Abstract
For the solution of the practical problems arising during economic development of the coast, frequently it is required to receive quickly the information on dynamics of coast, especially of the accumulative one. The use of space pictures allows estimating dynamics of accumulative coastal forms of any scale and giving a complete picture of the area coast changes. The resort Anapa (Russia) has been used as test area.

Keywords: Beach, Coastal processes, Remote sensing, Black Sea

Introduction
The solution of Black Sea coastal zone complex management problems is impossible without the full information of coasts current condition. The development of coastal natural systems is always accompanied by changes of coastal line planimetric position. Processes occurring at the coast essentially influence functioning of economic complexes. Prevention or minimization of coastal dynamics negative consequences for the economy is the important component of the sea coastal zone management. Therefore countries pay the big attention to the monitoring of the coast modern condition and to the forecast of their development under the change of the climate and the anthropogenic impact.

Materials and methods
The most part of data about the Black Sea coastal line variability available to the present time was received by measuring the width of beaches on stationary section lines or, less often, by the comparative analysis of separate topographical and aerial mappings. However, field tool observation data acquisition demands long expeditious works and time for the subsequent office processing of results. Traditional methods of topographical survey can’t operatively reflect the coastal line change [1]. Use of space pictures allows receiving the periodic information for all studied territory, estimating dynamics of coastal forms of any scale and giving the complete picture of the area coast changes.

Authors of the paper have made the analysis of space series for made at different time pictures of Anapa beaches (Russia) for the long period. While studying dynamics of Anapa bay-bar coastal line for binding the remote sensing contemporary records, the coastal line GPS-tracks and GeoEye high resolution survey of the chosen area were used. It was possible to reference to GeoEye picture the II World War times Luftwaffe (Germany) air photographs of program CORONA (USA) 1966 [2].

Results
Anapa bay-bar is an accumulative sandy body having the length of 47 km, located in a northwest part of the Black Sea Russian coast. Width of the bay-bar makes from 100 m in the northern part up to 1.5 km in the southern. The continuous strip of sandy beaches having the width of 50-200 m has huge recreational value.

In the last some decades the recession of Anapa bay-bar coastal line has been noted repeatedly in the literature [3]. Several hypotheses, about the reasons of reduction of beaches were put forward: hydraulic engineering constructions of port Anapa, groin and seawall at quay, withdrawal of sand from beaches. Meanwhile, comparison of the available photographs covering the period from about 1900th till our time also has shown that the beach on the considered site of coast remains stable while the scope of within- and inter-annual fluctuations water line position reaches 15-20 m.

The interesting information has been received at comparison of the aerial photographs made by the German secret service during II-WW, and satellite pictures for the period from 1966 till present time. It has been found, that at the length of 3 km of the bay-bar most southern part the coastal line has kept former position. The recession of coast is noticeable to the north, reaching 70-80 m that coordinates with the data received by direct measurements. Comparison with CORONA pictures for 1966 has shown that from 1944 till 1966 the Anapa bay-bar coastal line was in rather stable condition; the recession of the coast has begun later. We shall note that fluctuation of the water line noted after severe storms reaches 10-15 m. It is connected with fluctuations of the sea level and complex structure of the underwater slope.

Conclusion
Chronological series of the high resolution satellite pictures is a reliable basis for monitoring fast changes of the coastal line and other elements of the coastal zone, especially on very dynamical accumulative coast. Their analysis has allowed to receive the detailed information about changes of Anapa bay-bar coastal zone for last decades and to connect them with natural and anthropogenic impact on the coastal zone. The conducted work has shown that space pictures application for studying the Black Sea coast of Russia is very perspective. The further researches will promote perfection of monitoring observations methods in the Russia coastal zone.

Acknowledgements
The work has been done under support of Russian Foundation for Basic Research, Grant 13-05-00466, 12-05-00587.

References