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[Weather Forecast](#) / [Ice Situation](#) /

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Information:

[Topographic maps](#)
[Thematic maps](#)
[Image Resolution and Map Scales](#)
[Maps Updating Examples](#)

Image Resolution and Map Scales

Topographic maps

When choosing an image for mapping in certain scales, the graphical accuracy of maps drawing and printing is accounted for (0.1 mm). For example, the images should have a spatial resolution of at least 100 m for the maps at a scale of 1:1 000 000 and at least 10 m for 1:100 000 maps. Therefore, IRS-1C/D PAN images with the pixel size of 5.8 m can be used to draw up a lot of elements of the 1:50 000 maps and smaller (some topographic maps elements, such as stand-alone trees, width of rivers in the map scale, etc., require a more detailed imaging). Landsat 7 ETM+ and Terra ASTER images with the pixel size of 15 m enable to draw up a lot of elements of the 1:200 000 maps and smaller. Some parameters, such as length, width and construction material of bridges depicted on the 1:200 000 maps, cannot be interpreted by images from space; therefore additional data sources must be used.

Recommended scales for drawing and updating of topographic, general-topographic and general maps using space images

Image type, Pixel size	Scale						
	10000	25000	50000 - 100000	100000	200000	500000 - 1000000	Less than 1000000
	25000	50000		200000	500000		

Terra/Aqua
MODIS,
250-1000m

Resurs,
MSU-SK, 140m

Resurs/Meteor
MSU-E, 35-45m

Landsat TM,
30m

Landsat ETM +,
15-30m

SPOT-2,
SPOT-4,
Monospectral,
20 m

Terra ASTER,
15m

IRS LISS,
23.5m

IRS-P-6,
LISS-3, MSS,
23,5 m

SPOT-2, SPOT-4
Panchromatic,
10 m

IRS PAN, 5.8m

IRS-P-6,
LISS-4, MSS, 5
m

IRS-P-6,
LISS-4, Mono, 5
m

EROS-A, 2-2,8
m

EROS-B, 0,8 m

Maps drawing

Maps updating

Thematic Maps

During thematic mapping, object location accuracy requirements are usually milder, than those for topographic maps. Therefore, the same images can be used to draw thematic maps at higher scales. Fore example, IRS PAN images with the pixel size of 5.8 m are applicable for the drawing of certain elements of 1:50 000 topographic maps, and for thematic mapping - up to 1:10 000 scale (of cause, depending on the map theme).

Image type, Pixel size	Scale						
	10000 – 25000	25000 – 50000	50000 - 100000	100000 – 200000	200000 – 500000	500000 – 1000000	Less than 1000000

Terra/Aqua
MODIS,
250-1000m

Resurs,
MSU-SK, 140m

IRS-P-6, AWiFS,
56 m

Resurs/Meteor
MSU-E, 35-45m

Landsat TM,
30m

Landsat ETM +,
15-30m

SPOT-2,
SPOT-4,
Monospectral,
20 m

IRS LISS,
23.5m

IRS-P-6,
LISS-3, MSS,
23.5 m

RADARSAT SAR,
8m, 25-30m

SPOT-2,
SPOT-4,
Panchromatic,
10 m

RS PAN, 5.8m

IRS-P-6,
LISS-4, MSS, 5
m

IRS-P-6,
LISS-4, Mono, 5
m

EROS-A, 2-2.8
m

EROS-B, 0.8 m

Maps drawing

Maps updating

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