

World Day to Combat Desertification and Drought - Shelterbelts in Russia and Kazakhstan

Sentinel-2 MSI acquired on 24 August 2015 at 08:00:16 UTC

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Sentinel-2 MSI acquired on 14 March 2017 at 07:16:41 UTC

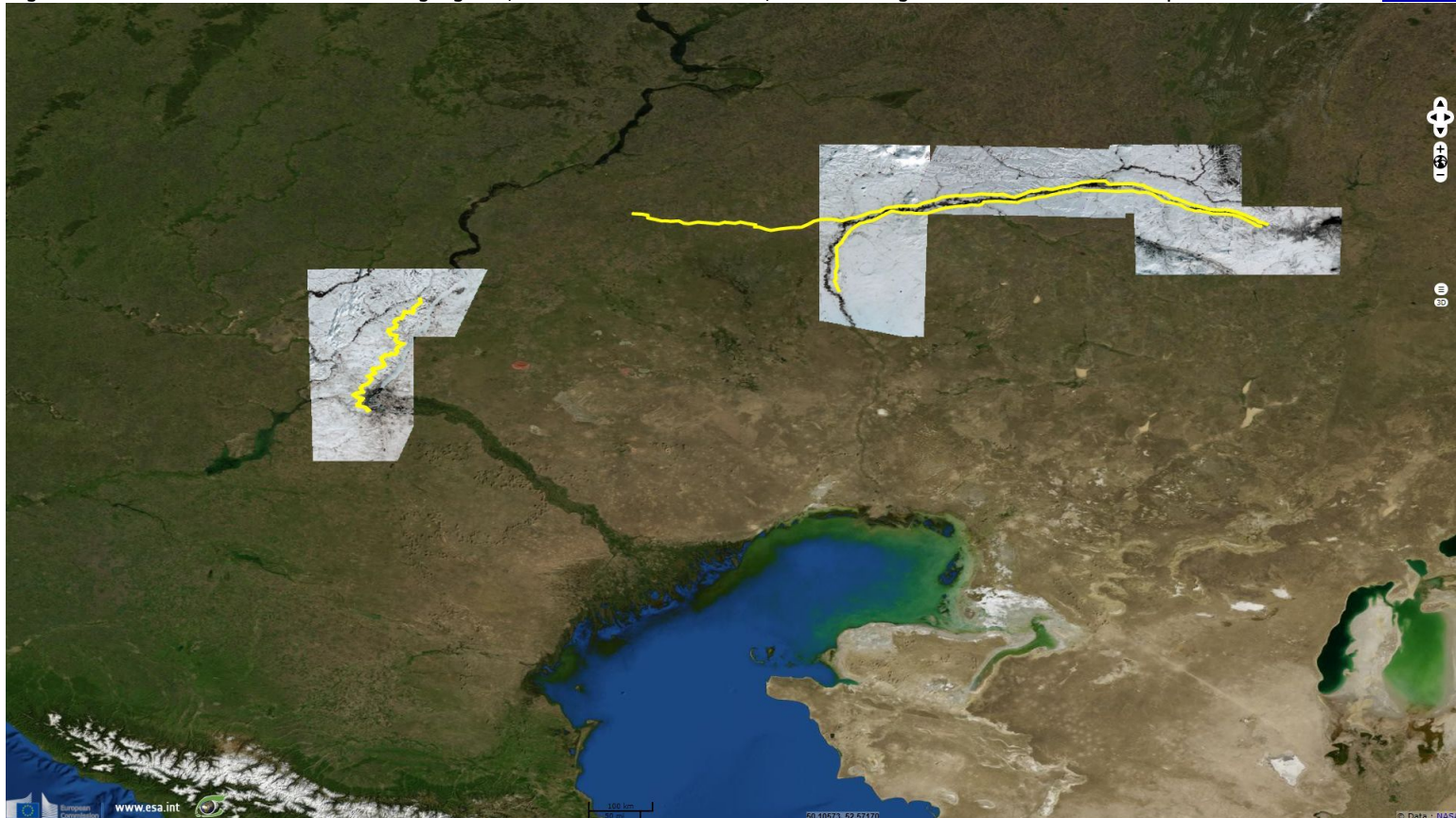
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Fig. 1 - Location of the two shelterbelts highlighted, in Russia and Kazakhstan, shown during winter - 8/4/3 colour composite

[2D view](#)



Several shelterbelts were built in USSR from 1949 to 1965 to protect cropland from droughts, dust, from soil erosion by wind or water and thus from desertification. All did not survive to this day, the belts between Kamishin and Volgograd and between Mt Vishnevaia and Caspian Sea remain very visible from space. While larger in scale, the Great Plains Shelterbelt built in the USA from 1935 to 1942 do not bear such striking patterns.

Fig. 2 - Windbreak in California used to protect crops from the high winds in this area - Soil Conservation Service, U. S. Department of Agriculture.

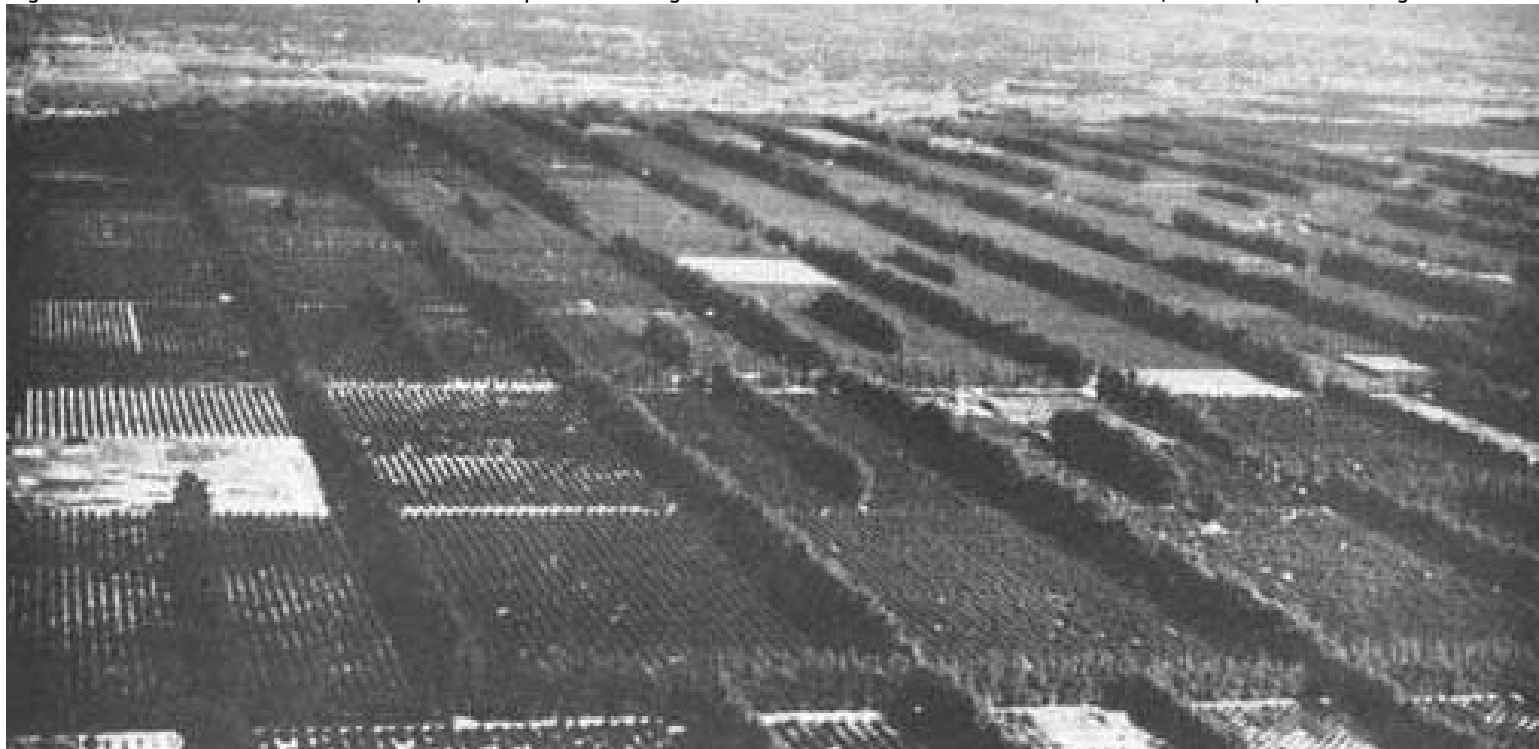


Fig. 3 - Location of state forest protective belts and of field shelterbelt plantings - source [FAO](#).

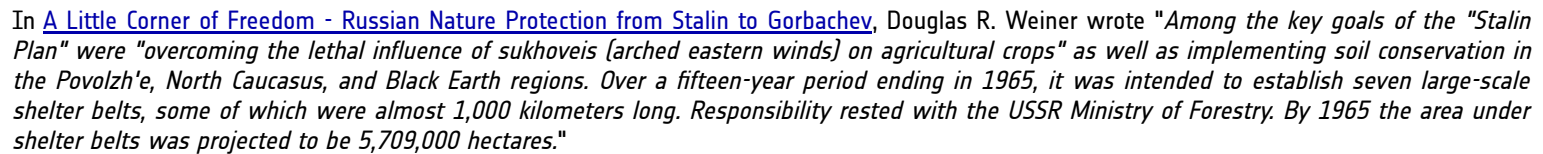


Fig. 4 - Triple shelterbelt on the west bank of Volga river shown during winter - 8/4/3 colour composite

[2D view](#)

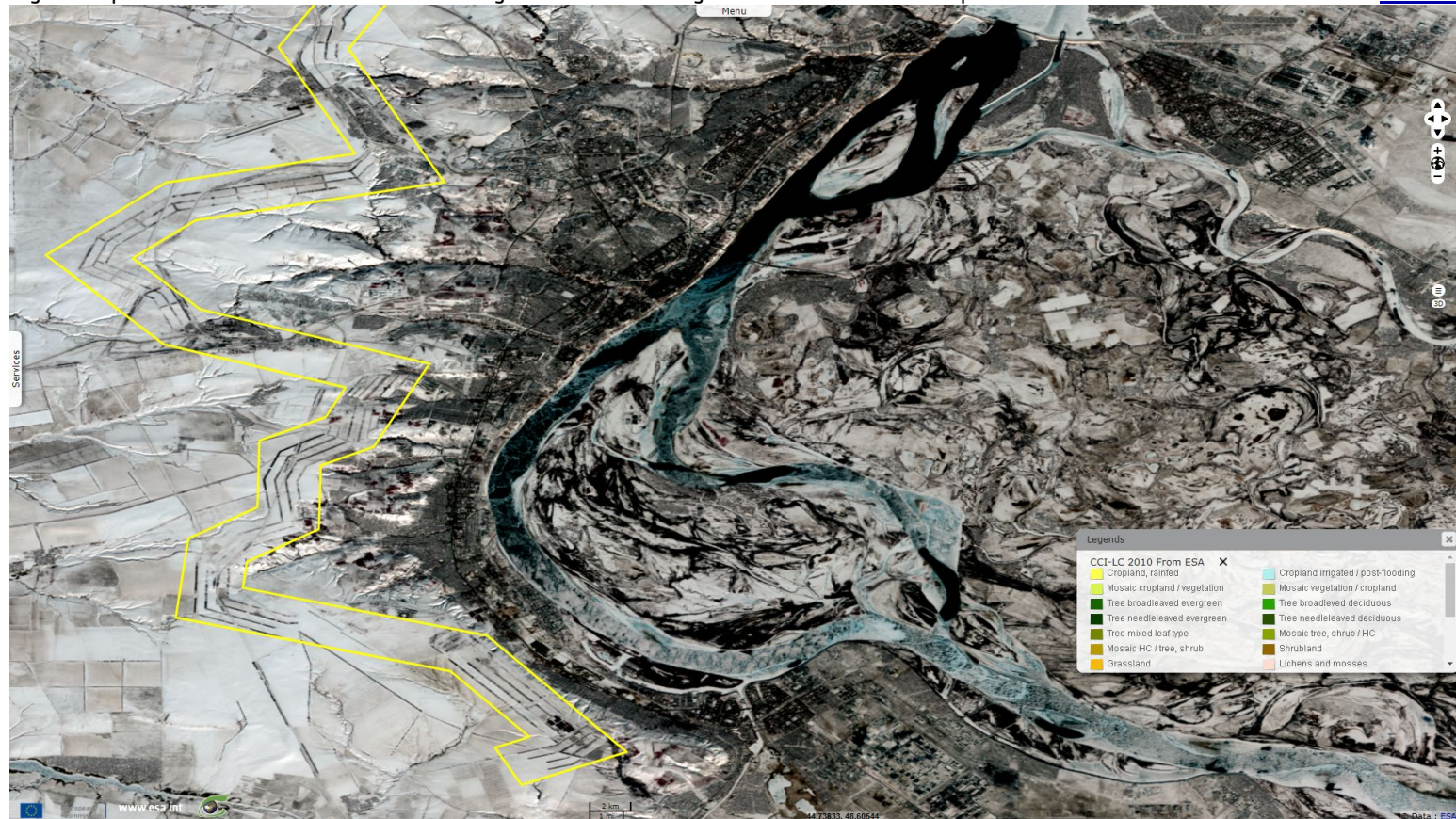
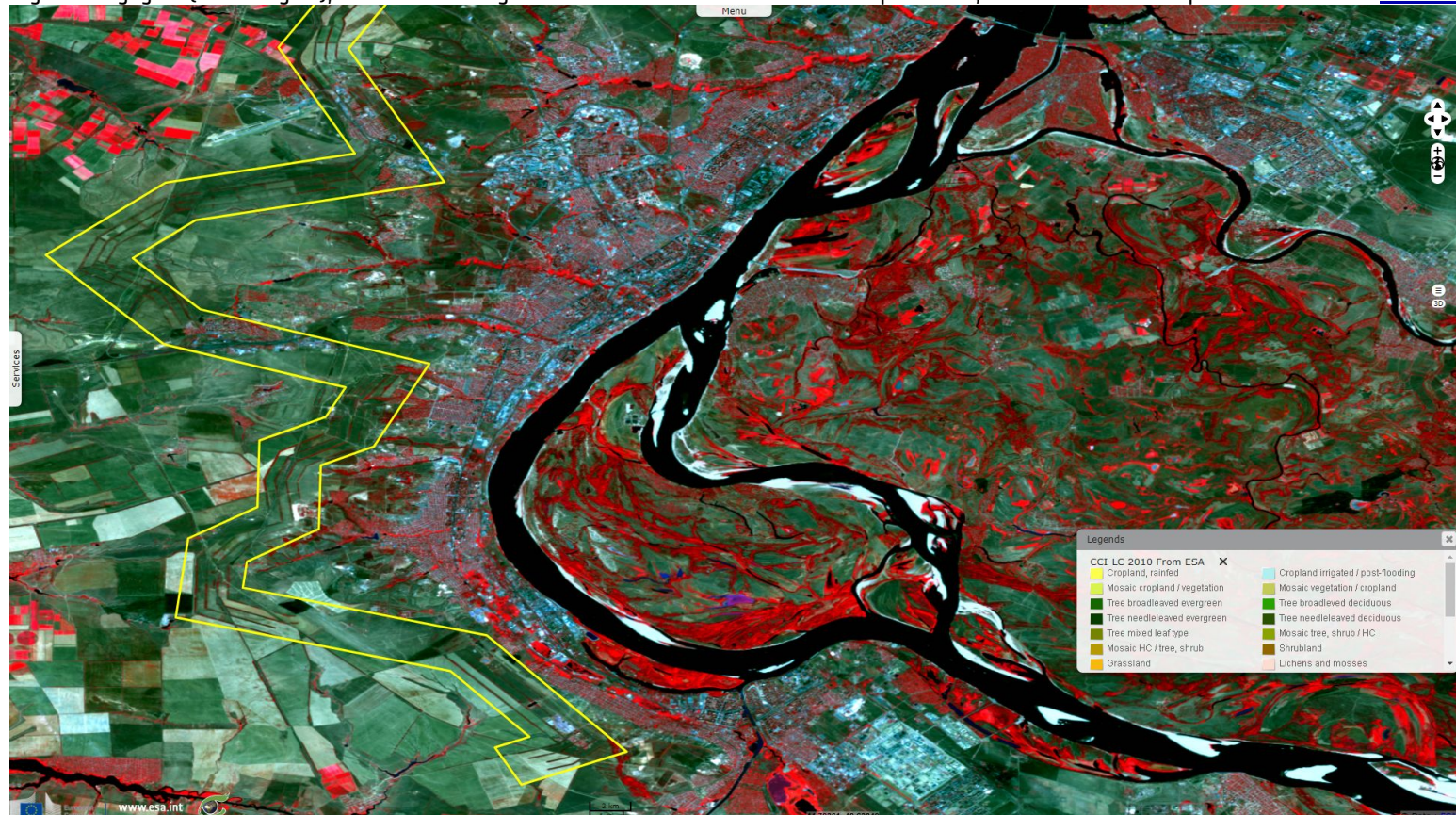


Fig. 5 - Volgograd (ex-Stalingrad), between the Volga and the windbreak benefits from its protection, but less than the cropland West of it.

[2D view](#)



Raphael Zon [explained](#) "The purpose of these forest zones is to break the force of the hot dry winds from the deserts, to prevent wind and water erosion of the fertile soils of the Volga area and Northern Caucasus and of the black soils of Central Russia, to improve moisture conditions, and generally to temper the climate of the region. The vast undertaking is to be completed by 1965.

[...]

Because of their proximity to the Kizel Kum and Kara Kum deserts and the prevailing dry easterly and southeasterly winds that blow from the direction of those deserts, the whole region is exposed to periodic droughts

Fig. 6 - Triple shelterbelts on both banks of Ural river, shown during winter.

[2D view](#)

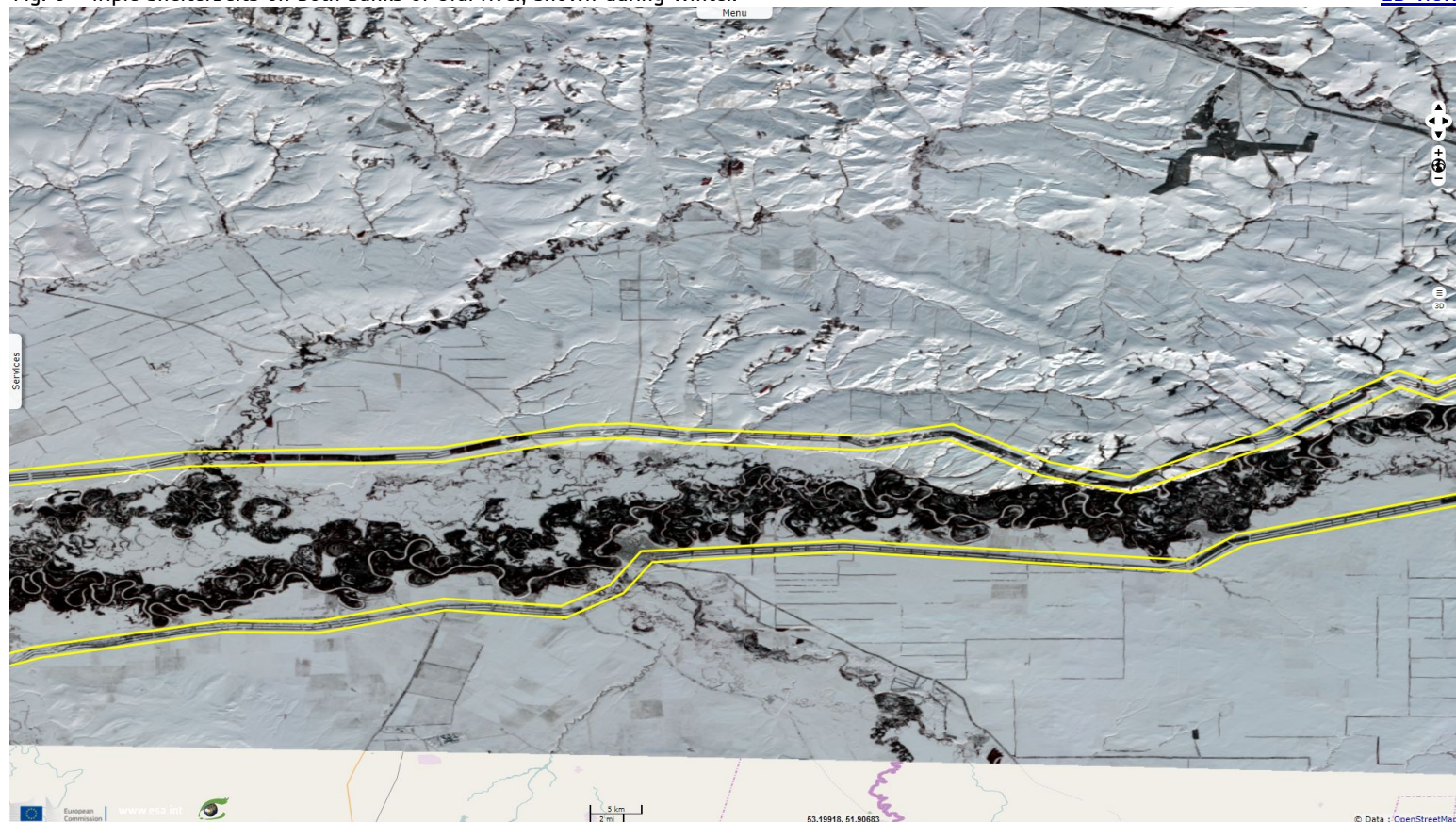
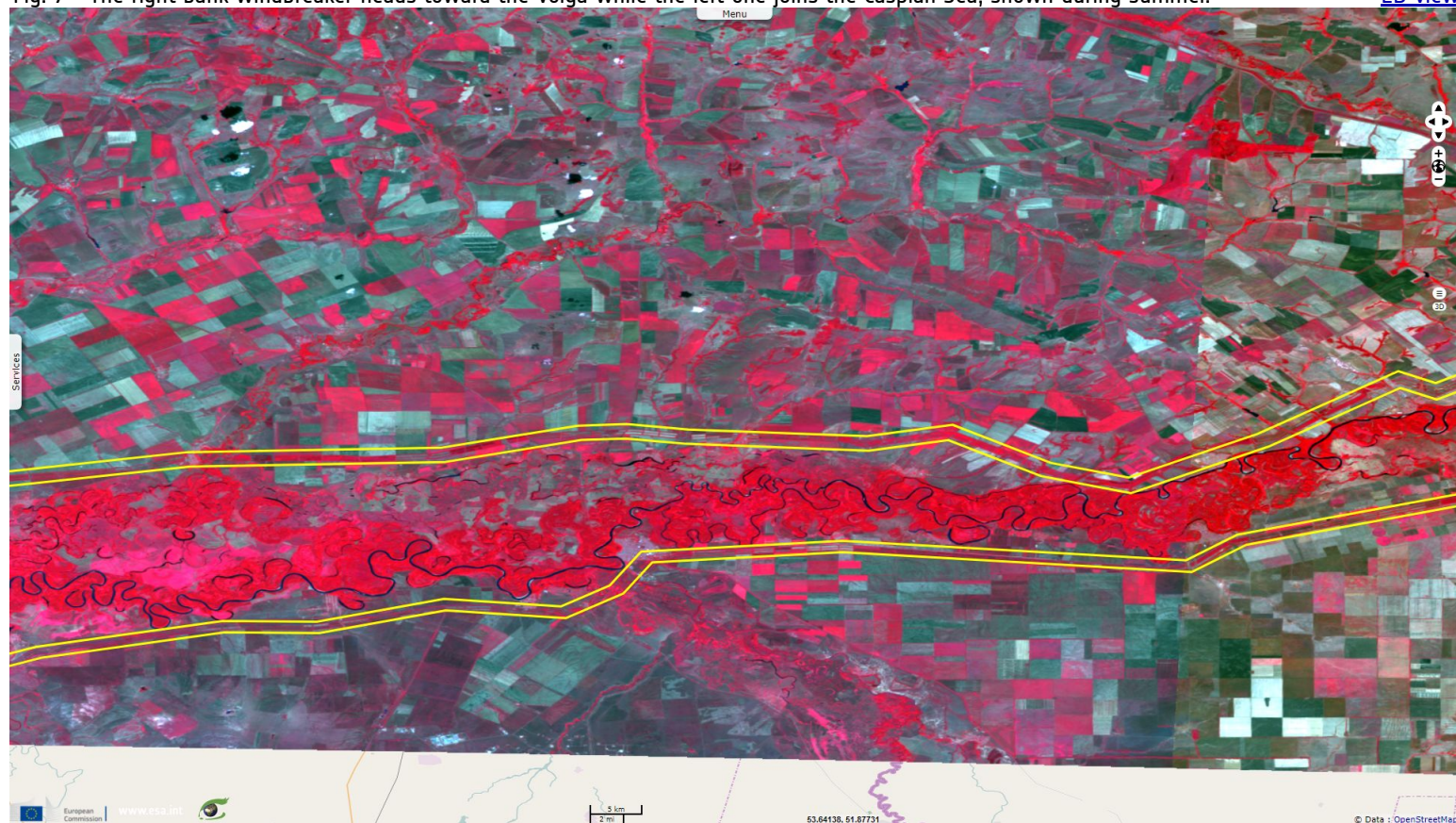


Fig. 7 - The right bank windbreaker heads toward the Volga while the left one joins the Caspian Sea, shown during summer.

[2D view](#)















Raphael Zon [added](#), "These zones, distinct from shelterbelts around cultivated fields and orchards, are to be established on divides, ridges, slopes of ravines, river banks, and lake shores, and around ponds and reservoirs. The greatest project of this nature is to be the planting by the Ministry of Forestry of the Federated Republic of eight long, continuous protection zones oriented at right angles to the prevailing dry southeasterly and easterly winds. Each of these eight protection forest zones is to consist of 1 to 6 parallel narrow belts of trees, each belt from 30 to 60 meters wide, with a distance of about 300 meters between the belts. The total length of all eight protection zones will be over 5,300 kilometers."

Fig. 8 - Aerial view of field windbreaks in North Dakota - Erwin Cole, USDA Natural Resources Conservation Service.



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