

ON THE PRESERVATION OF SPATIAL DATA CREATED IN CS-95 WHEN TRANSITION TO SCS-2011

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The article gives an assessment of the measures taken in the constituent entities of the Russian Federation for the transition from CS-42 to CS-95 as one of the stages in preparation for the introduction of a new state geodetic coordinate system SCS-2011. It is noted, that those subjects of the Russian Federation, where the work on the transition in the creation of spatial data necessary for the socio-economic development of the regions, from a variety of local coordinate systems (LCS) based on CS-42, to a single local coordinate system of the region, created on the basis of CS-95, has already been implemented, have advantages in the transition to SCS-2011. Such regions have the opportunity to move to SCS-2011 by establishing a connection between the unified local coordinate system of the region, based on CS-95, and SCS-2011 in the form of unified regional parameters of the orthogonal transformation. The problem of preserving the spatial data funds created in CS-95 during the transition to SCS-2011 is also considered. It is noted that for the participants of the geospatial market, law-abiding and timely (after the abolition of CS-42 and the introduction of CS-95) who converted their geodetic materials and data from CS-42 to CS-95, the problem of their preservation during transition to SCS-2011 without the need for recalculation in SCS-2011. As a solution to this problem, the author proposed a new type of local coordinate system based on SCS-2011.

Keywords: State geodetic coordinate system of 2011, SCS-2011, CS-42, CS-95, local coordinate system, preservation of spatial data funds, transformation of spatial data

REFERENCES

1. Decree of the Government of the Russian Federation of November 24, 2016 No. 1240. On the establishment of state coordinate systems, state system of heights and state gravimetric system. Retrieved from ConsultantPlus online database [in Russian].
2. Decree of the Council of Ministers of the USSR of April 7, 1946 No. 760. On the introduction of a unified system of geodetic coordinates and heights on the territory of the USSR. Retrieved from ConsultantPlus online database [in Russian].
3. Decree of the Government of the Russian Federation of July 28, 2000 No. 586. On the establishment of unified state coordinate systems. Retrieved from ConsultantPlus online database [in Russian].
4. Geodetic, Cartographic Instructions, Norms and Regulations. GKINP (GNTA)-06-278-04. User manual for the performance of work in the coordinate system of 1995 (SK-95). Approved by order of Roskartografiya of March 01, 2004 No. 29-pr. Retrieved from ConsultantPlus online database [in Russian].
5. Popad'ev, V. V., Efimov, G. N., & Zubinskii, V. I. (2018). The geodetic coordinate system of 2011. In *Nauchno-tekhnicheskii sbornik "Astronomiya, geodeziya i geofizika" [Scientific and Technical Collection "Astronomy, Geodesy and Geophysics"]* (pp. 139–228). Moscow: FSBI Center for Geodesy, Cartography and SDI Publ. [in Russian].
6. Order of Rosnedvizhimost of June 18, 2007 No. P/0137. On Approval of the Regulations on Local Coordinate Systems of Rosnedvizhimost for the Subjects of the Russian Federation. Retrieved from ConsultantPlus online database [in Russian].
7. Dem'yanov, G. V., Majorov, A. N., & Pobedinskij, G. G. (2009). Local coordinate systems, existing problems and possible solutions. *Geoprofi*, 2, 52–57 [in Russian].
8. Gorobets, V. P., Demyanov, G. V., Mayorov, A. N., & Pobedinsky, G. G. (2013). Current state and directions of development of geodetic support of the Russian Federation. Coordinate systems. *Geoprofi*, 6, 4–9 [in Russian].
9. Basmanov, A. V., Gorobec, V. P., Zabnev, V. I., Kaftan, V. I., Pobedinskij, G. G., Stolyarov, I. A., & Hodakov, P. A. (2019). On the geodetic support of the territory of Russia. To the 80th anniversary of G.V. Demyanov. *Geoprofi*, 6, 10–15 [in Russian].

10. Dem'yanov, G. V., Majorov, A. N., & Pobedinskij, G. G. (2011). Problems of continuous improvement of the GHS and the geocentric coordinate system of Russia. *Geoprofi*, 4, 15–21 [in Russian].
11. Obidenko, V. I. (2020). Unified high-precision homogeneous coordinate space of territories and local coordinate systems: ways of harmonization. *Vestnik SGUGiT [Vestnik SSUGT]*, 25(2), 46–62 [in Russian].
12. Order of the Ministry of Economic Development of the Russian Federation of August 17, 2012 No. 518. On the requirements for accuracy and methods for determining the coordinates of characteristic points of the boundaries of a land plot, as well as the contour of a building, structure or object of construction in progress on a land plot. Retrieved from ConsultantPlus online database [in Russian].
13. Order of the Ministry of Economic Development of the Russian Federation of March 1, 2016 No. 90. On approval of requirements for accuracy and methods for determining the coordinates of characteristic points of the boundaries of a land plot, requirements for accuracy and methods for determining the coordinates of characteristic points of the outline of a building, structure or construction-in-progress object on land site, as well as requirements for determining the area of a building, structure and premises. Retrieved from ConsultantPlus online database [in Russian].
14. Order of the Federal Service for State Registration, Cadastre and Cartography dated October 23, 2020 No. P / 0393. On approval of requirements for accuracy and methods for determining the coordinates of characteristic points of the boundaries of a land plot, requirements for accuracy and methods for determining the coordinates of characteristic points of the contour of a building, structure or object construction in progress on a land plot, as well as requirements for determining the area of a building, structure, premises, parking spaces. Retrieved from ConsultantPlus online database [in Russian].
15. Shavuk, V. S. (2012). Implementation of local coordinate systems in the North Caucasus Federal District. *Geodezia i kartografiya [Geodesy and Cartography]*, 10, 10–13 [in Russian].
16. Karpik, A. P., Lamert, D. A., & Obidenko, V. I. (2013). Implementation of the Road Map: ways to improve the quality of the spatial description of objects of the state real estate cadastre. *Geodezia i kartografiya [Geodesy and Cartography]*, 12, 45–49 [In Russian].
17. Decree of the Government of the Russian Federation of March 03, 2007 No. 139. On Approval of the Rules for Establishing Local Coordinate Systems. Retrieved from ConsultantPlus online database [in Russian].
18. Standards Russian Federation. (2009). GOST R 51794-2008. Global navigation satellite systems. Coordinate systems. Methods for transforming coordinates of determined points. Moscow: Standartinform Publ., 16 p. [in Russian].
19. Federal Law of the Russian Federation of December 22, 2015 No. 431-FZ. On geodesy, cartography and spatial data and on amendments to certain legislative acts of the Russian Federation. Retrieved from ConsultantPlus online database [in Russian].
20. Federal Law of the Russian Federation of July 24, 2007 No. 221-FZ. On the State Real Estate Cadastre. Retrieved from ConsultantPlus online database [in Russian].
21. Rosreestr's order of October 20, 2020 No. p/0387. On approval of the procedure for establishing local coordinate systems. Retrieved from ConsultantPlus online database [in Russian].
22. Order of the Ministry of Construction and Housing and Communal Services of the Russian Federation of February 25, 2019 No. 127 / pr. On the approval of the code of practice «Engineering surveys in the planning of territories. General requirements. Retrieved from ConsultantPlus online database [in Russian].
23. Federal Law of the Russian Federation of July 3, 2015 No. 218-FZ. On State Registration of Real Estate. Retrieved from ConsultantPlus online database [in Russian].

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