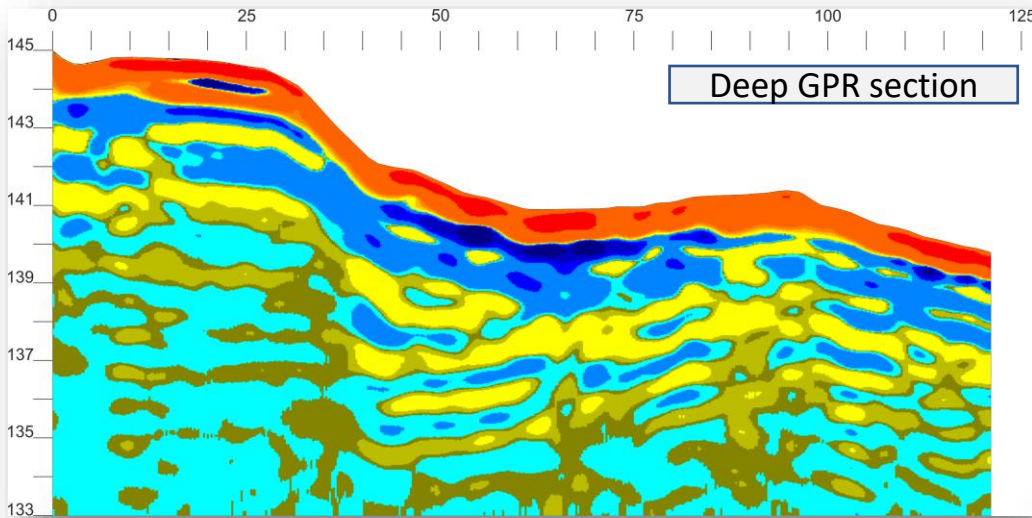


# Application of the Deep GPR method in research on landslide slopes

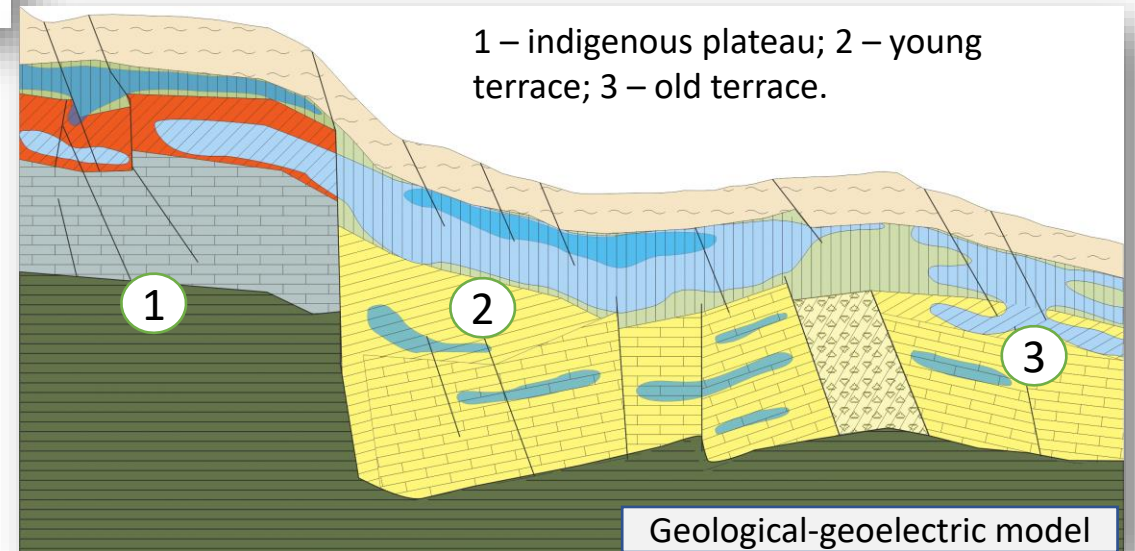


## Example of structural differentiation of a section

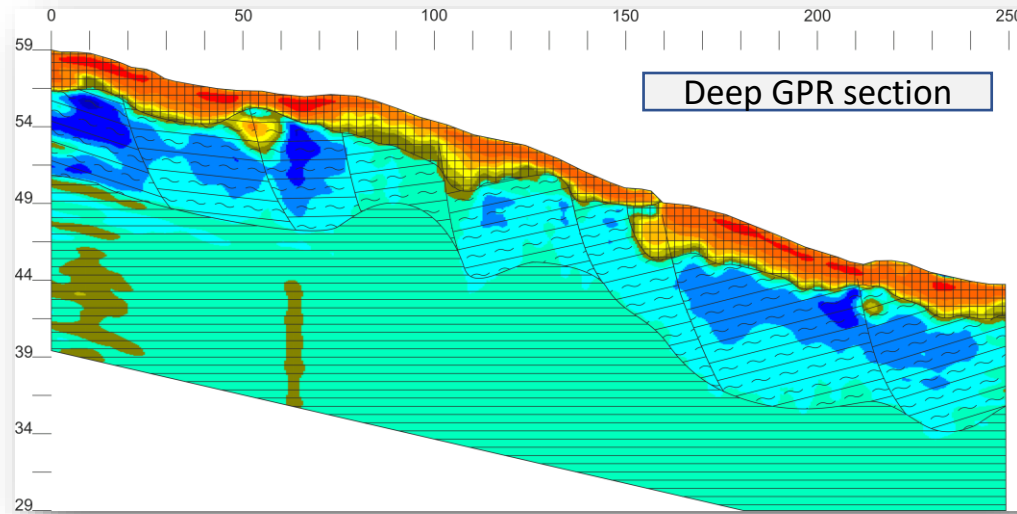


- ✓ The edge of the indigenous plateau;
- ✓ Landslide cracks;
- ✓ Amplitudes of displacements of layers and blocks;
- ✓ Landslide block boundary;
- ✓ Slip and plastic deformation boundary;
- ✓ Water level and water saturation zones;
- ✓ The boundaries of the development of secondary landslide processes

The use of the **Deep GPR** method in the research of landslide slopes and adjacent areas of a bedrock, undisturbed plateau makes it possible to confidently record various structural elements of the section:

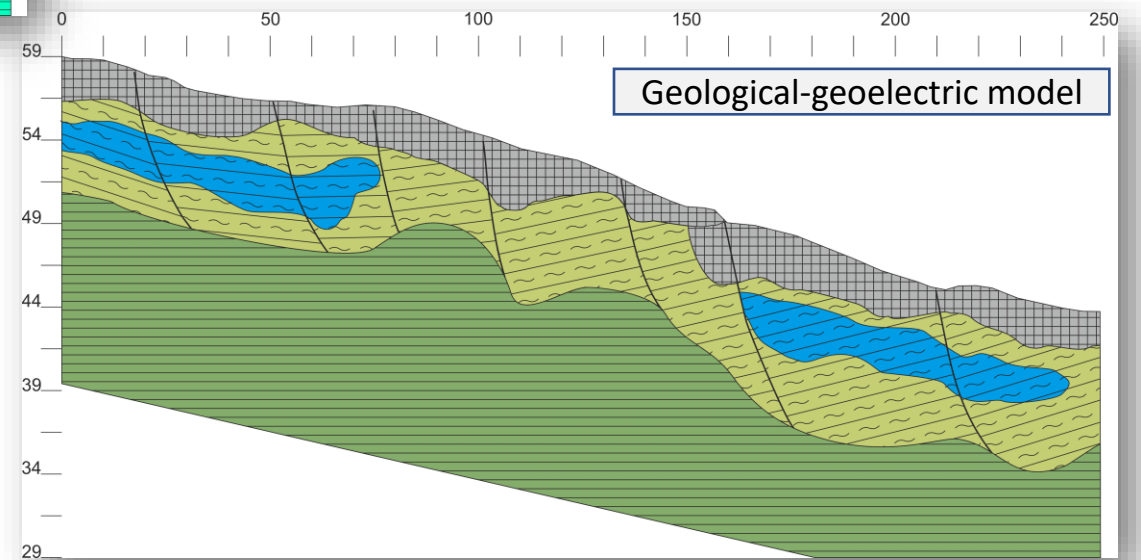


## Example of identifying the structural elements of a landslide slope

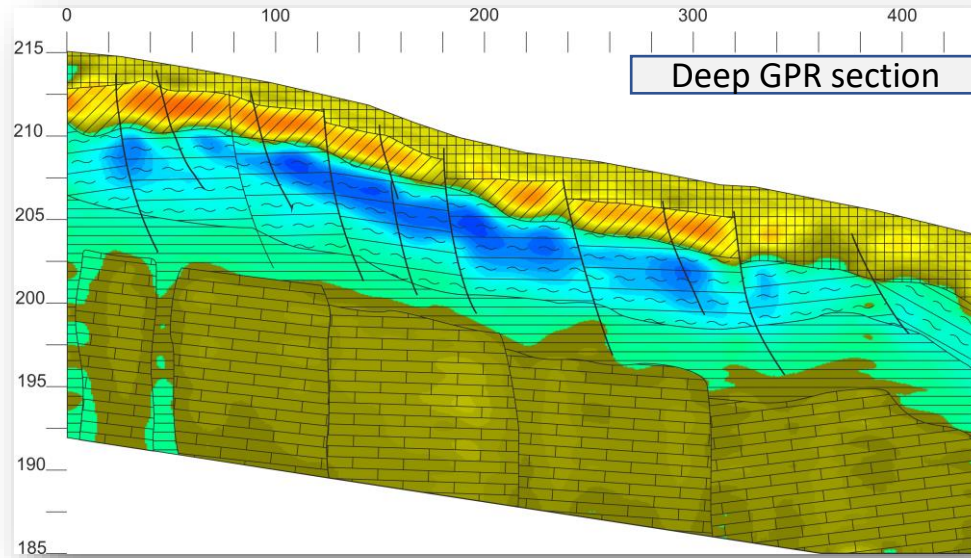


The high detail of the data provided by the **Deep GPR** method allows the elements of the structural structure of the landslide slope to be identified. With high accuracy localize areas of development of secondary deformation processes within landslide blocks, determine the boundaries of landslide blocks and zones of water saturation.

Timely survey of landslide areas allows you to observe and predict the dynamics of the development of landslide processes both on existing open pits, rear slopes of earthen dams, and with active residential development of slopes and adjacent areas of the plateau.

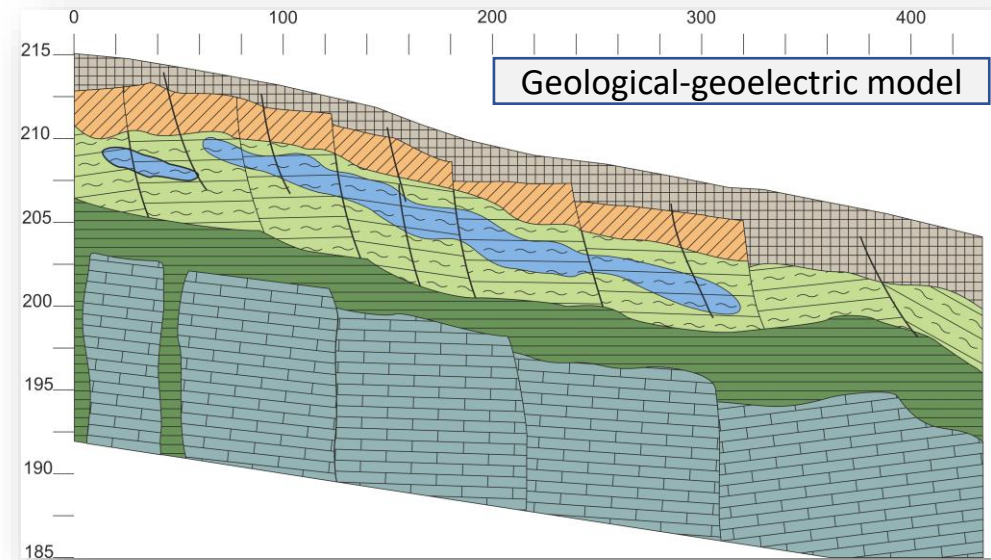


## Example of the identification of secondary landslide processes

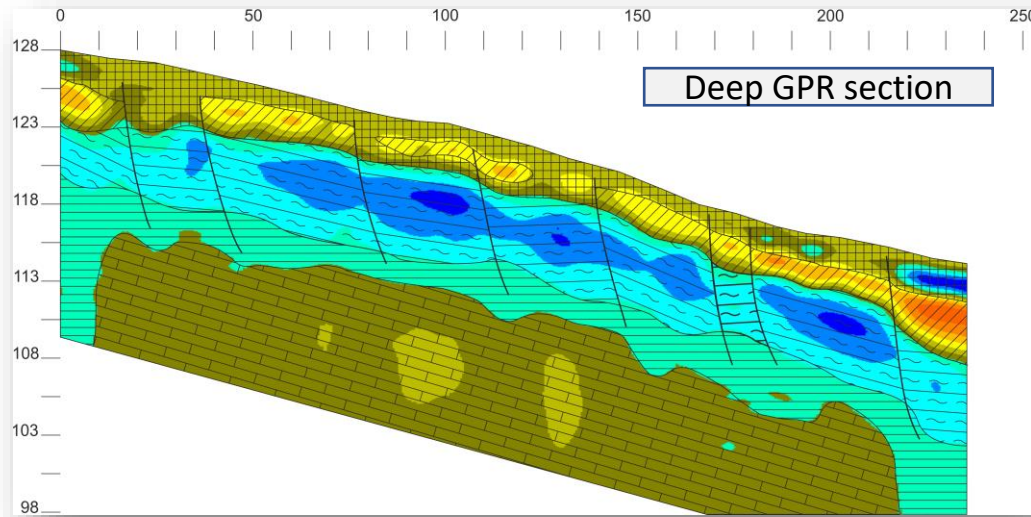


Secondary processes can be expressed in areas of significant subsidence, displacement of the upper layers of the section. The presented GPR section shows a gap in the horizontal continuity of layers, a vertical displacement of the upper layers.

In the areas of landslide slopes, secondary landslide processes are activated over time. Their activation is associated with the violation of hydrological conditions and the formation of zones of water saturation, which leads to overconsolidation of soils and their high plasticity (fluidity).



## Example of the identification of secondary landslide processes



Due to the use of modern deep georadar methods, the efficiency of design and arrangement of drainage systems, anti-landslide curtains, a complex of structures to increase the stability of the slope increases

Identification and mapping of structural elements of the structure of landslide slopes, determination and localization of the development of secondary landslide processes is an important aspect in predicting and preventing the development of hazardous geological processes.

