

" TOPOGRAPHIC AND SPECIAL MAP"

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Annotation:

This article provides information on topographic and special map.

Keywords: topographic map, topographic sheet, DEM, cartographic symbols.

Classification of topographic maps

A map is a reduced conventional image of the earth's surface on a plane, made in a cartographic projection. In addition to the type of cartographic projection, another very important characteristic of the map is its scale.

Scale refers to the degree of reduction of lines on the map relative to the horizontal positions of their corresponding lines on the ground. Usually, the scale of the map is expressed as a fraction, in the numerator of which there is a unit, and in the denominator a number showing the degree of reduction. This scale is called numerical, it is signed at the bottom of the map sheet. The concept of "magnitude of scale" is quite widely used, which shows the number of kilometers on the ground corresponding to 1 cm of the map. For example, if they say: "two-kilometer map", it means that the numerical scale of such a map is 1:200,000. In oral speech, they are often limited to the name of only the denominator of the scale, i.e. the map mentioned above can be called "two hundred thousandth".

According to the content, there are general geographic and special maps. General geographic maps depict: relief, hydrography, elements of soil and vegetation cover, roads, settlements and other objects.

The degree of detail, of course, depends on the scale of the map. General geographic maps are divided into topographic (scales 1:1,000,000 and larger), survey-geographical (scales 1:500 000 - 1:10 000 000) by continent and geographical. For the latter class of maps, the choice of scale, projection and size of the depicted territory depends on the purpose of the map. So, for example, for the image of the entire surface of the Earth, scales are chosen 1:10 000 000 - 1:30 000 000.

On special maps, certain local objects and their characteristics are displayed with greater completeness and detail (in accordance with the purpose of the map) by reducing information about other map elements. Special maps include: navigation, road, relief, gravimetric and

others. Topographic maps are used in studying the terrain, assessing the situation, making decisions and setting tasks, organizing interaction, targeting, determining the coordinates of targets, as well as in solving many other tasks.

Special maps are maps used for a detailed study of the terrain, providing aviation flights, organizing transportation and solving other tasks. Special maps include digital maps, survey-geographical, aeronautical, relief, maps of communication routes, maps with gravimetric data, etc.

City plans are designed for a detailed study of cities and approaches to them, orientation, performing accurate measurements and calculations in the organization and management of ASDNR.

Plans are usually issued on a scale of 1:10 000 - 1:25 000.

A digital map is a digital representation of the contents of a topographic or special map recorded on some magnetic medium. It can be created from topographic maps, photographs, field measurement data and other sources of information. The need for digital representation of information about the terrain is due to the fact that new methods of data processing are based on the use of computers.

Various thematic (special) digital maps (models) can be obtained by machine processing of digital maps.

Survey and geographical maps are intended for studying the physical and geographical conditions of vast territories.

They are published on a scale of 1:500 000, 1:1 000 000, 1:2 500 000, 1:5 000 000 and 1:10,000,000.

Aeronautical charts are intended for the preparation and navigation support of aviation flights. They clearly depict objects and terrain elements that are landmarks and obstacles in flight for aviation, and also show isogons (lines with equal magnetic declination) and areas of magnetic declination anomalies.

They are published in scales of 1:2,000,000 and 1:4,000,000.

Relief maps are intended for a detailed study and assessment of the terrain when planning ASDNR and organizing aviation flights. They are made at scales of 1:500,000 and 1:1,000,000 and give a visual three-dimensional image of the relief with a cartographic image of other terrain elements.

The maps of communication routes are intended for planning the movement of the forces of the RSChS and GO. They are manufactured in scales of 1:500,000 and 1:1,000,000. They display in detail the network of roads and railways, indicate their characteristics (class, width, coverage, etc.), as well as place data on bridges, tunnels and other road structures, indicate the distance between settlements and other objects. Maps of geodetic data are intended for fast and more accurate determination of the coordinates of their location, emergency objects, as well as for topogeodesic linking of forces and means of emergency situations and civil defense.

The coordinates of contour points to be imprinted into the map are determined by large-scale plan maps or photogrammetric methods that provide the necessary accuracy.

Maps of river sections are intended for a detailed study of water barriers and the surrounding area. They are used in the organization and implementation of forcing water barriers.

The maps contain data on the speed of the current, the depth of the river, the soil and the profile of the bottom along individual channels, the steepness of the banks, hydraulic structures and possible changes in the regime of the river after their destruction, characteristics of crossings (bridges, ferries, fords), information about the boundaries of floodplain flooding and its patency.

These maps are issued, as a rule, at scales of 1:25,000 and 1:50,000.

Maps of mountain passes and passes are intended for a detailed study of the mountainous terrain and choosing the most convenient ways to overcome mountain systems or organize defense. They give detailed characteristics of passes and passages.

These maps are usually created at scales of 1:50,000 and 1:100,000.

Orientation maps contain conditional names of terrain elements and its individual objects. Landmarks are assigned names and numbers that are used for management.

A photograph is a photographic image of an area mounted from aerial photographs. Designed for a detailed study of the terrain in emergency zones.

Terrain layout is a visual relief model of the terrain reproduced at a certain scale. It can be made in a box with sand or other materials for tactics classes or on the ground - for working out and clarifying tasks and organizing interaction.

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