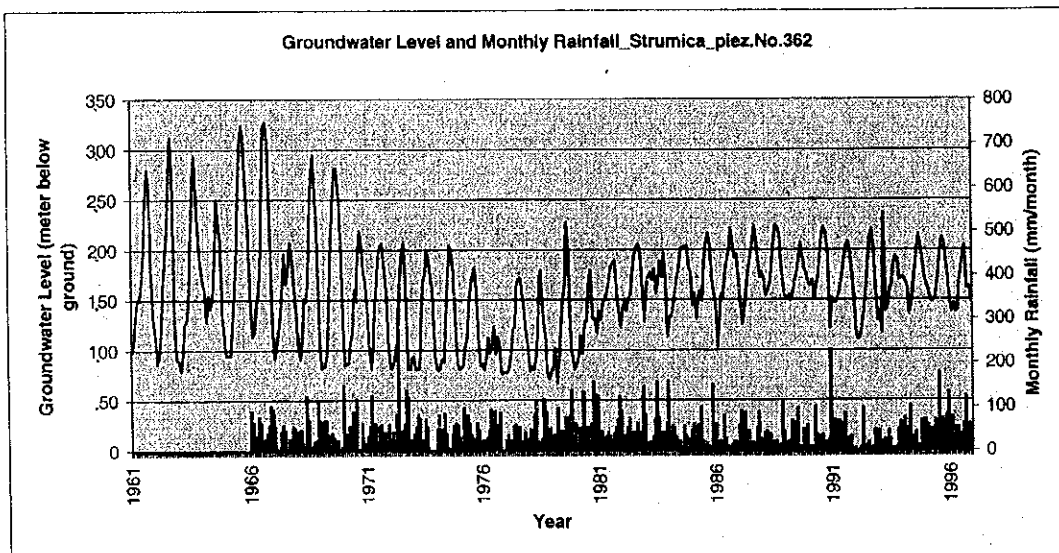


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (11/12)



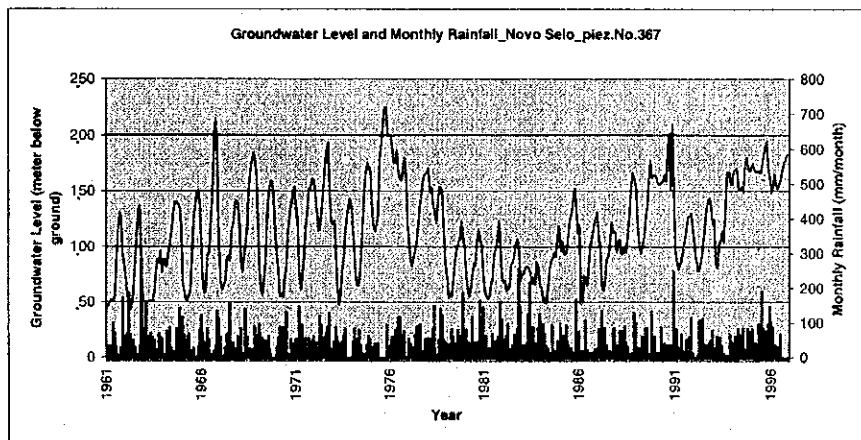
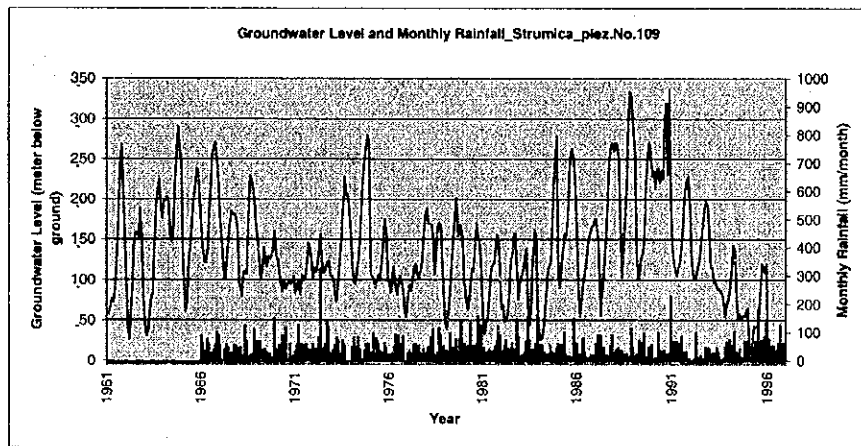
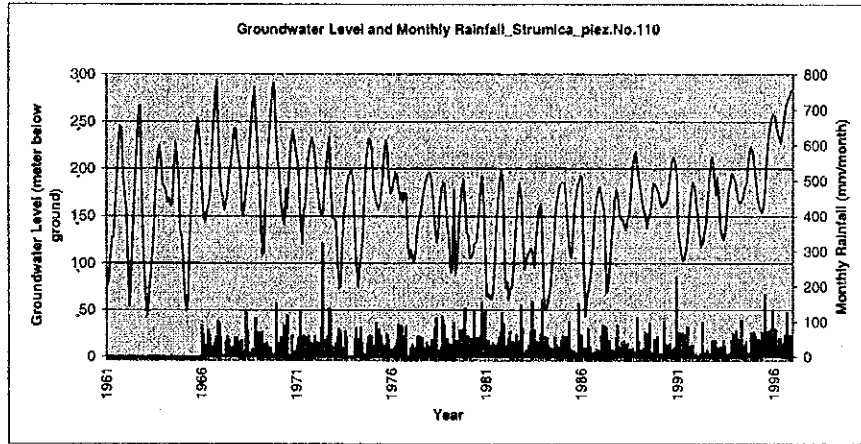
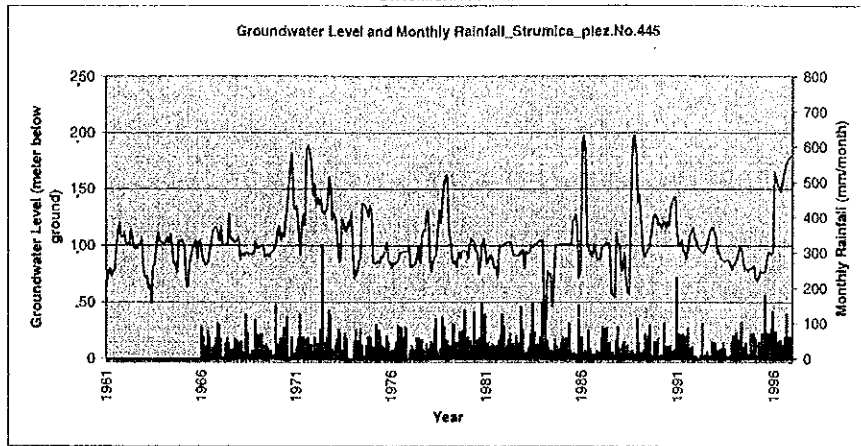


Figure AN.2 Relationship between Groundwater Level and Monthly Rainfall (12/12)



