

Growth, habitat characteristics and aerial survey of forest stands

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**V.2.10. Ecological significance and vulnerability of the Danube
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V.2.11. Evaluation of the growth and some habitat characteristics of production forest stands in permanent monitoring plots

- **Permanent monitoring plots** of the forests in the Gabčíkovo Area:
 - Monitoring plots evaluated continuously from the beginning until now
 - L3, L4, L5, L6, L7, L8, L9, L10, L11, L12.
 - In addition to them, the plots L14, L18, L19 and L20 situated in the area of Podunajské Biskupice were monitored continuously with the only exception in 1998.
- The plots L3 - L4 are situated in between the Gabčíkovo harbour and the confluence of the tailrace canal with the Old Danube. In this area ground water level couldn't be regulated.
- The other plots are situated in an area with a more or less controlled ground water level.
- In 1999, the plots L25 and L26 were established in the area downstream, where the tailrace canal joins the old Danube, which is out of the direct influence of the Gabčíkovo project.

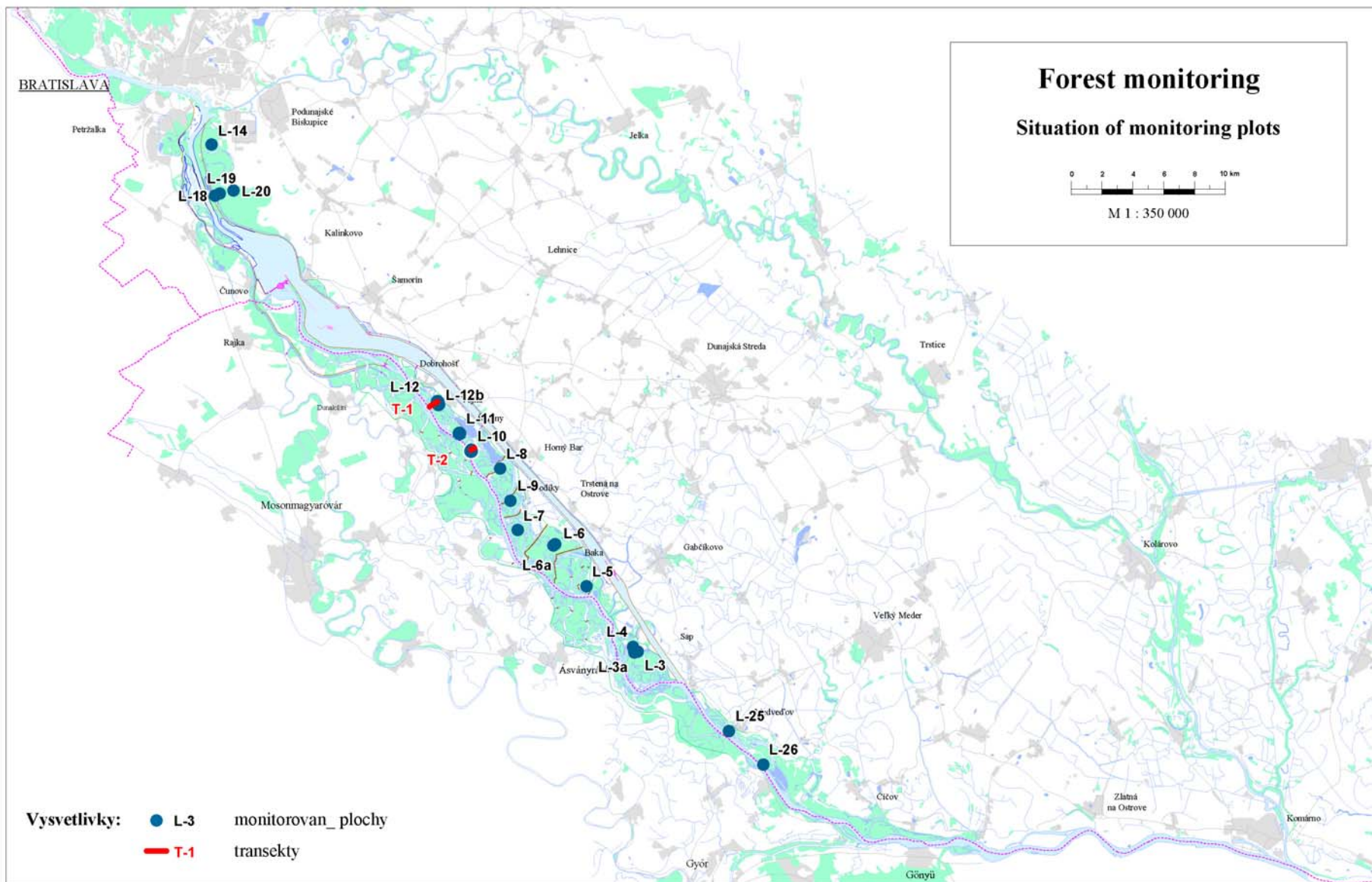
Measured characteristics:

- Ground water level in well – weekly in the growing season, once in 2 weeks out of the growing season.
- The girth and height of the trees – at the end of the growing season (50 trees selected when the plots were established);
- The girth increment during the growing season in selected monitoring plots.
- The health of the trees – at least 2 times a year.
- Phytocenological records of spring and summer aspects of the herbaceous layer.

Results of the forest growth and habitat monitoring have been summarized and published in annual reports.

Based on the results from the years 1993-1996, the forests in area between Dobrohošť and Sap was divided into 5 zones where the ground water tables can be regulated + 1 zone where the ground water level cannot be controlled.

This stratification has been used until now.



Results and Conclusions / 1

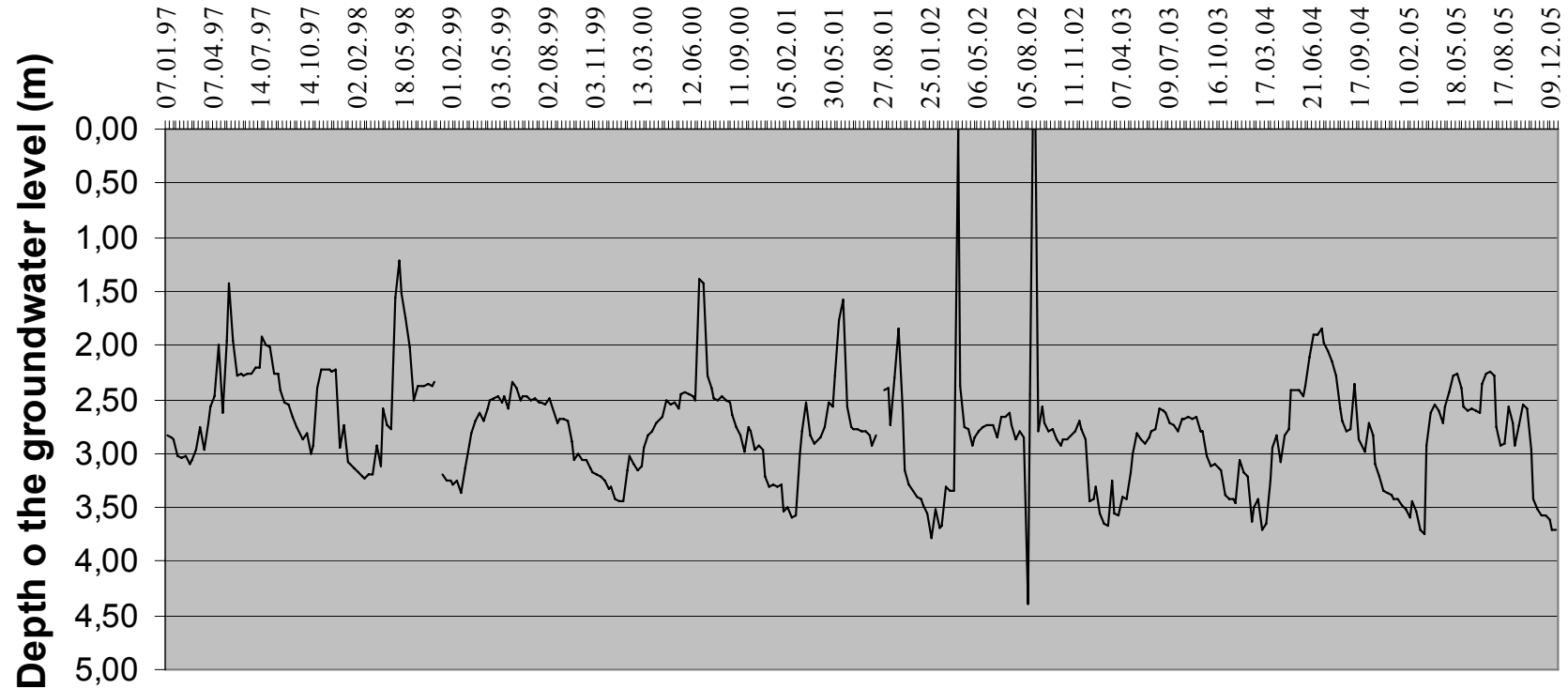
- The girth increment of evaluated trees more or less follows the changes of the ground water table with a 1–2 week delay.
- The girth and height increments are rather strongly influenced by the other factors, especially by the age, bio-sociological position of a tree, and thinning of forest stands.
- Some plots with decreased ground water table show relatively good growth until an old forest stand is replaced by a young stand with more shallow root system.

Results and Conclusions / 2

- Increased or decreased presence of the diseases and pests obviously depends on weather conditions.
- The strongest decreasing trend in the ground water level is in the areas outside of the reach of the hydraulic structures and areas outside of the river branches controlling the ground water level.
- Changes of the herbaceous layer on the monitoring plots is more influenced by forest management intervention than by other factors.

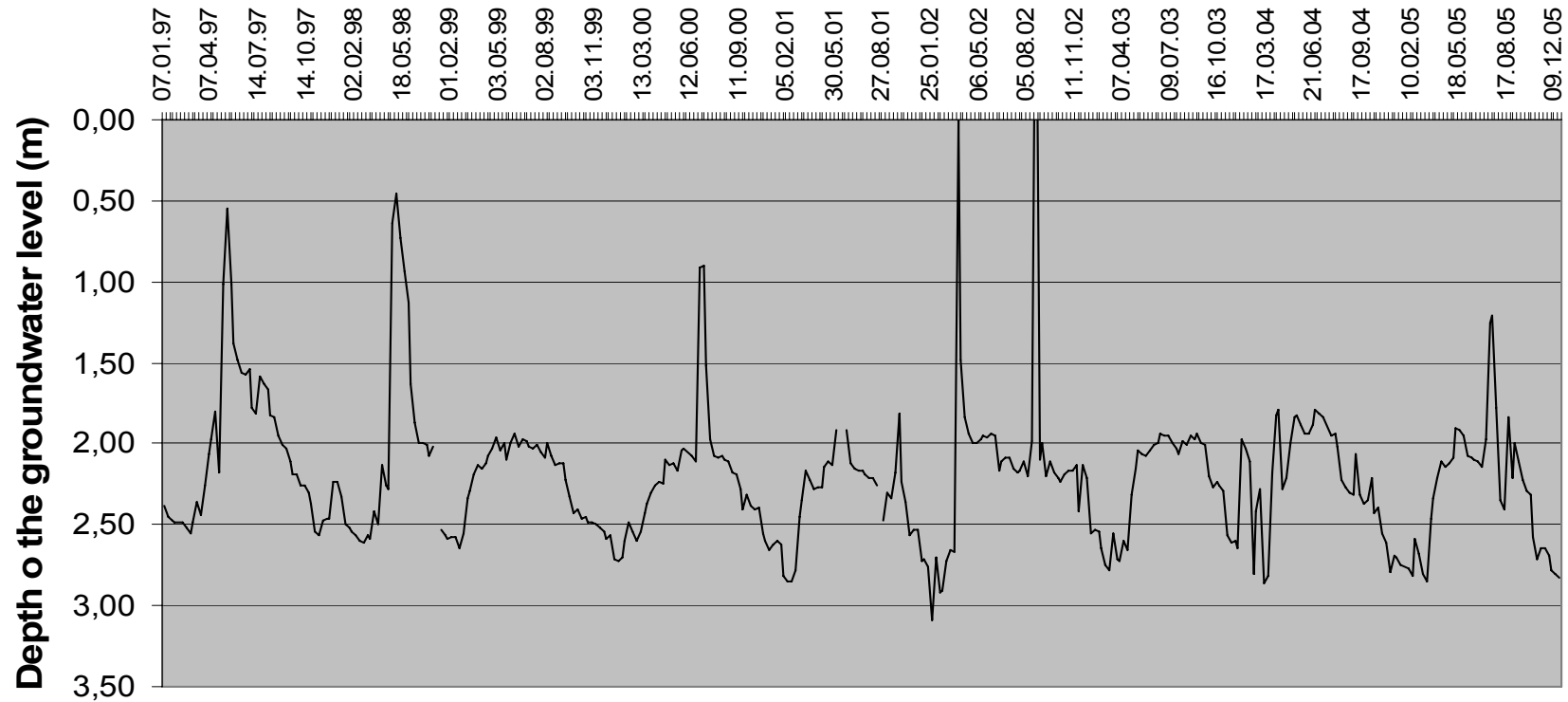
Changes of the ground water level on the monitoring plot L12 in years 1997 - 2005

- typical for the area between water intake and line B



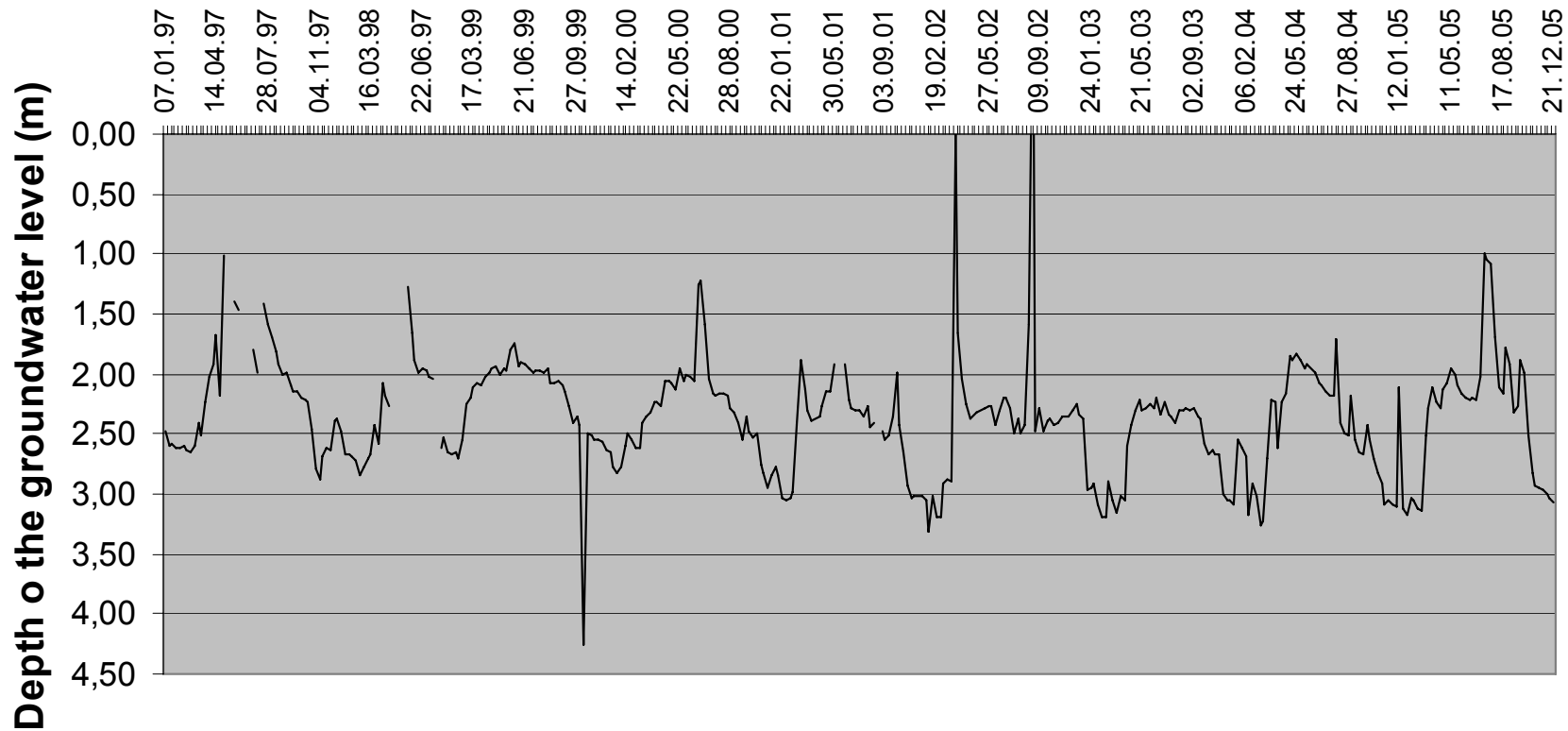
Changes of the ground water level on the monitoring plot L8 in years 1997 - 2005

- typical for area between line B and line E

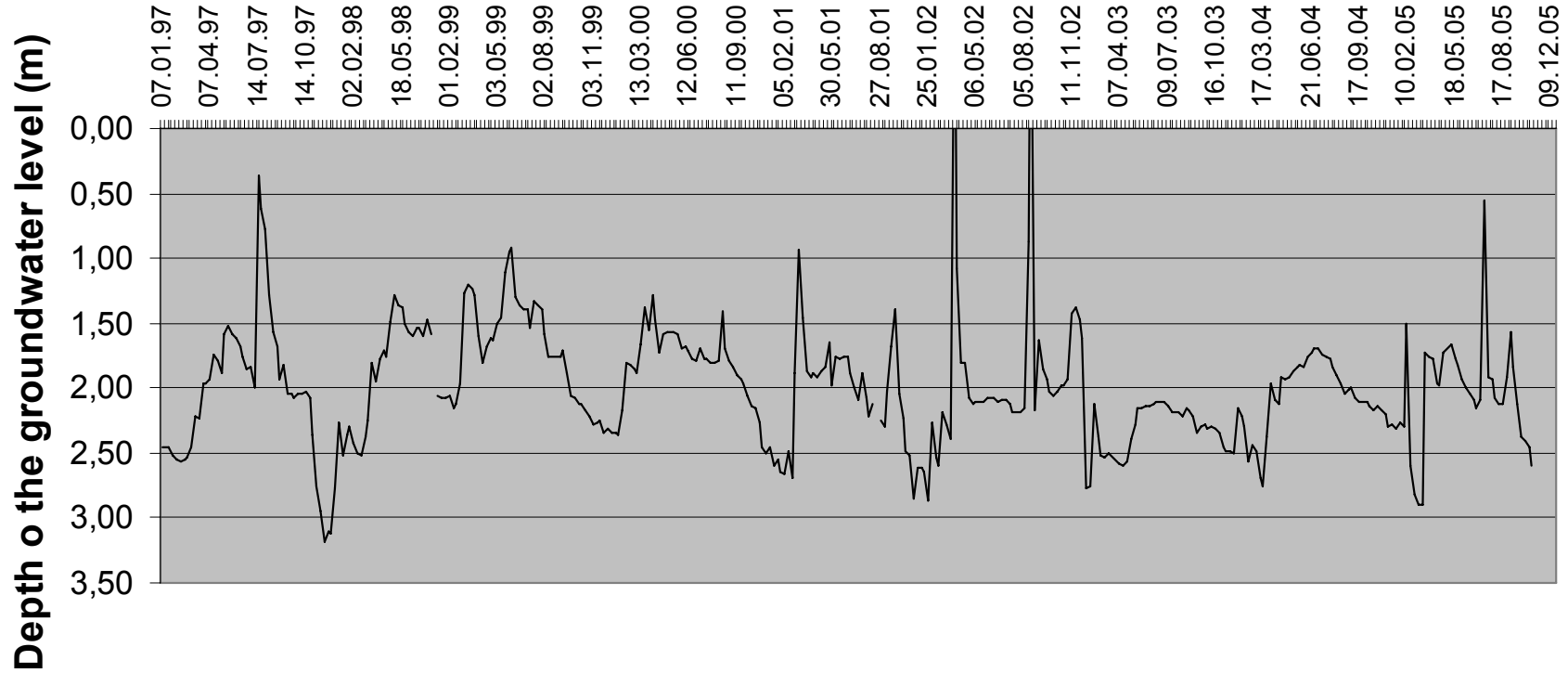


Changes of the ground water level on the monitoring plot L7 in years 1997 - 2005

- typical for the area between line E and line F

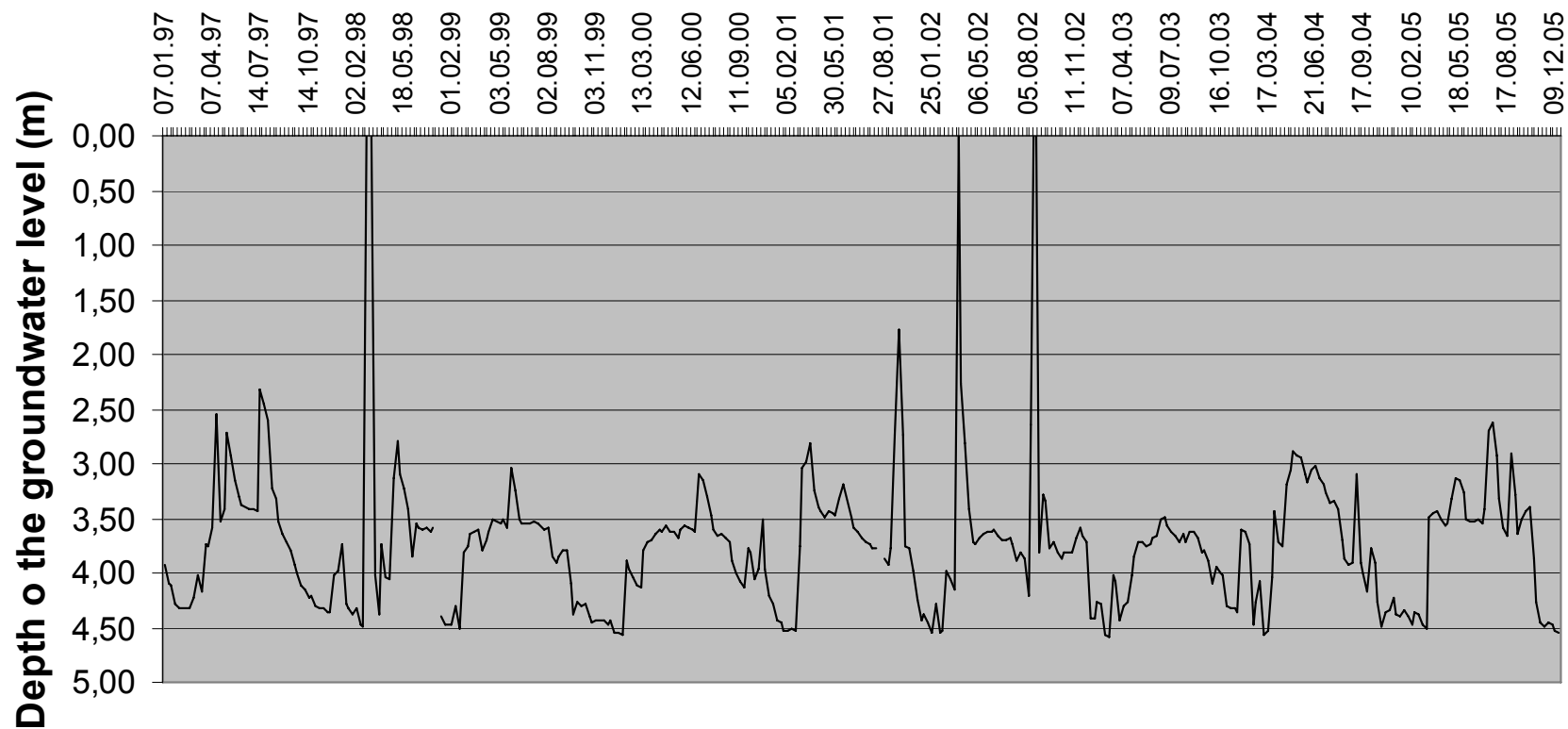


Changes of the ground water level on the monitoring plot L5 in years 1997 - 2005
- typical for the area between line F and Bakanské river branch mouth

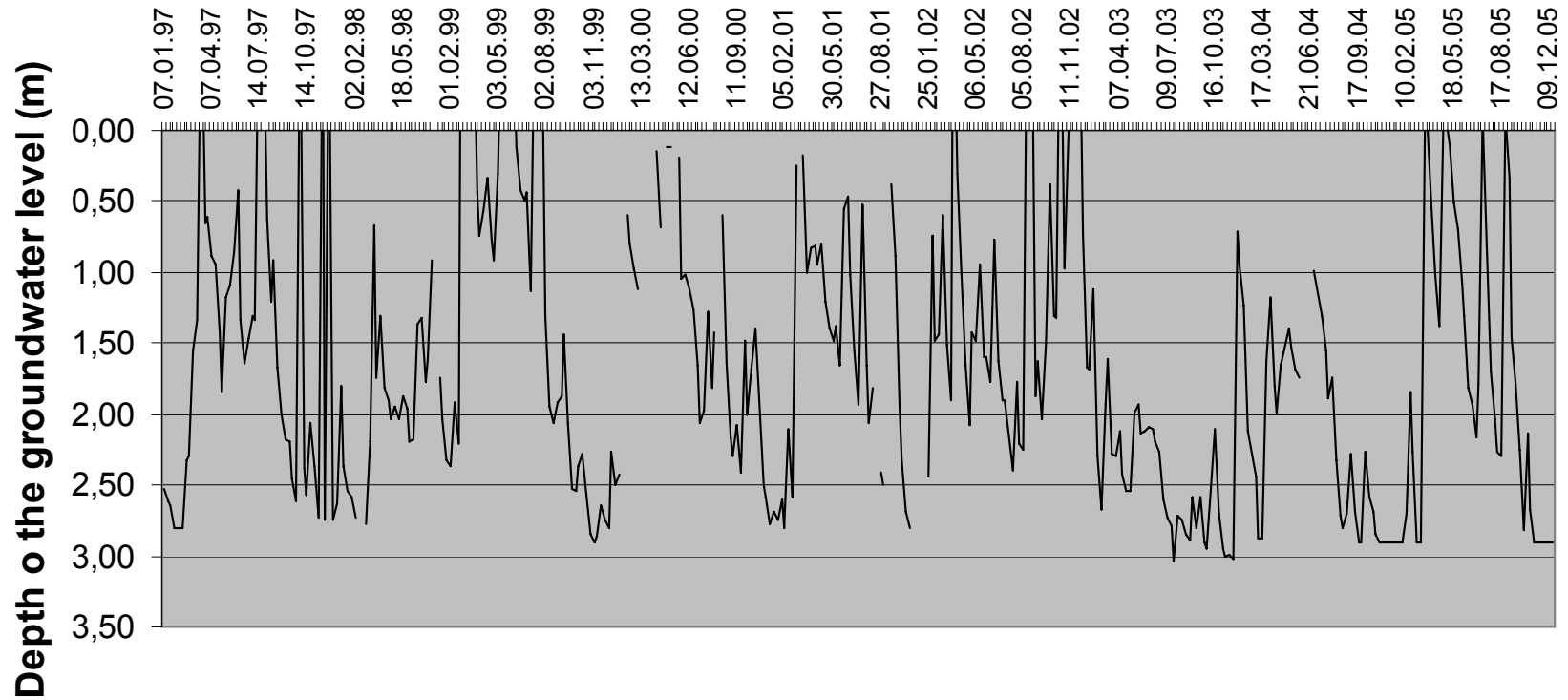


Changes of the ground water level on the monitoring plot L10 in years 1997 - 2005

- typical for the area near the Old Danube riverbed



Changes of the ground water level on the monitoring plot L3 in years 1997 - 2005
- typical for the area between harbour and confluence of the tail race canal with the Old Danube



Changes of the ground water level on the monitoring plot L25 in years 2000 - 2005
- an area without direct influence by Gabčíkovo project

