

4<sup>th</sup> International Geography Symposium  
23 - 26 May, 2016 / Kemer, Antalya, TURKEY



# 4<sup>th</sup> International Geography Symposium

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## BOOK OF ABSTRACTS ÖZETLER KİTABI

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## Grain Yield as an Indicator of the Drought in Kazakhstan

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### Absrtact

Drought is one of the major natural disasters in Kazakhstan and it has a great impact on agricultural sector. At the same time, agriculture is greatly dependent on water resources. As for the irrigated agriculture, glaciers in the mountains are the major storage of water resources and they are extremely sensitive to climate. Either natural drought or climate change-induced variation in glaciers may pose a great threat to agriculture of Kazakhstan. This paper focuses on their optimal parameterization of atmospheric drought, identification of coherence between one of the best and representative agro climatic index for the territory of North Kazakhstan - Selyaninov hydrothermal coefficient (SHTC) and crop yield fluctuation in Kazakhstan. For the assess of favorability or dryness extent in the vegetation period (including total drought) was use of a relative indicator of weather part in the formation of wheat yield in some years concerning the relative long-term conditions.

A number of actors that can be dived into two components in any given year influences productivity: the level of farming and weather conditions. Accordingly, long-term time series of yield can be dived into two components: fixed and random. The actual yield of the crop regarded as the sum of the fixed and random variable.

Based on the average regional spring wheat from the 1970 to 2010's. Parameters were calculated proportion weather yield formation (dP, in %) in 8 main grain areas. Next years were identify with severe droughts and average for the period under review. The analysis have shown that droughts are quite common on the territory of Republic. Calculated proportion indicators of weather in shaping the harvest in 8 main grain regions of Kazakhstan. Revealed the frequency of strong and medium drought, bringing considerable damage to agriculture in these areas. Changes of dP were identified for climate analysis. Mean value on ... (специфическая терминология, надо посмотреть по статьям)

It was revealed that the major agricultural regions of Kazakhstan are distinguished by extreme instability grain yields. The coefficient of variation of productivity of spring wheat, characterizing the variability of this value over time and space, in areas of North Kazakhstan for the period 1970 2010 gg. ranged from 25 to 42%. In order to assess the changes in drought cycles in the last 45 year, we calculated repetitive years with significant (intensive and average) droughts.

Correlation analysis of crop yield of grain produce in the North and South Kazakhstan with agro climatic indexes showed direct linear functional correlation.

**Key Words:** Grain yields, drought, Kazakhstan.

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