

About Web Cards and Their Use

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Annotation: The article provides detailed information about web maps, their types, brief history, the effectiveness of the use of web maps, its disadvantages, which are very rapidly gaining popularity today.

Keywords: web map, mapping, raster, vector, Javascript, Open Layers, Google Earth, Google Map, four tree scheme, website.

Web Kartalar Va Ulardan Foydalanish Hususida

Annotatsiya: Maqolada bugungi kunda juda tez ommalashib borayotgan veb xaritalar, ularning turlari, qisqacha tarixi, veb xaritalardan foydalanish samaradorligi, uning kamchiliklari haqida atroflicha ma'lumotlar berilgan.

Kalit so'zlar: veb xarita, xaritalash, raster, vektor, Javascript, Open Layers, Google Earth, Google Xarita, To'rt daraxt sxemasi, veb-sayt.

Про Веб-Карты И Их Использование

Аннотация: в статье представлена краткая информация о веб-картах, их типах, краткой истории, эффективности использования веб-карт, его недостатках, которые сегодня очень стремительно набирают популярность.

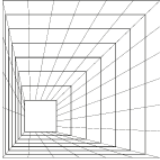
Ключевые слова: веб-карта, картографирование, растр, вектор, Javascript, OpenLayers, Google Планета Земля, Google Map, схема четырех деревьев, веб-сайт.

It is known that when describing any large area or natural object, its shape and condition on the map is imagined. A person does not have the opportunity to see and imagine the natural state of large territories, for example, a region, country, continent, lake, sea, ocean at the same time, and imagines them as depicted on geographical maps.

As a consequence, the territorial structure, geographical location and extended distance of any large-scale objects are studied mainly with the help of maps and atlases.

Map studies or cartographic studies are developing and improving in proportion to the development of society. For this reason, online or interactive maps are taking the place of technical (printed) maps in all fields of science. Maps like this are known today by several terms such as web map or online maps. Web mapping or online mapping is the process of using, creating, and distributing maps on the World Wide Web (Internet), typically using Web Geographic Information Systems (Web GIS). A web map or online map is both a service type and known as a consumer product.

The emergence of web maps can be seen as a major new development in cartography. In recent years, the result of the work and research of qualified professionals and engineers, along with expensive and complex equipment and software products, as well as the work and research of cartographic research companies, institutions and mapping agencies, has led to the formation and development of web maps.



Web mapping implements formed as a result of many geographic data sets, including free data created by OpenStreetMap and proprietary data sets owned by HERE, Huawei, Google, Tencent, Tom-Tom, and other cartographic research companies.

The first webmaps were compiled and classified by Kraak in 2001. He classified static and dynamic web maps and later classified interactive and web maps. Nowadays, the number of dynamic webmap types and static webmap resources are increasing. Here's a brief history of some of the major web mapping software and browsers:

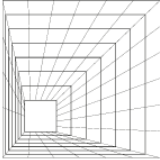
- 2004 year: **OpenStreetMap**, Designed and implemented an open source and open content world map project founded by Steve Cost.
- 2004 year: **Yandex Maps** have been organized and implemented.
- 2005 year: **Google Maps**, The first version of Google Maps. Loads data based on raster tiles organized in a four-tree scheme. This mapping application is now very widely used by peoplw on the Internet. Because, it allows customers to integrate Google map services into their websites.
- 2005 year: **Google Earth**, The first version of Google Earth was developed based on the metaphor of the virtual globe. Through it, land and buildings can be viewed in 3 sizes. The KML (XML-based) markup language allowed users to integrate their own content through software and online Google Earth sites.
- 2005 year: **OpenLayers**, The first version of Open Layers open source Javascript library was developed and put into practice. Such kind of researchs are developing and spreading on a very large scale. As a result, several research companies and institutions are working in a such kind of work. (Table 1)

Today various companies and institutions are offering web maps as a cloud-based software service. These service providers allow users to create and share maps by uploading data to their

International online maps	
1. Apple Map	2. Esri
3. Google Maps	4. Google Earth
5. WikiMapia	6. Here
7. Here WeGo	8. Microsoft
9. Azure Maps	10. Bing Maps
11. OpenStreetMap	12. Mapbox
13. MapQuest	14. Mapy.cz
15. Moovit	16. Stadia Maps
17. TomTom	18. Bing Maps
19. Petal Maps	20. Waze
21. Yahoo! Maps (defunct)	22. Yandex Maps

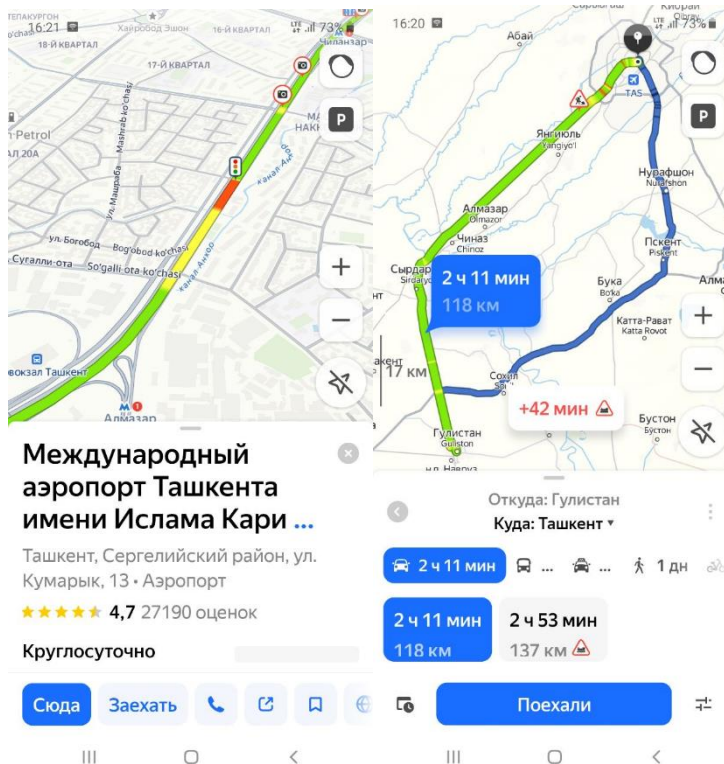
servers (cloud storage). Maps are created using a browser editor or by writing scripts that use service provider APIs.

The advantages of web maps are much more when compared to traditional technical maps.



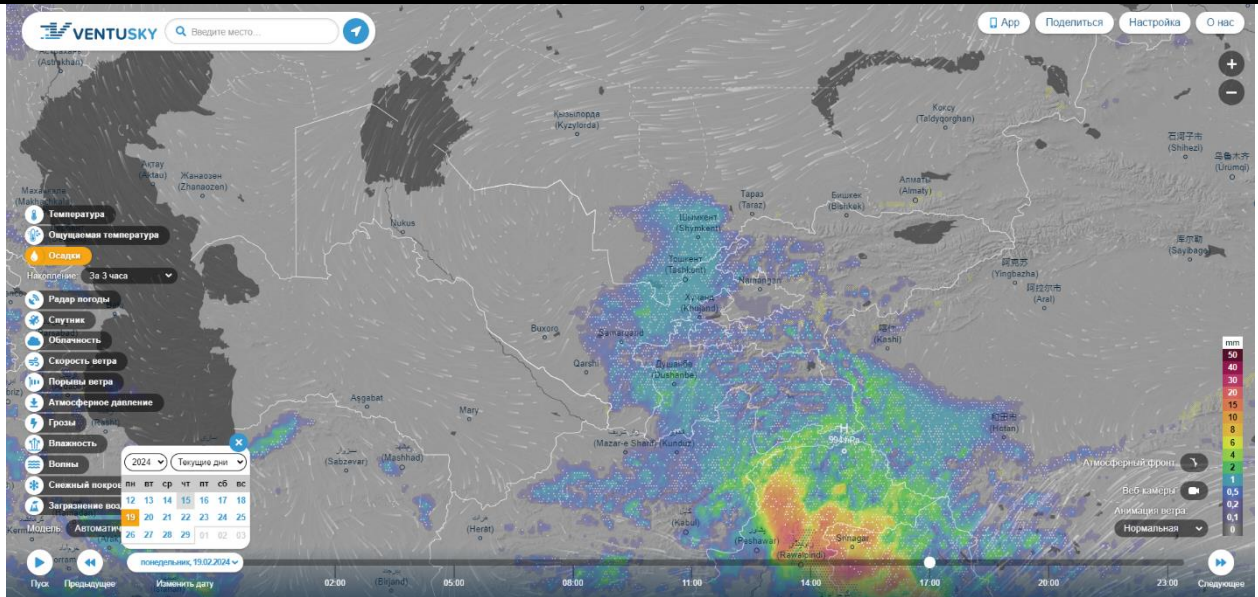
Based on web maps, the latest information can be delivered, processed and edited quickly and easily. When maps are automatically generated from databases, objects and events can be viewed, tracked and analyzed in real time. They do not need to be printed, mastered or distributed. For example:

- As soon as the election results and the dynamics of the spread and growth of diseases become known, it is possible to draw up and develop maps reflecting the election results, a map of diseases, epidemic foci and their spread;
- Developing a traffic map using the collected data makes it possible to know the time and direction for a certain distance (Pic. 1);



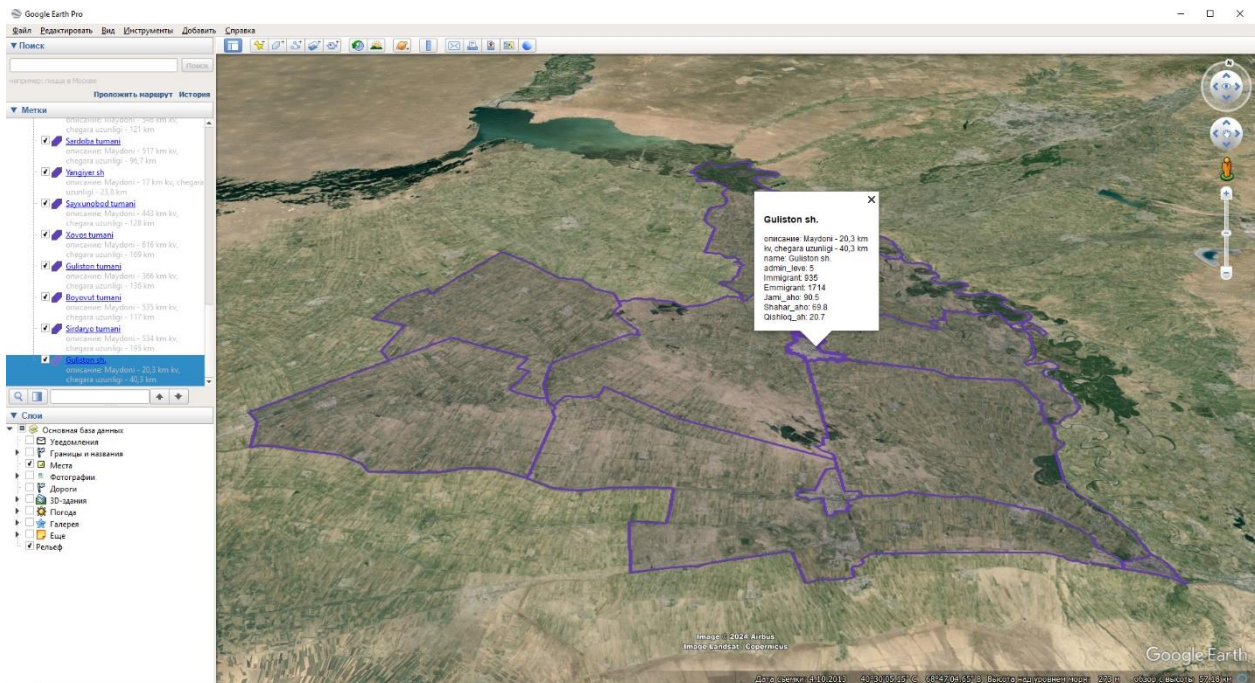
Picture 1. Navigation web map. (Yandex.Map.com)

- Develop maps showing the current location of public transport vehicles such as buses or trains, allowing customers to reduce wait times at bus stops or destinations or be aware of service delays;
- Availability of capabilities to create maps of weather, climate, surface structure, vegetation and hydrography (Pic. 2);

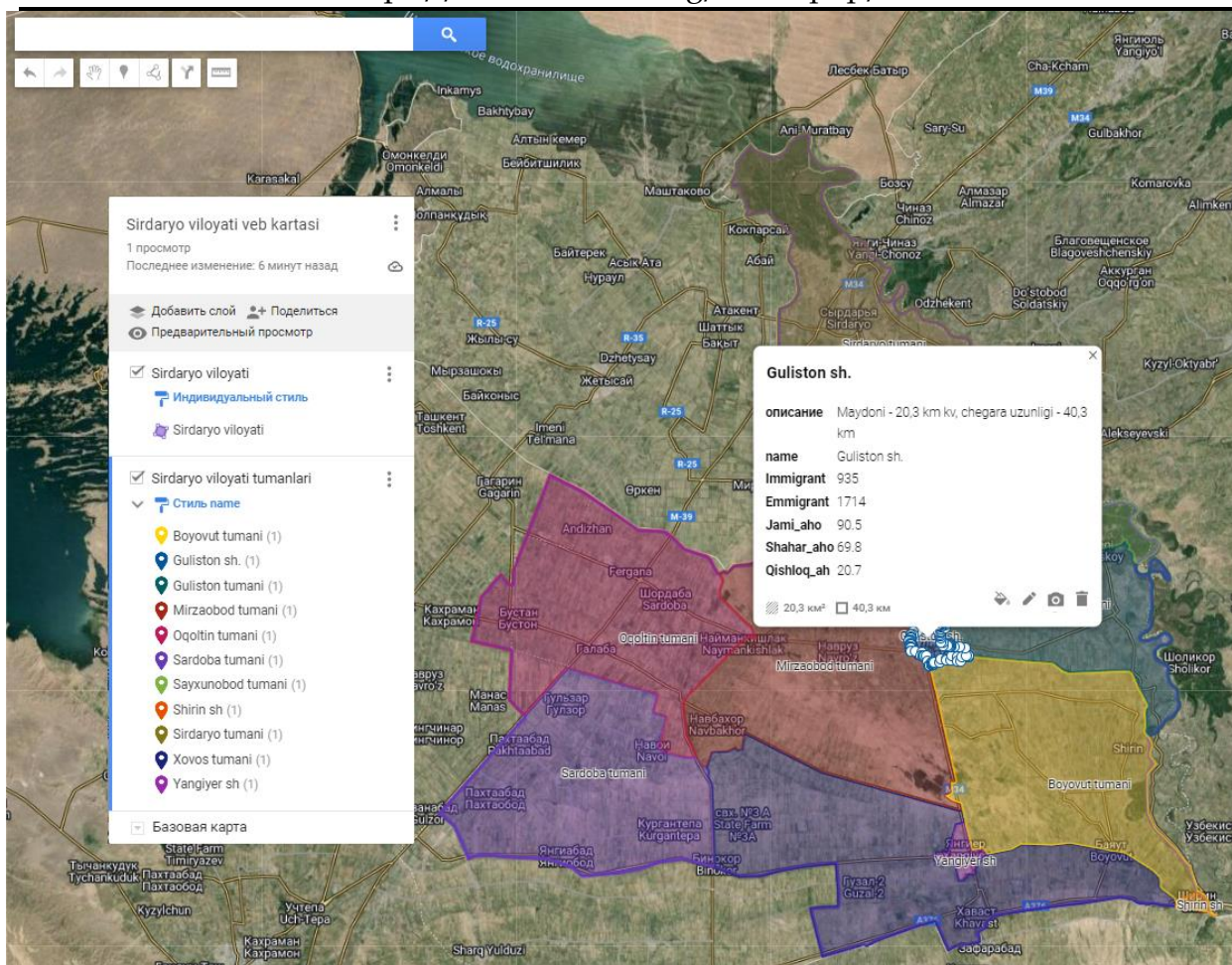


Picture 2 - Climate web map (<https://www.ventusky.com>)

- There is no need to publish, carry, etc.;
- Several scales can be viewed and observed at the same time (Pictures 3, 4).



Picture 3. Web map developed by Google Earth pro software.



Picture 4. Web map developed by Google Earth pro software.

4-rasm. Google maps dasturiy ta'minotida ishlab chiqilgan veb xarita

(<https://www.google.com/maps/@40.3,69.8,15z>)

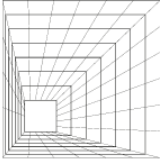
The web map samples shown in Pictures 3 and 4 in the article were developed by the authors, and personal e-mail addresses were provided. Any user-generated web map can be viewed and accessed via the link below picture 4.

Disadvantages:

- web maps are completely dependent on the Internet source and data collection and transmission sources;
- at least android mobile phones are required to use web maps;
- working with web maps requires special skills and qualifications both for working with web maps and working with electronic devices;
- Professionals are required to develop, edit, transmit and effectively use web maps.

Since web maps enter the life of society on a very wide scale, it is necessary to expand information and knowledge about them as much as possible, and carry out more campaigning and propaganda work on this matter.

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