Soil moisture and land cover changes in European Russia: In situ data

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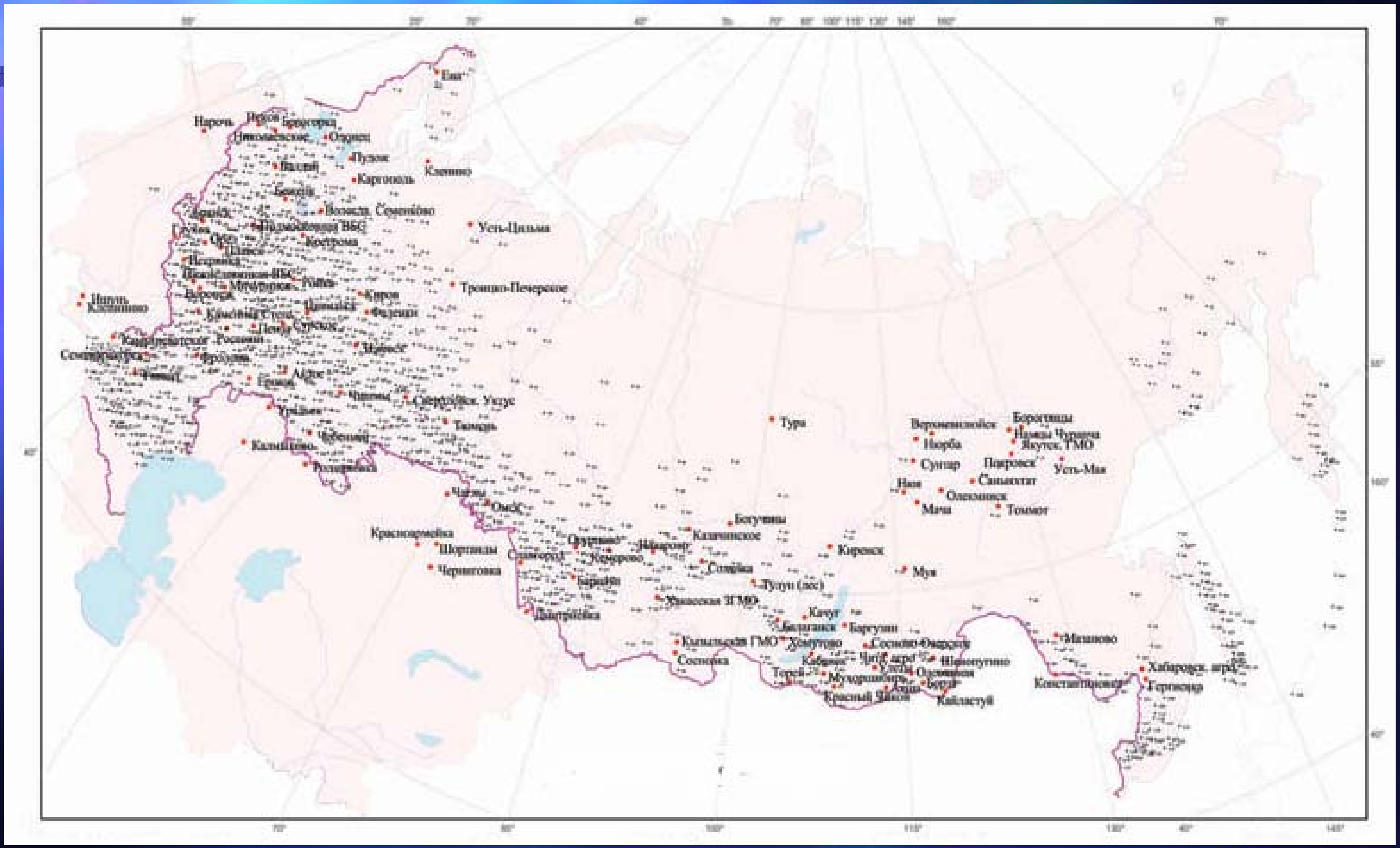
Soil moisture stations before 1986

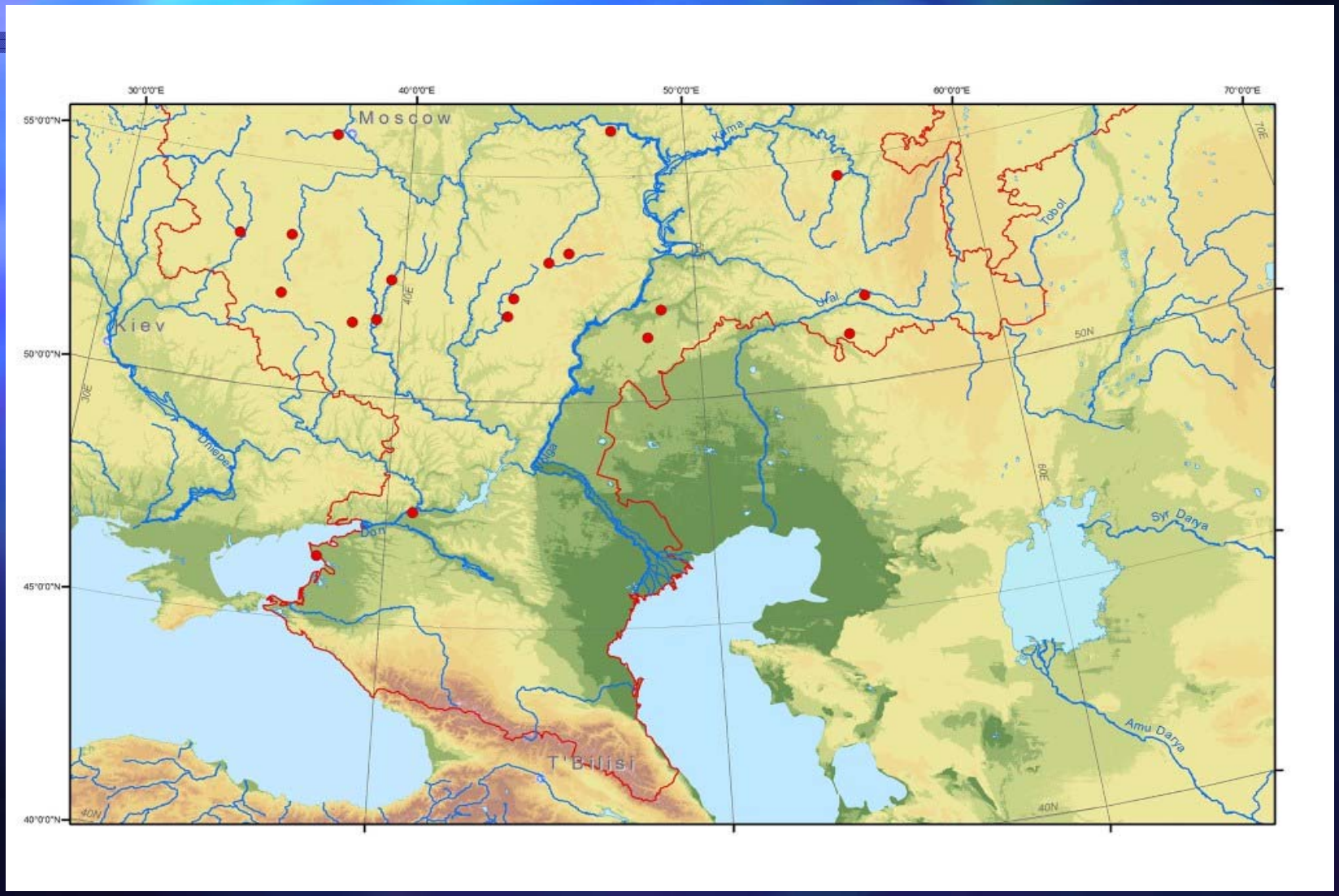


Basic conditions for the choice of soil plots:

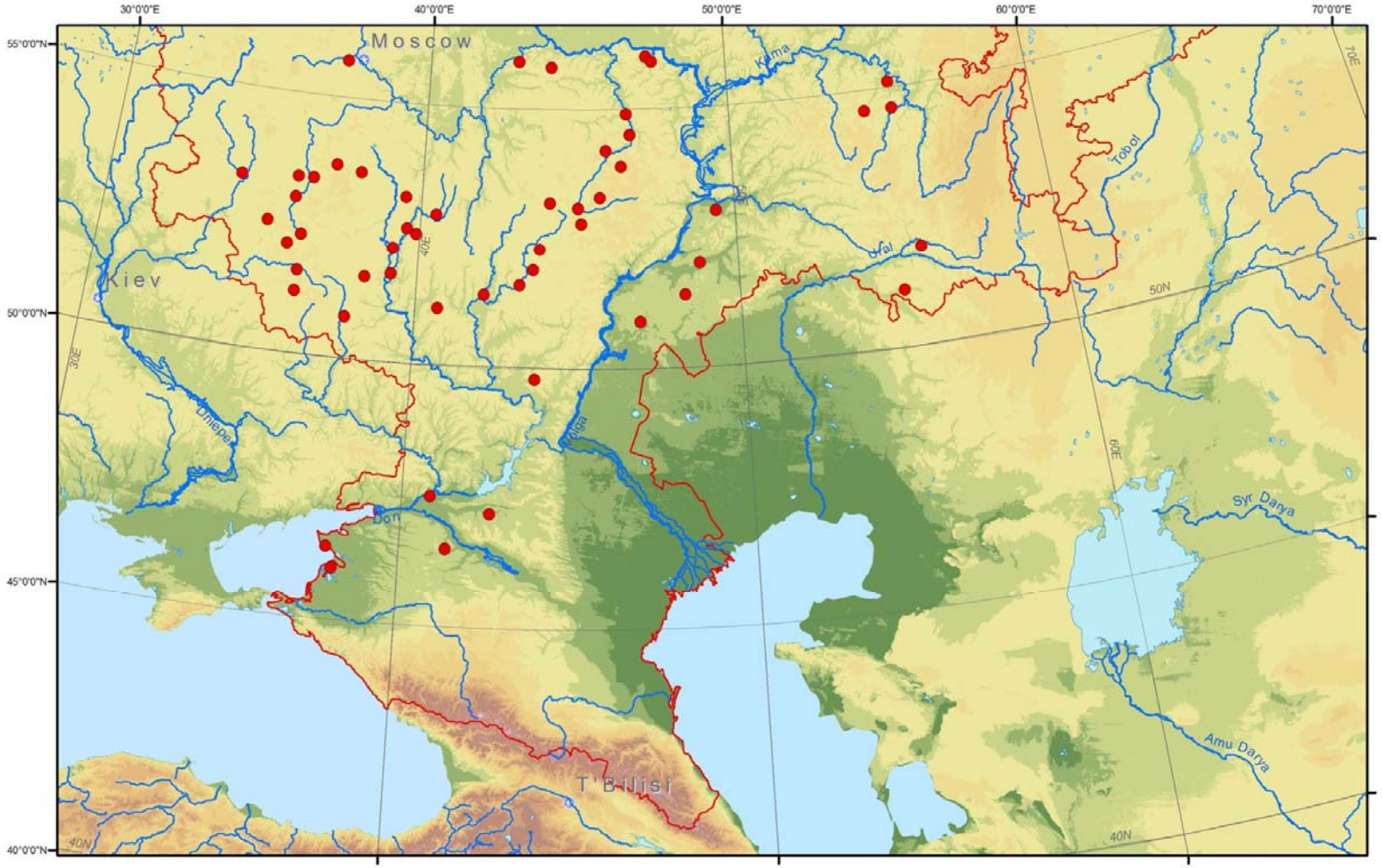
- *1. The plot is a flat piece of land with an area greater than or equal to 0.10 ha;*
- *2. The soil type is representative of the main soil type and landscape of the region and does not differ significantly from prevailing soil type and landscape of the climatic zone;*
- *3. The mean depth of the water table and its seasonal variations are typical for a large area.*

- *The temporal resolution of the observations is 10 days in the warm season and 1 month during the winter.*

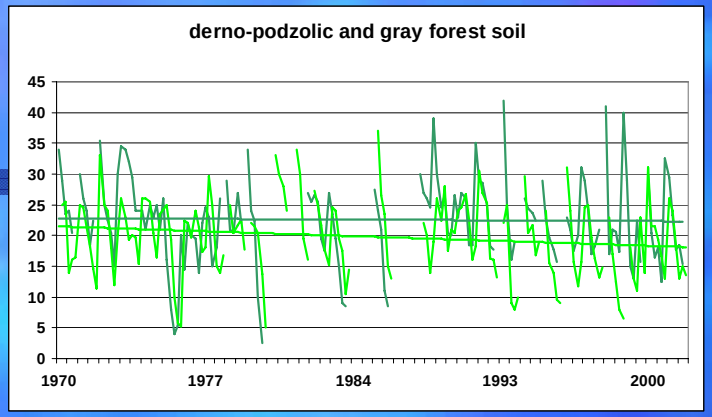
Soil moisture stations with natural vegetation

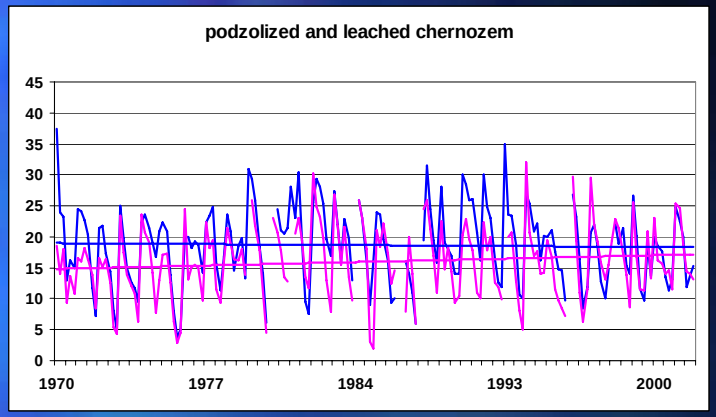


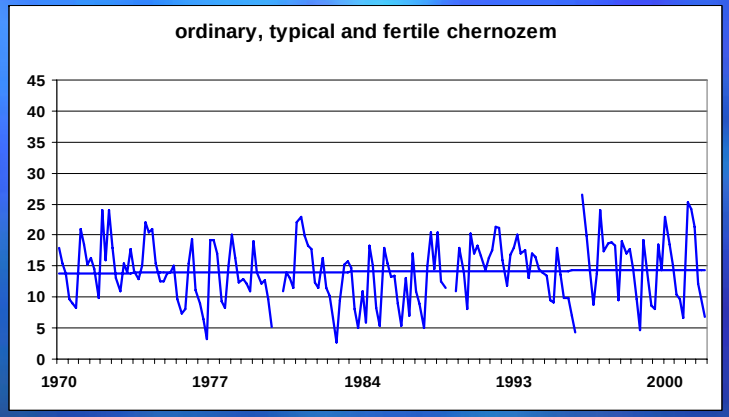
Soil moisture stations used in analysis

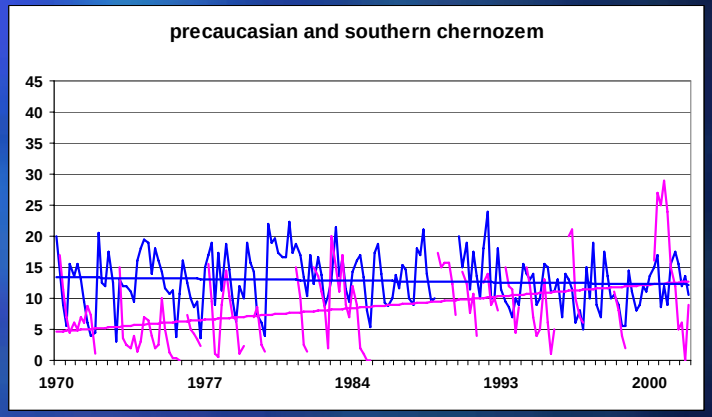


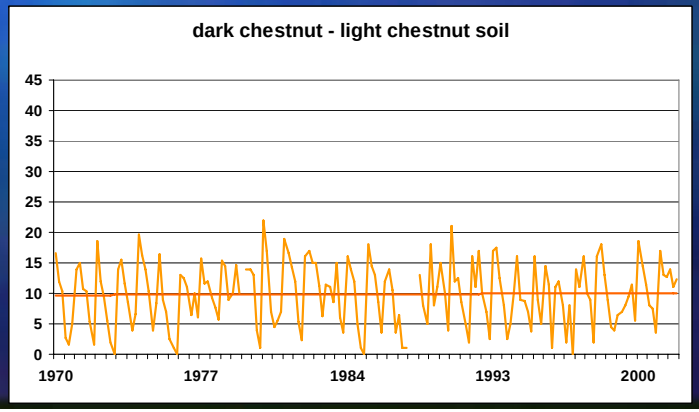
Soil moisture changes within a layer of 0-10 cm (4-5 months)



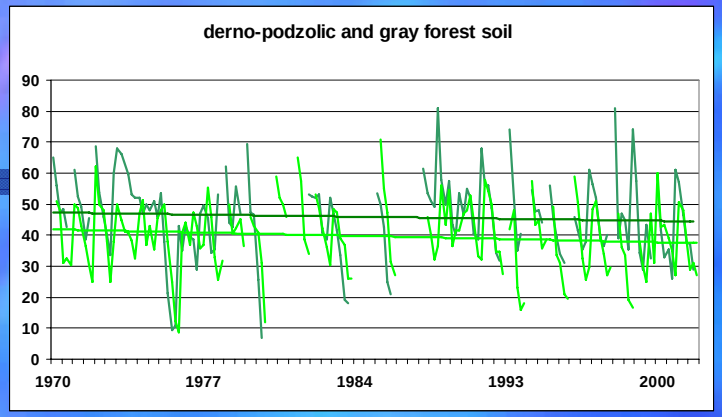


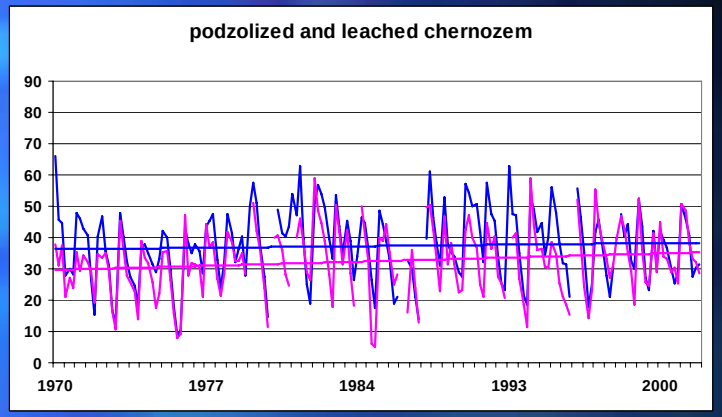


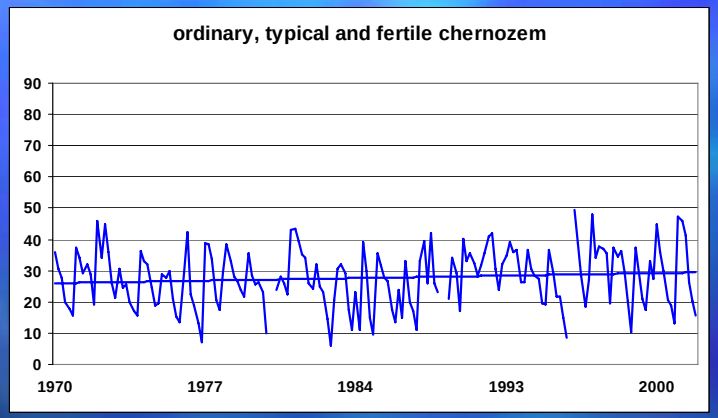


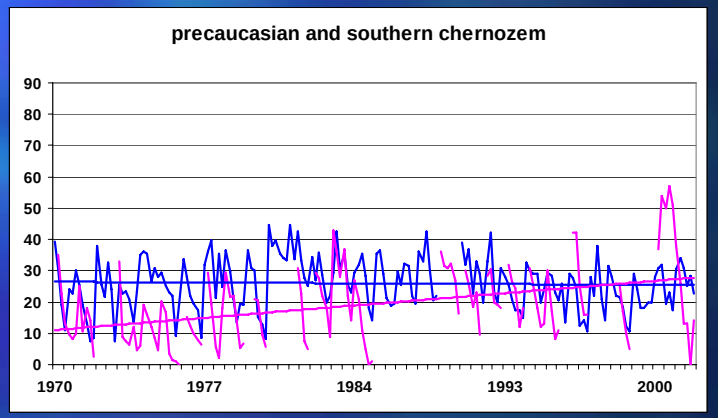


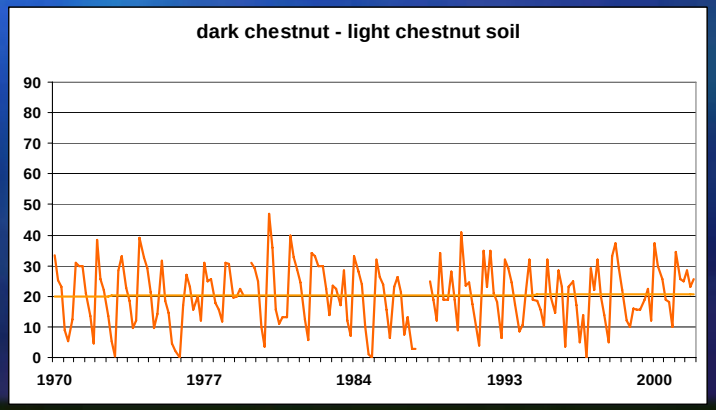
Soil moisture changes within a layer of 0-20 cm (4-5 months)



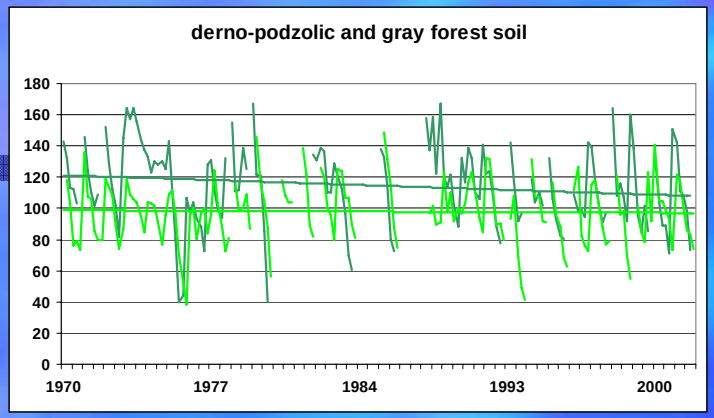


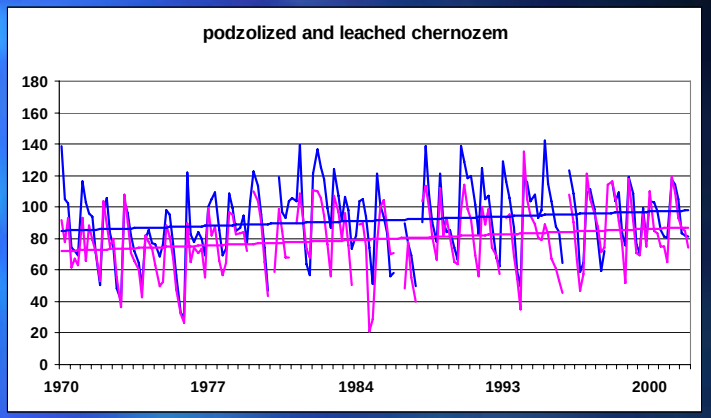


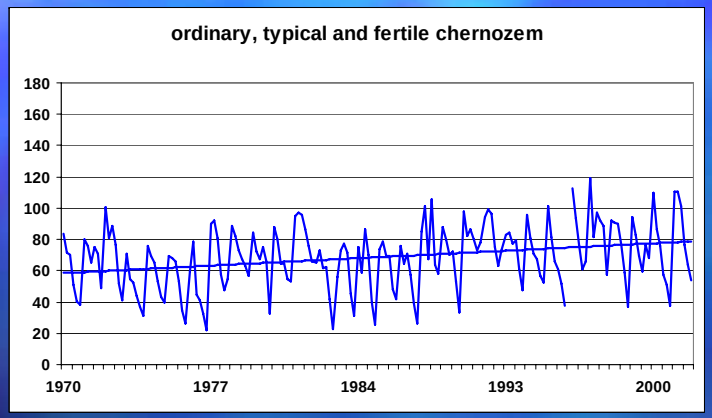


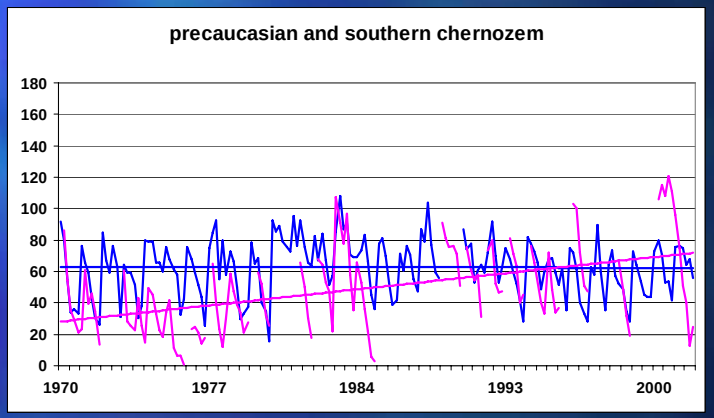


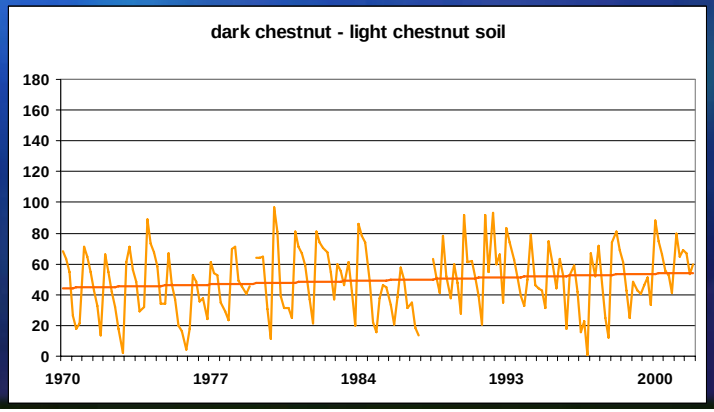
Soil moisture changes within a layer of 0-50cm (4-5 months)



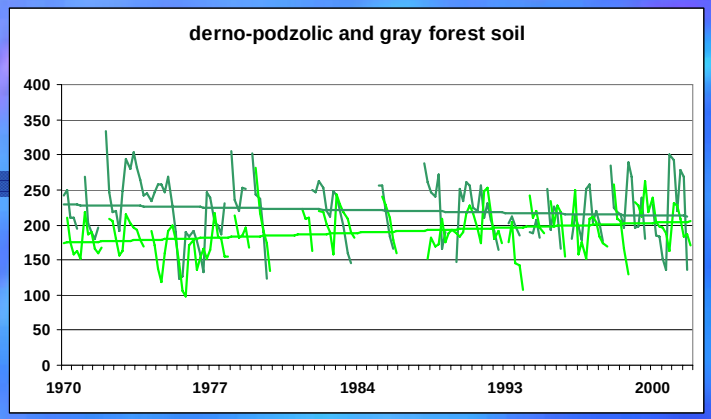


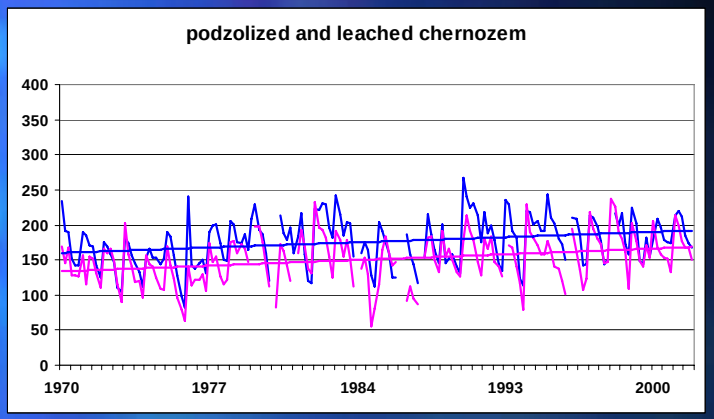


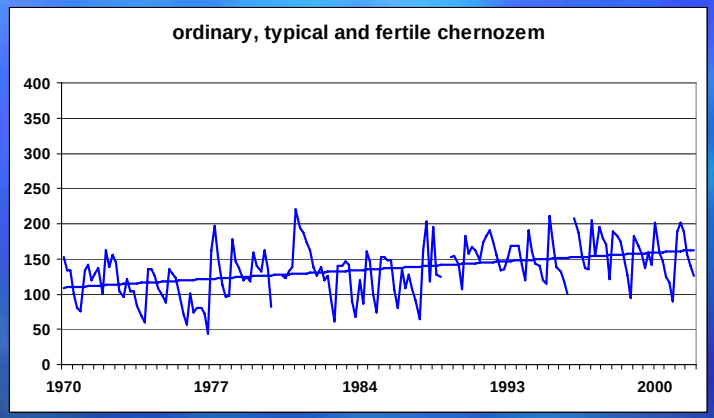


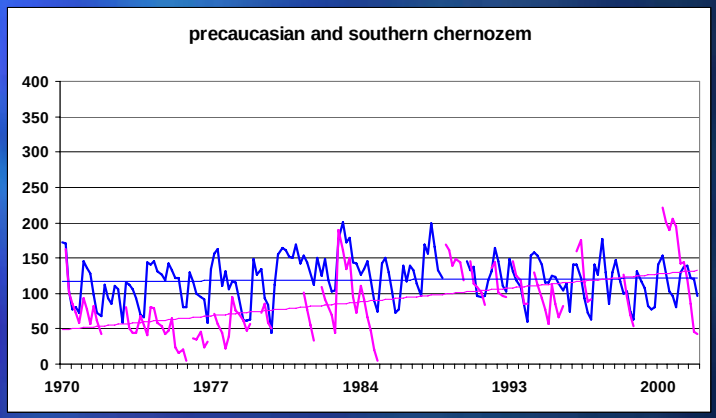


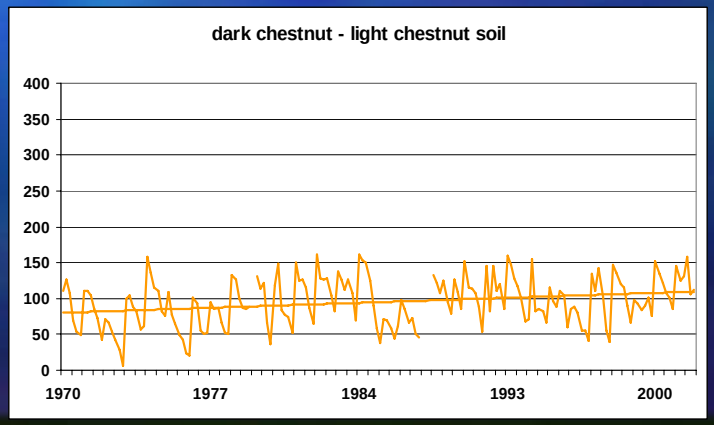
Soil moisture changes for the topmost 1 m of soil (4-5 months)



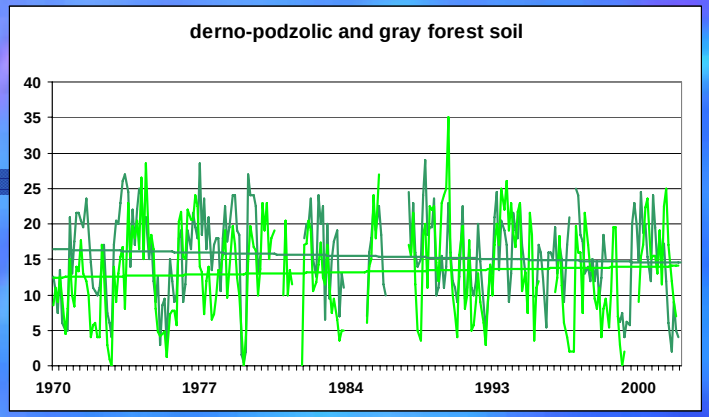


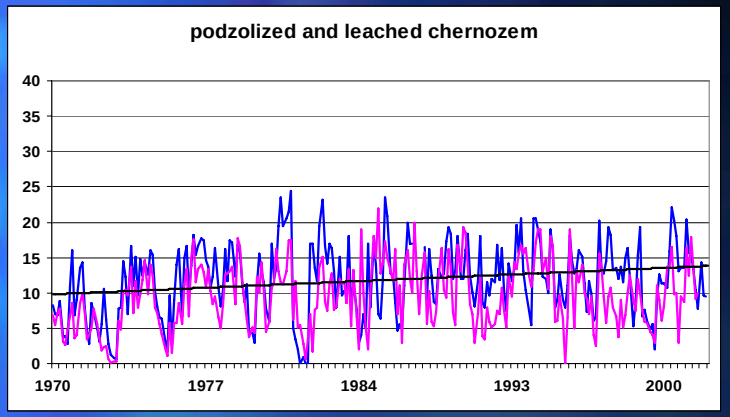


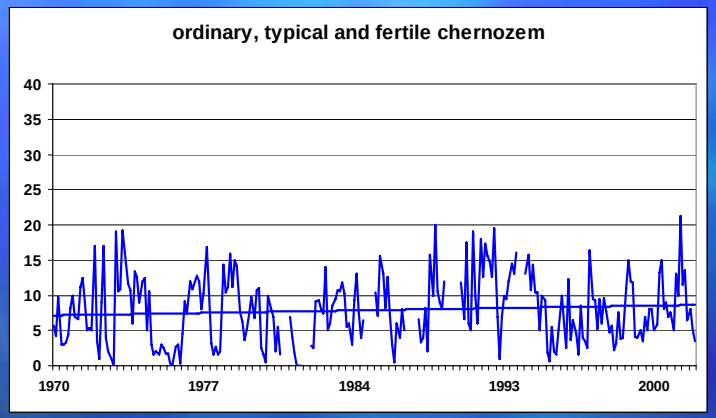


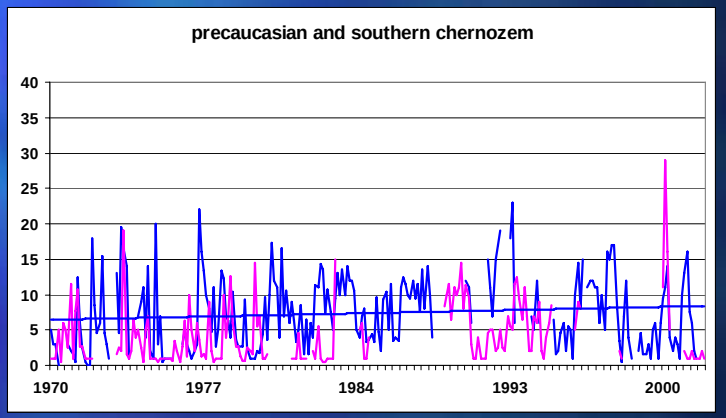


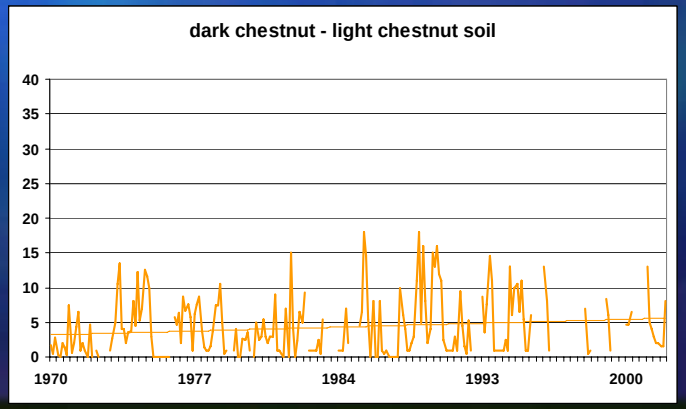
Summer
Soil moisture changes within a layer of 0-10 cm



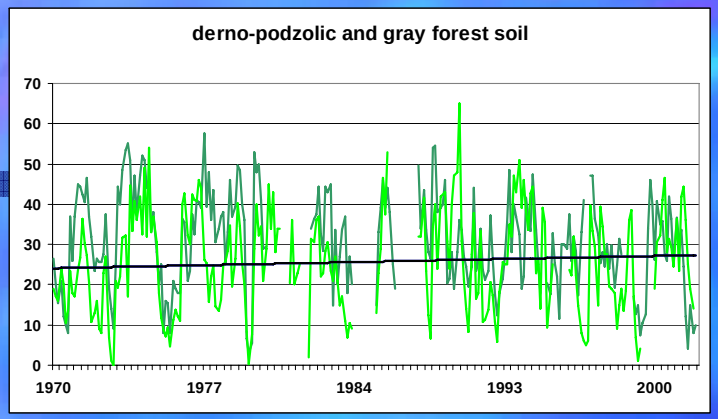


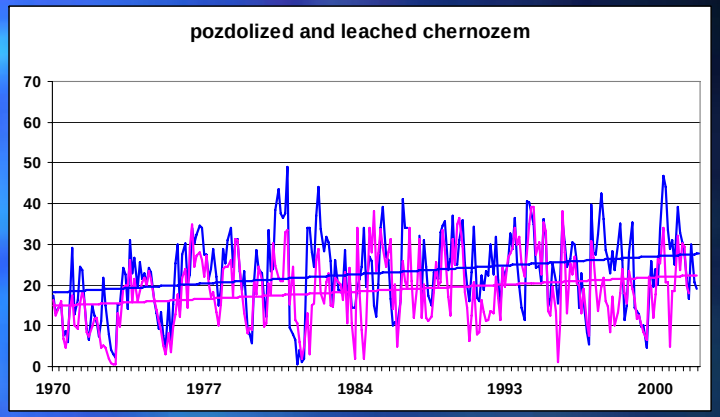


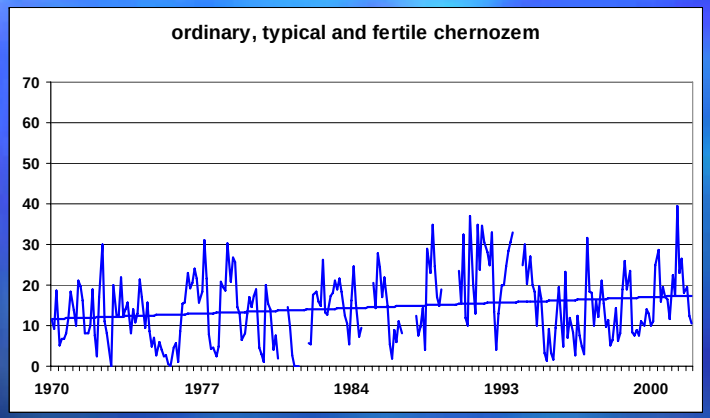


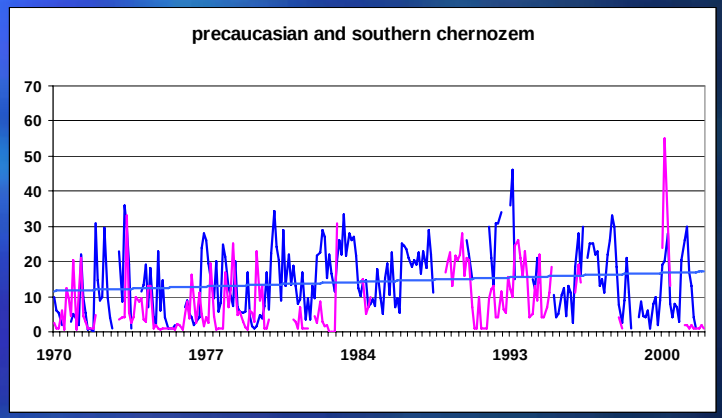


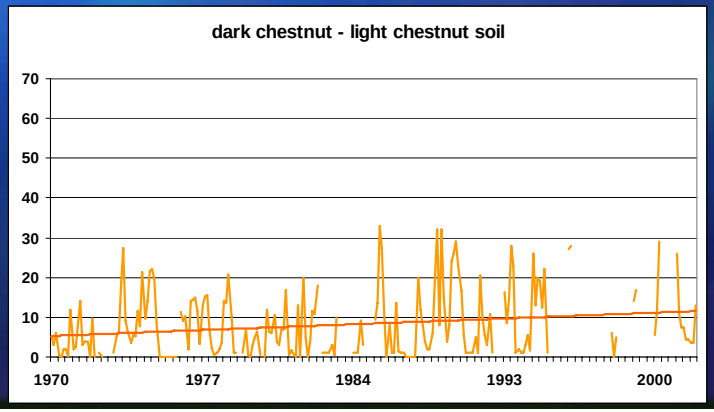
Summer
Soil moisture changes within a layer of 0-20 cm











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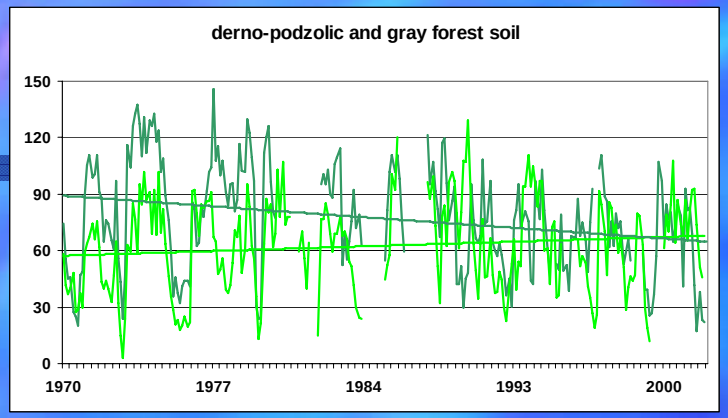
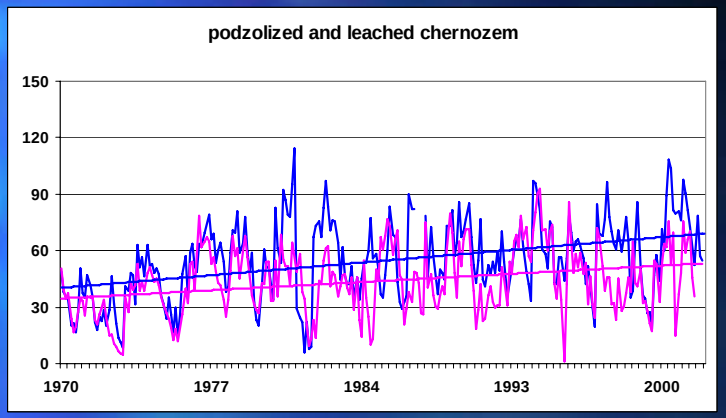
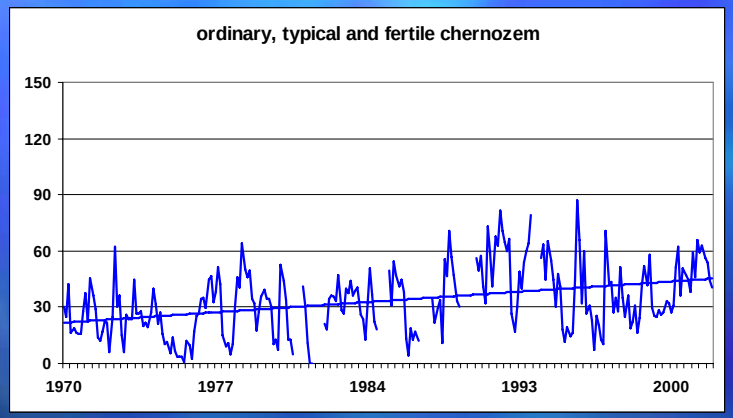
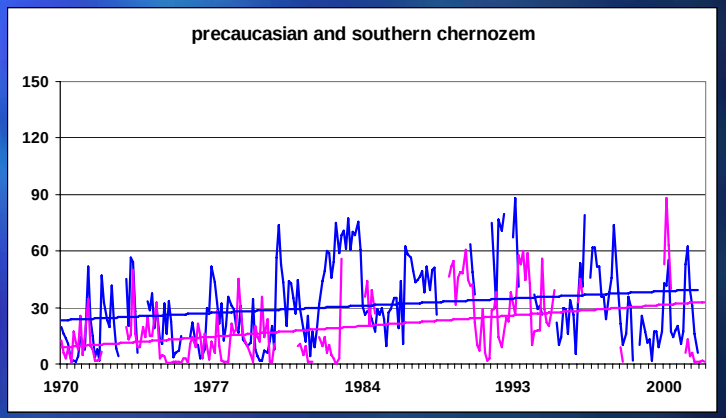
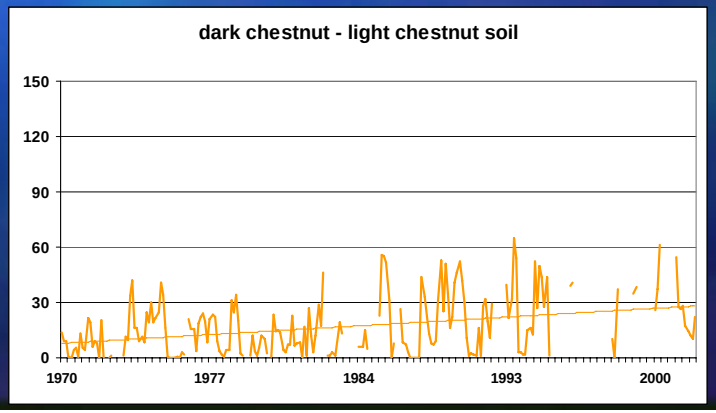
Soil moisture changes within a layer of 0-50 cm











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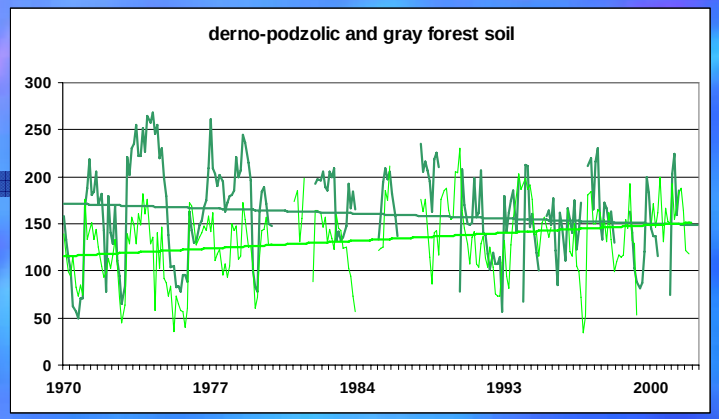
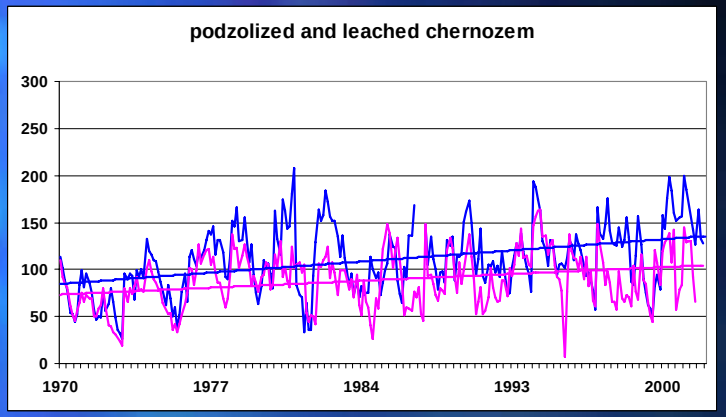
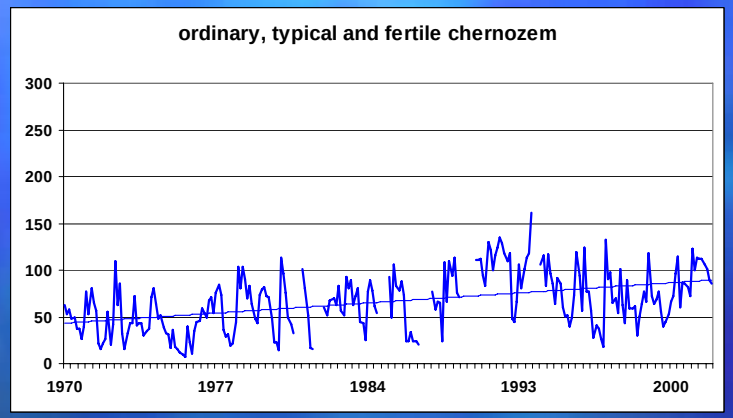
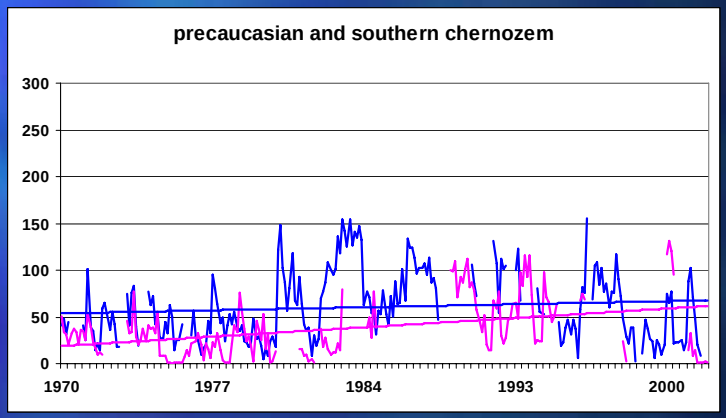
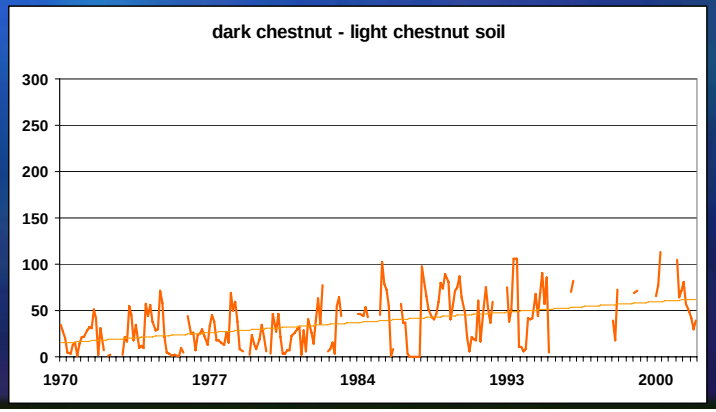


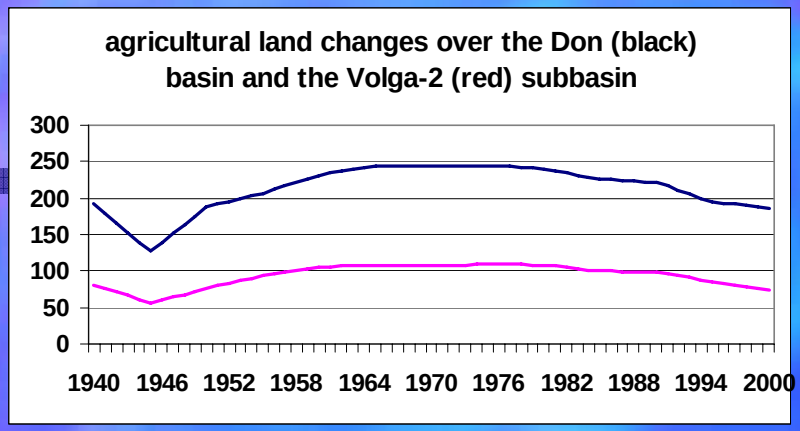








Consequences of soil moisture changes



- *Every 3rd hectare of soil is subject to degradation and the most unfavorable process is leakage and salinization of chernozem and chestnut soil.*
- *During the past 45-50 years depreciation of soil fertilization is obviously evident within the steppe zone of Russia.*
- *At more than 50 mln hectares processes of soil desertification are observed*

Conclusions:

Soil moisture increase over the most part of the study region.

Increase of soil moisture affects the land cover changes.

Specific activities are needed to protect the very essential biome of Russia.

Thank you for your attention.