Haplic Kastanozems Chromic of the North-West Caspian region under climate change conditions

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INTRODUCTION
The present mitigation of climate brings to the fore the topic of regional landscapes’ response to external disturbances of the environment, which is especially important for arid and subarid regions with high risk agriculture. Global climate warming affects all regions and can lead to unexpected environmental consequences. The peculiarity of some arid regions is presence of mobile easily soluble salts in the soils, subject to seasonal and long-term dynamics. Based on the position on pedogenesis as an integration of SPP - specific pedogenic processes (Targulian, Krasilnikov, 2007) - the dynamics of soil salts can be considered as a reversible SPP in accordance with groundwater dynamics, depending on Caspian sea level changes and determined by mutually reversible multidirectional climate trends.

RESULTS
Over the past 30 years, two climate trends can be distinguished in the North-West Caspian region: from the late 1980s to 2010 with an increasing in precipitation (P) and in average temperatures (T); from 2010 to the present - a relative decreasing in P and T (Fig 2).

Like climate trends are typical also for other regions with similar climate conditions (Ergina, Zhuk, 2019). Soil pits were laid on dominant and subordinate relief positions on Haplic Kastanozems Chromic endosol underling with fluvial deposits covering marine ones (Fig. 3.). Groundwater level (hG) is 4-6 meters. Pit 1 is laid on dominant relief slopes with a relative height (H) = 3.8 m. Texture is light loam - 29.3 % ph.cl., hG is more than 4 m. Since 1990 up to 2018 the degree of salinity in the upper 0-30 sm soil thickness was decreased by two orders of saline value: 1990→2011→2018 yy.: MO→SI→N. In the lower 30-70 sm thickness: ST→MO→SI.

CONCLUSIONS
Mitigation of climate during 28 years promoted optimization of soil cover properties. In the North-West Caspian region since late 1980-s up to 2018 yy. positive changes have been occurred: upper thicknesses of soil profiles have been desalinated. Decreasing the Caspian Sea level contributed to the lowering of ground water that influenced salt composition of soil profiles. On Haplic Kastanozems of subordinate slopes, the desalination of profiles slowed down somewhat compared to the dominant slopes, which can be explained by the still high level of saline groundwater (Fig.4).

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REFERENCES

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