

NEW EDITION OF THE FUNDAMENTAL THE WORLD ATLAS

A.A.. Drazhnyuk, V.E. Zhukovsky, E.E. Matveeva, N.N. Polunkina,
E.A. Sudakova

The Federal Service of Geodesy and Cartography of Russia
2 korpus, 14, Krzhizhanovskogo str. 117801, Moscow, Russia
Fax: (095) 124-35-35
E-mail: roskart@dol.ru

In 1999 The Federal Service of Geodesy and Cartography of Russia edited the fundamental cartographic product – The World Atlas (third edition). It meets all the modern requirements in methodology, content and technology.

In Russia the Atlas was highly appreciated by specialists and community. It received two awards given by the Russian Federation for the distinguished scientific works in the field of cartography and geography: Krasovsky Prize (1999) and Diploma of the Russian Geographic Society (2000).

The aim of the present report is to present the World Atlas to the cartographic and geographic society. In the report are given the particularities of creation, main characteristics and possibilities of use of the World Atlas and adjacent to it states.

The World Atlas issued on the brink of the new millenium in one row with such fundamental cartographic masterpieces as World Atlas Snow and Ice (1997) and Resources and Environment World Atlas (1998-1999) is the national contribution of Russia into the global atlas mapping and global information system.

Two first editions of this capital cartographic product, edited in 1954 and 1967, were highly appreciated by the scientist, specialists and geographic society. In spite if the enough big quantity of the edition for such type of atlases (25 000 samples), these products became bibliographical rarity very soon.

During the years passed since the edition of the second edition occurred significant changes in the political, phisical and social-economic geography of the World.

When working on the new edition of the Atlas of the World, the Russian Cartographic Service set itself to not only renovating the Atlas from the point of view of changes that had occurred in the political and economic geography of the world, but also to making it richer in content. When developing the Atlas, special attention was paid to the representation of the world current political arrangement, to changes that recently occurred in Russia, Eastern Europe, Africa and other regions. Basic methodological

regulations laid in the basis of the Atlas designing were formulated in the general program. The size of the Atlas remained as it had been in its first two editions: 31 x 40 cm, its volume is 563 pages, this including 286 pages of maps and 277 pages of the index of geographical names. The Atlas consists of 8 sections: the map of the world (6 pages); Russia (44 pages); Europe (62 pages); Asia (66 pages); Africa (24 pages); North America (46 pages); South America (24 pages); Australia and Oceania, the Arctic and Antarctic, Atlantic, Indian and Pacific Oceans (22 pages) and the index of geographical names (277 pages). Creation of the Atlas, which is original, both in type and content, and also in the availability of various cartographic and literary materials that were used in preparing it, has required new cartographic approaches and carrying out a number of studies on various problems of mapping methods.

A number of important theoretical and practical provisions could be reflected in the Atlas only due to specially developed methods that required carrying out a great volume of scientific-research and experimental work. In particular, this relates to the methods of mapping the territory of the Russian Federation, whose maps were developed anew and has become more authentic than maps published previously.

Extensive use of materials of space photographic imaging in the practices of Antarctic research, and exchange of cartographic materials within the framework of activity of the Scientific Committee Antarctic Research (SCAR) has made it possible to define more accurately the image of the Antarctic continent and seas washing it.

The results of scientific-research, experimental and methodical work are as follows:

- selection and substantiation of cartographic projections in consideration of ensuring optimal possibilities for using maps and conducting simple cartometric work;
- zoning of the territory of Russia and adjacent states with respect to population density of settlements, river network, automobile roads and railroads, that has made it possible to develop standard-census indicators for selecting the objects of mapping;
- development of methods and procedures of map-making with the use of materials of space photographic imaging;
- development of standard documents and aggregate table of diacritical symbols that establish the rules of transcription of geographical names (names for all states of the world);
- development of the unified system of legend and special system of types that has made it possible to increase the volume of information on the maps;
- improvement of procedure of preparing the atlas for publishing that has made it possible to use computer and traditional methods in manufacturing publisher's originals.

Some of the results of these studies have been published in scientific publications, were reported at the meetings of the Moscow center of the Russian Geographic Society, UN scientific conferences and seminars and also at the international congresses of the International Cartographic Association (Budapest, 1989; Barcelona, 1995). Section

“Europe. Foreign countries” of the Atlas of the World published as an individual edition in 1996 was exhibited at the International Cartographic Exhibition in Canada (Ottawa 1999), and in October 2000 the Atlas of the World was presented in the full size in Russian and in Roman alphabet at the International Book Fair in Frankfurt on Main (Germany).

Used as sources of creating the Atlas maps have been domestic and foreign cartographic publications of recent years, materials of space photographic surveying, literary and reference materials.

Due to the unity of the principles being the basis of Atlas creation the maps included in it ensure (on a global scale) the obtaining of comparative characteristics of territories and possibility of comprehensive examination and comparison of physic-geographical, political and economic-geographical conditions of individual regions of the world and states. The 3rd edition of the Atlas of the World is a biggest cartographic edition, it exceeds similar foreign editions in volume and in representation of information collected in it and causes great interest of domestic and foreign specialists.

Arrangement of maps in the Atlas is made in a way as to observe the principle “from general to particular” with consideration for the geographical sequence, i.e. general maps of the world and continents are an introduction to the Atlas and its individual sections, and they show the location of the biggest objects of the Earth surface, make it possible to generalize the data of Atlas maps to regions. The main content of the Atlas makes up detailed general geographic and political-and-administrative maps of the parts of continents, states and largest regions. Basic maps of the Atlas are as a rule located on a double-page spread, and the coverage of a territory on each map is made on the principle of its geographic integrity providing the compliance with a topic expressed in a map name.

The titles of the maps compose a logic system corresponding to the type and structure of the Atlas.

The adopted sequence of arrangement of main maps in the sections is based on the directions from north to south and from west to east.

Detailed reference and additional maps are arranged in accordance with their topics and located directly after the basic maps which are supplemented and detailed by them.

If the territory of one and the same state is presented in the Atlas with maps of various scales, these maps are located side by side, in this case the maps of bigger scale follow those of smaller scale for the same territory.

The purpose and type of the Atlas have largely determined its content, subject matter and map scales.

In the coverage of a territory these are the maps of the world, continents, oceans, within the continents these are the maps of large regions, maps of states or parts there of.

The layout of individual maps corresponds to the topic or, on combination with adjacent maps discloses its geographic contents.

The Atlas provides a fairly complete presentation of the Russian Federation territory, CIS countries.

The maps of the Atlas feature normal orientation, i.e. the central meridian coincides with the mean line of a map, on individual maps, as an exception, some shift of frames eastward or westward was admitted, which was caused, first of all, by considerations of the map layout.

The maps of the Atlas are coordinated among one another in content. Single-scale maps have the minimum overlap; this technique presents certain convenience in transition from one map to another.

“Cut-in” maps located within map frames are given, as an exception, on the filling territory, for showing capitals, largest cities; territories belonging politically to a main territory but located at a considerable distance from it; or a part of the main territory that has not gone within the map frames.

Selection of scales of the Atlas maps has been realized with consideration for territories development, their economic and political significance and also the interests of users.

Scales of basic regional and detailed reference maps of the Atlas range from 1:1 250 000 to 1:7 500 000. The regions of the Russian Federation are mostly shown on maps of scales of 1:2 500 000 and 1:500 000. This choice of scales for Russia's territories complies with the principle that these are the scales on whose basis best domestic hypsometric, reference and general geographical maps have been manufactured.

Particular attention in the Atlas is paid to the so-called additional maps prepared on largest scales. Maps like these have been developed for densely populated and important industrial-and-economic regions (Ruhr area, Central England, Central Japan, Middle-Atlantic region of the USA and others) centers of mass tourism (Central Switzerland), capitals and largest cities (Moscow, St. Petersburg) individual islands, most important channels, straits. These maps are made on scales from 1:25 000 to 1:1 000 000.

A set of projections in the Atlas has been thoroughly thought over. Projections of each map have been selected on condition of presenting a territory with minimum distortions, in consideration of its geographical position, sizes and configurations. When selecting a

projection, the convenience of viewing and comparison of a territory was taken into consideration, as well as the possibility of using the maps for measurement purposes. The number of projections selected in the Atlas is not great, and this makes it possible to ensure its internal unity.

All basic maps (regional detailed ones), scales 1:1 250 000 - 1:7 500 000, are given in the normal conformal conical projection, in the atlas the normal conformal cylindrical Mercator projection is used (maps "Indonesia", "Equatorial Africa") and territories smaller in area and cities are given in Gauss-Kruger projection and in normal conical projection, other projections are used in the atlas as well.

To observe the condition of Atlas scientific-and-reference significance the maximum load of maps is given in it, and this has made it possible to impair good readability and clearness to the maps.

The observation of these conditions has become possible with the use of scientifically developed system of legends and types.

To ensure good readability and comparability of the maps a single classification of objects for all the maps of the Atlas has been adopted. The use of conventional symbols has ensured the maximum load of the maps with a clear separation of their basic content, the signs are simple and are distinguished with internal logic.

When working out the elements of the Atlas content, a principle is used that the elements of hydrography together with the cartographic graticule present a basis with which all other elements of map content are correlated. Therefore coastlines of seas, banks of lakes and water reservoirs, rivers and channels are shown on the maps of the Atlas with maximum detailing and completeness.

Developers of the Atlas maps were trying to convey specific features of the hydrographic network - types of banks, types of river systems, their relative density; degree of river tortuosity in various regions, nature of water streams, availability of lakes and peculiarities of their location, their sizes, shapes, characteristics and quality of water. In sparsely populated, droughty areas wells and springs are indicated.

Inhabited localities are most important elements of maps content. Therefore the maps of the Atlas show the inhabited localities with the utmost completeness, optimal for the maps of these scales. The inhabited localities are divided in accordance with their habitancy and their political and administrative importance. The maps of the Atlas show practically all political-and-administrative centers and inhabited localities that are important in economic, cultural and historical terms. Selection of inhabited localities is established depending on territory development, size and significance of a locality.

A principle was used in the Atlas consisting in that the relative density of inhabited areas and the loading of the maps with other content elements should give a correct characterization of territories development, their population density.

When representing communications on the Atlas maps, its designers were trying to show the degree of provision of the territories with communications, represent relative thickness of a road network, nature of its arrangement, mutual relations and significance of individual types of transport.

The topography of land and sea bottom on general geographic maps is shown by hypsometric method: horizontal contour lines and isobaths with the addition of typical marks of heights and depths and coloring of layers according to the stages of heights and depths in a single regularly built scale of basic horizontal contour lines (isobaths) where the value of cross-section increases with height (depth).

The general maps of the Atlas clearly indicate the general idea of the world political arrangement, belonging of a territory to a certain state, status of possessions of other world territories is clarified. International treaties, agreements and other official documents were used as a guide in representing state borders. The maps bear the names of states and the units of their administrative territorial division, capitals of the states and centers of possessions and territories of the world are specified.

In consideration of the great interest in the Atlas of both home and foreign readers, the World Atlas is edited in two versions: in Russian and in English.

Correctness and actuality of names indicated in the Atlas are of exclusive importance for it.

The way of writing the geographical names in the Atlas published in Russian is given in a single system adopted in Russia; Russian names are given in compliance with the effective rules of Russian orthography, and foreign ones are conveyed with their rules of modern national writing.

In the English version, geographical names of the countries employing the Roman alphabet are provided in the appropriate language. To render place-names of the countries which have non-Roman alphabets, Romanization systems officially adopted for these countries have been used. On the principal Atlas maps, name of capitals and major hydrographic features are given both in the appropriate national language and in English.

General names, texts and explanations in the Atlas English version are given in English.

The 3rd edition of the Atlas of the World, in contrast to its predecessors, is issued in a single volume with the Index of geographical names; it comprises practically all the names occurring on the maps of the Atlas.

Map editing, compiling, preparing for publication and printing of colour proofs of Atlas were accomplished by Mapping Production Association “Kartografia”. The edition of Atlas was printed at Omsk Cartographic Factory of the Federal Service of Geodesy and Cartography of Russia. The run was not big: three thousand copies in Russian and one thousand - in English.

The Atlas is useful for all: state authorities and mass media, for various departments and educational establishments.