

COMPLEX ALGORITHM FOR DETERMINING THE SPATIO-TEMPORAL STATE OF TECHNOLOGICAL SYSTEMS FROM GEODETIC DATA

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The development of a complex algorithm for determining the spatio-temporal state of technogenic systems (STS TS) from geodetic data is presented. The algorithm is based on the procedures of system analysis: decomposition and aggregation, allows to identify any changes in the STS TS as a whole or its structural parts, to determine the change of the system's geometric parameters, types and parameters of motion. Mathematical methods of describing the space-time state of TS are given: determination of the shape, size, orientation and position in space and time. The decomposition of TS motion into translational, rotational, relative (integral and differential deformation) is performed. A structural scheme of a complex algorithm for determining the STS of TS has been developed, which can be used as the basis of an automated control system of the STS TS.

Key words: space-time state, technogenic system, mathematical methods, phase space, complex algorithm, decomposition, motion, deformation, phase trajectory, software, automated control systems, system analysis, aggregation, emergency situations, geodetic control.

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