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NOAA-AVHRR

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Rango

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Dorothy

DMSP

SSM/I

MODIS

MODIS

(MODIS

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Dorothy

SSM/I

SSM/I SMMR

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Rango

(Rango)

(Passive Microwave Data)

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Dorothy ()

(NIMBUS-7)

SMMR

TM

Special Sensor) SSM/I

Defense) DMSP

(Microwave Imager

/ x /

(Meteorological Satellite

AVHRR

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TM

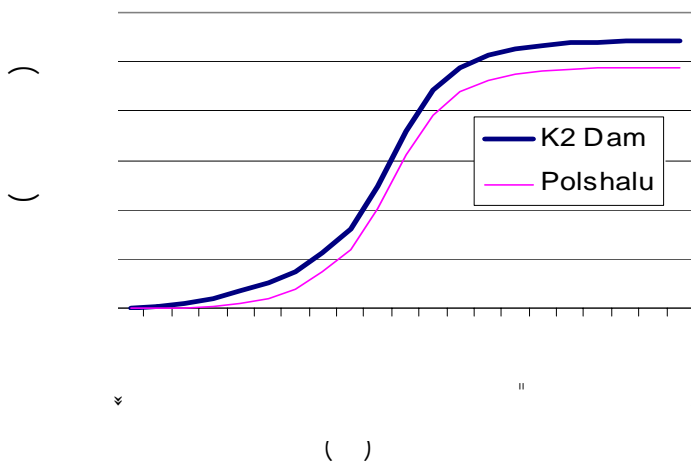
HRR

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Rango

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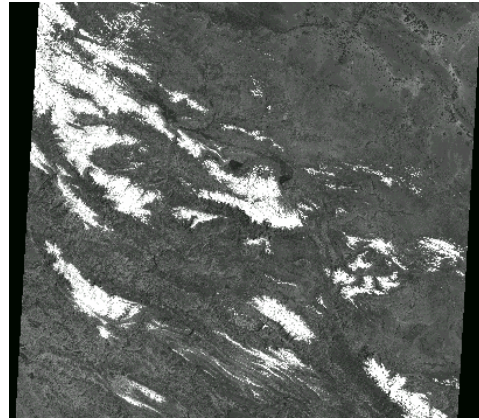
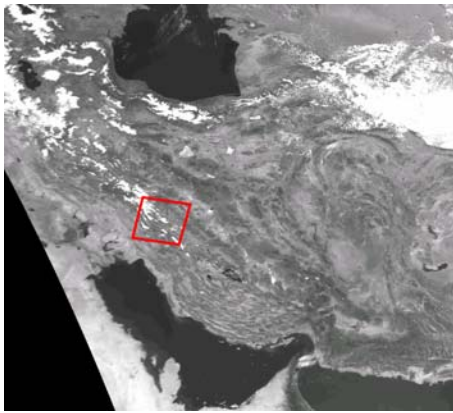
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AVHRR TM

(Scene)



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Affine

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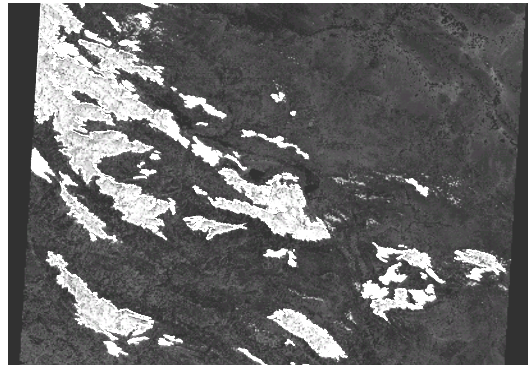
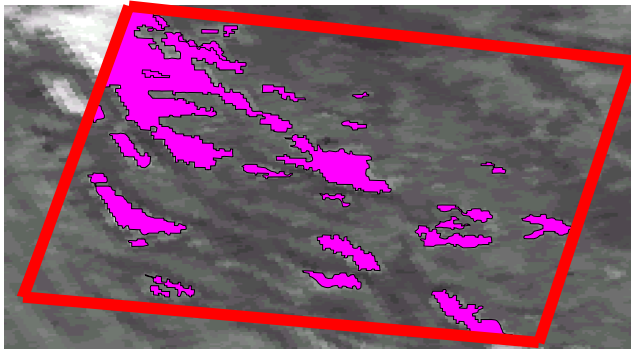
AVHRR TM

AVHRR TM

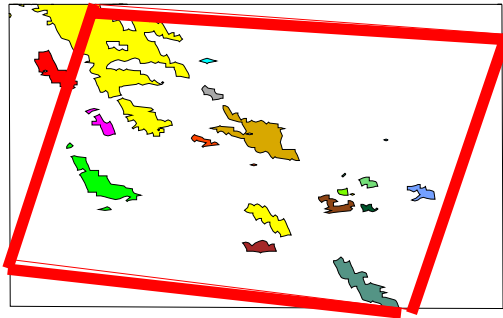
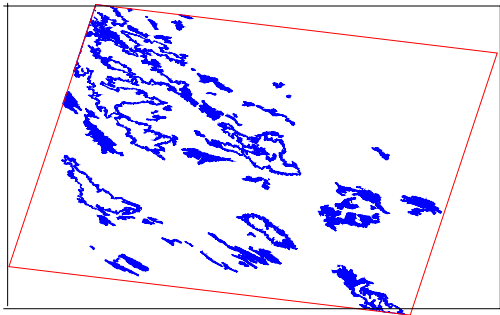
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/	a44	/	a26	/	a15
/	a21	/	a11	/	a38
/	a12	/	a37	/	a39
/	a56	/	a40	/	a31
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/	a55	/	a54	/	a17
/	a57	/	a52	/	a43
		/	a49	/	a16
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($R^2 = /$)

AVHRR
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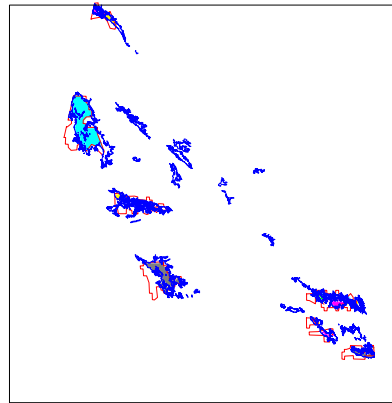
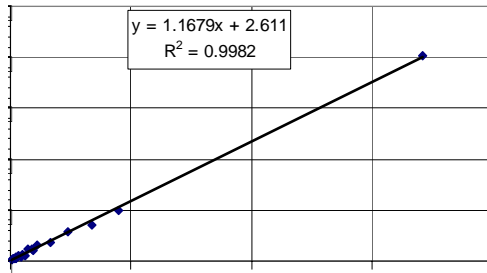
(X)

($R^2 = /$)

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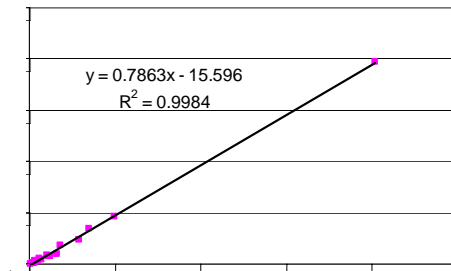
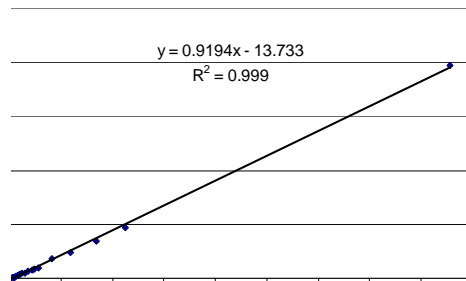
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$y = -0.023x + 37.624$	$y = 35.367e^{-0.001x}$	$y = -9.9769\ln(x) + 74.303$	$y = 118.26x^{-0.3393}$	

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$y=15.673x+16.67$	/	
$y=17.812e^{0.4882x}$	/	
$y = 11.901\ln(x) + 36.242$	/	
$y = 118.26x^{-0.3393}$	/	

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Evaluation of Spatial Resolution of Satellite Data on Snow Cover Estimates

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Abstract

The spatial resolution of satellite data in determining the area covered with snow was examined in this research. For this purpose, the Advanced Very High Resolution Radiometer (AVHRR) of NOAA satellite, with a nominal resolution of 1,100 m and the TM radiometer of Landsat satellite, with the nominal resolution of 28.5 m, were chosen and the data provided by them were compared. According to this research, which focused on snowy areas of Karun river basin in Iranian Zagros mountain range, the approximate areas derived from images of snow-covered regions produced by NOAA and Landsat satellites in two different dates, one at the beginning of the snow melt season and another at the end of this season, show a discrepancy by 15% and 17%, respectively. Furthermore, the research shows the spatial overlap of polygons by the two satellites is considerably less than the overlap of the images. However, the overlap area in various polygons is significantly correlated with the total area of the snow-covered region. Additionally, as the spatial resolution of satellite data reduces the risk of overestimation of snow-covered area increases. Another issue that must be considered is that only if the size of snow fields must at least is equal to some pixels as viewed by the radiometer distinguishing the fields will be possible.

Keyword:spatial resolution, NOAA-AVHRR, NOAA Sat, Landsat, snowcover