Processor issue

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Striping : suppression

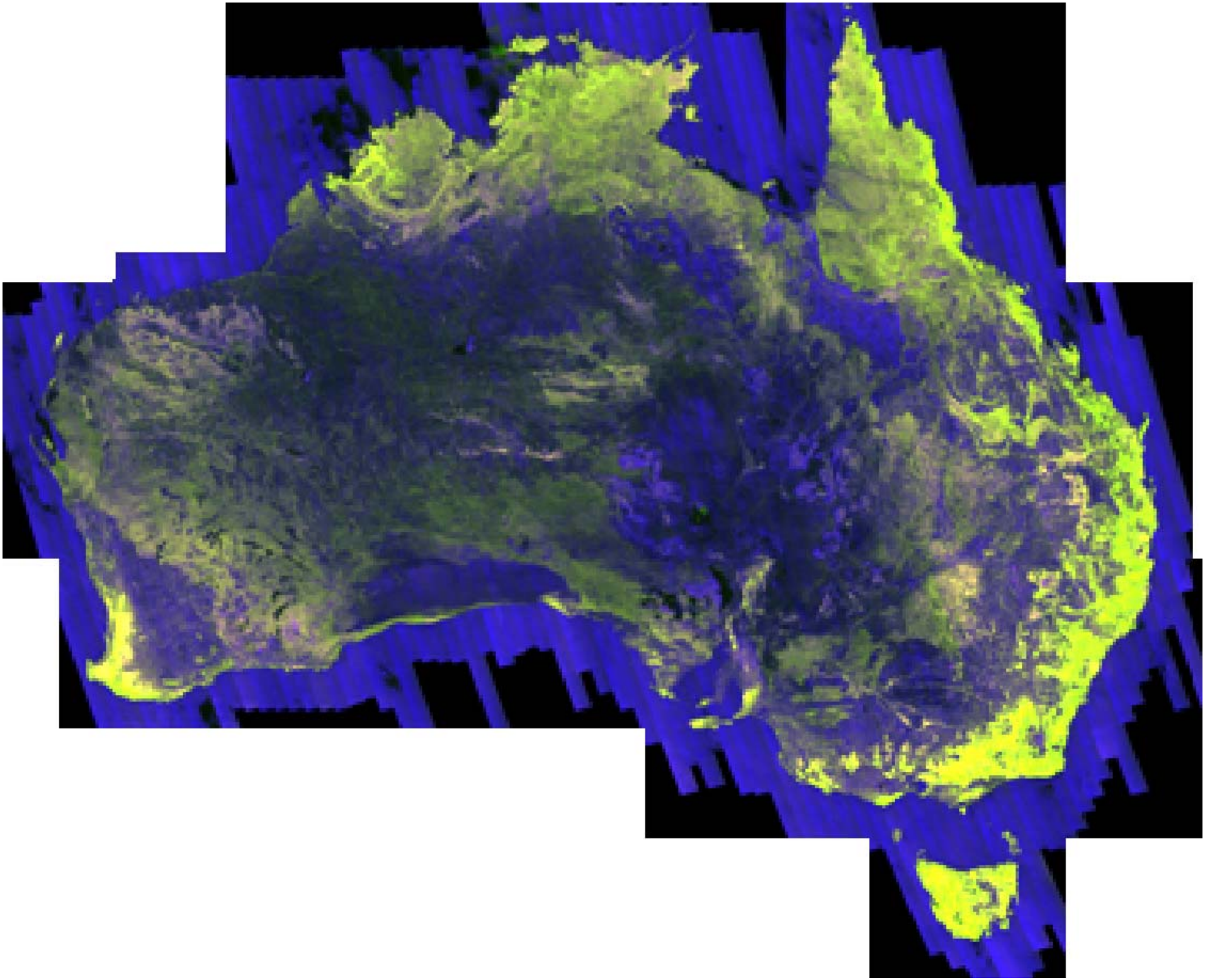
Geolocation accuracy for the ortho rectification

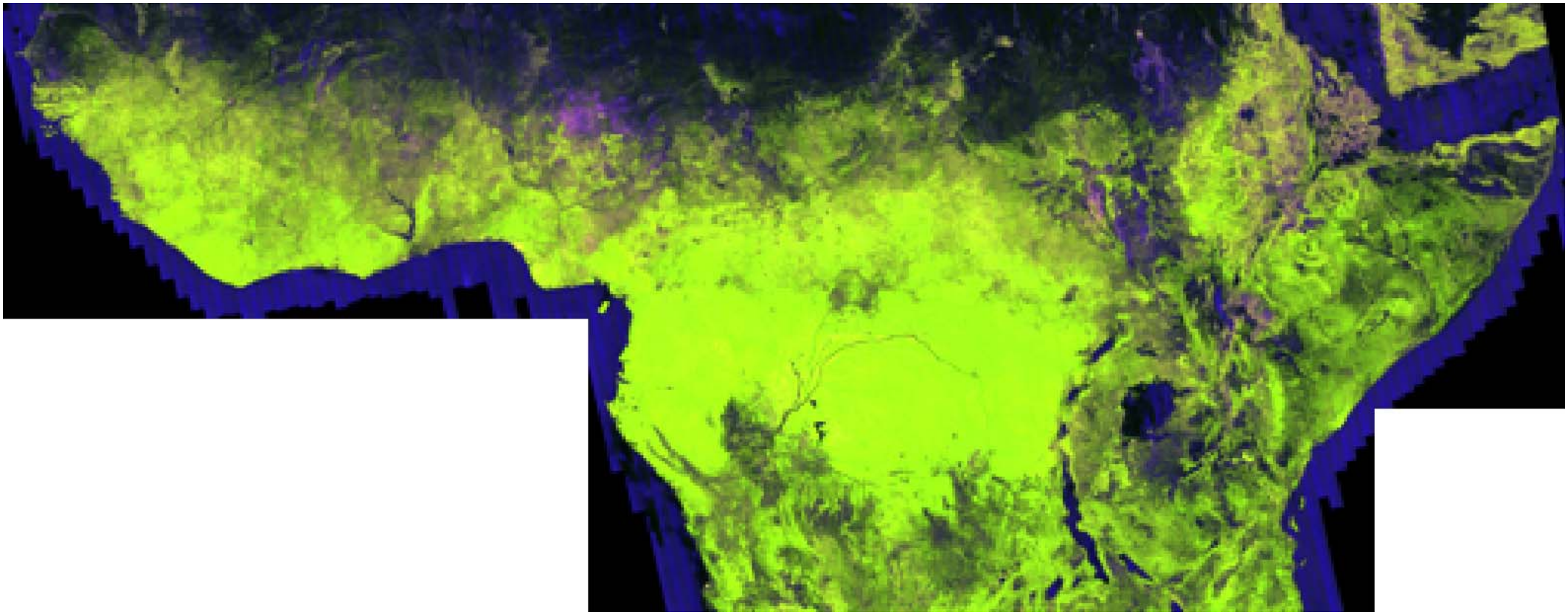
Slope correction : examples

Ancillary Data

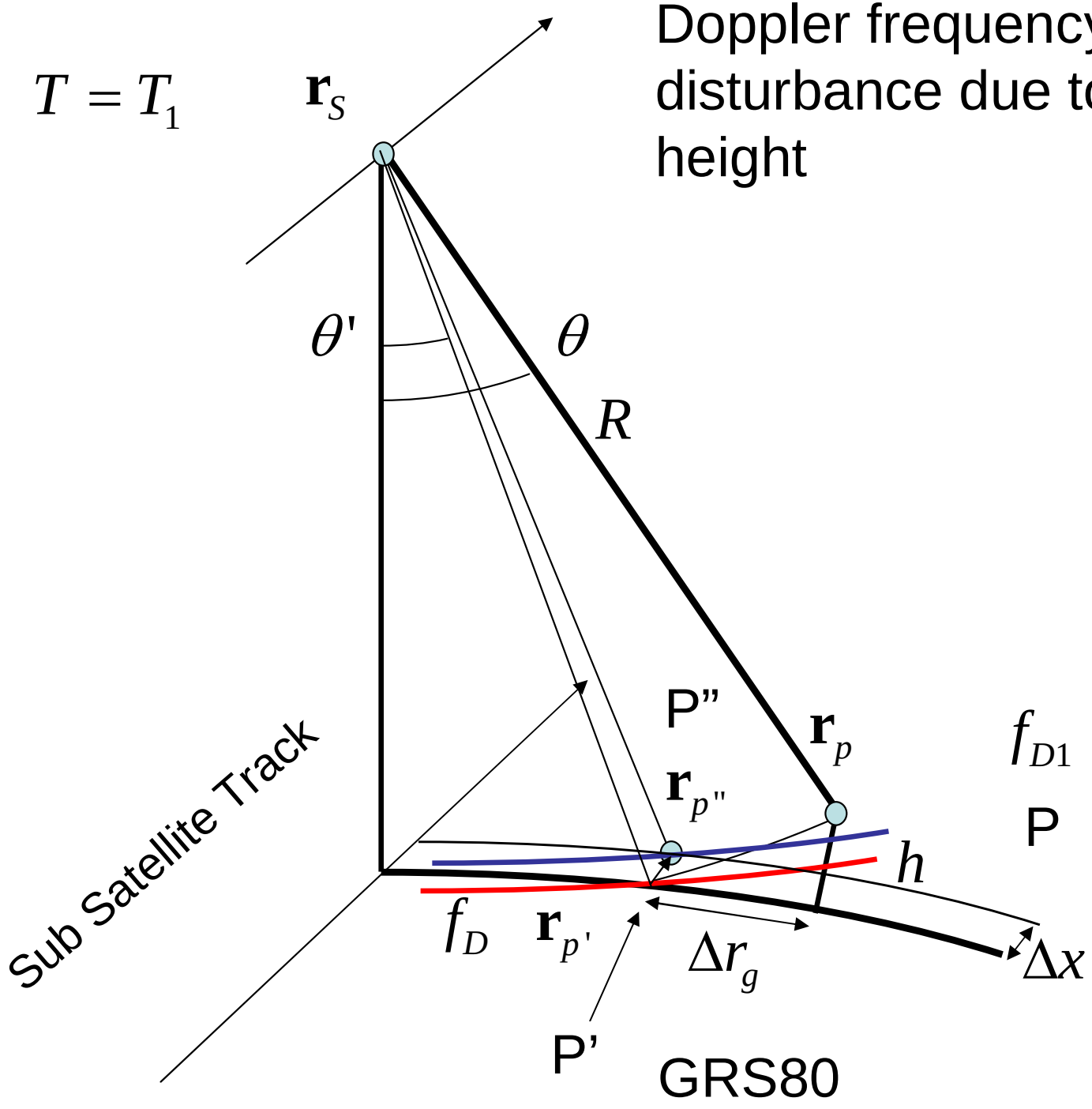
Release of the Australi and Africa Dataset

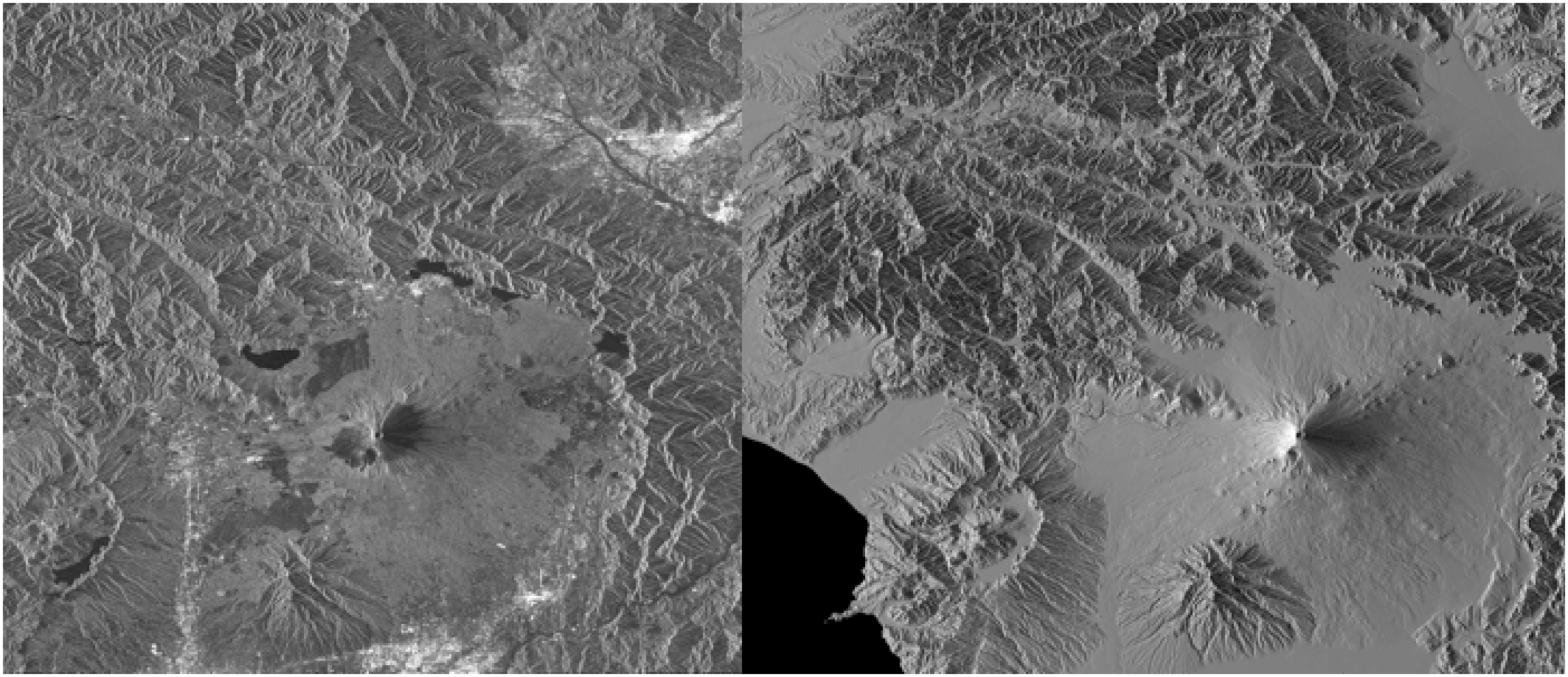
Orbital mentenance : frequency will be updated to 1/week.
500meter dia is difficult



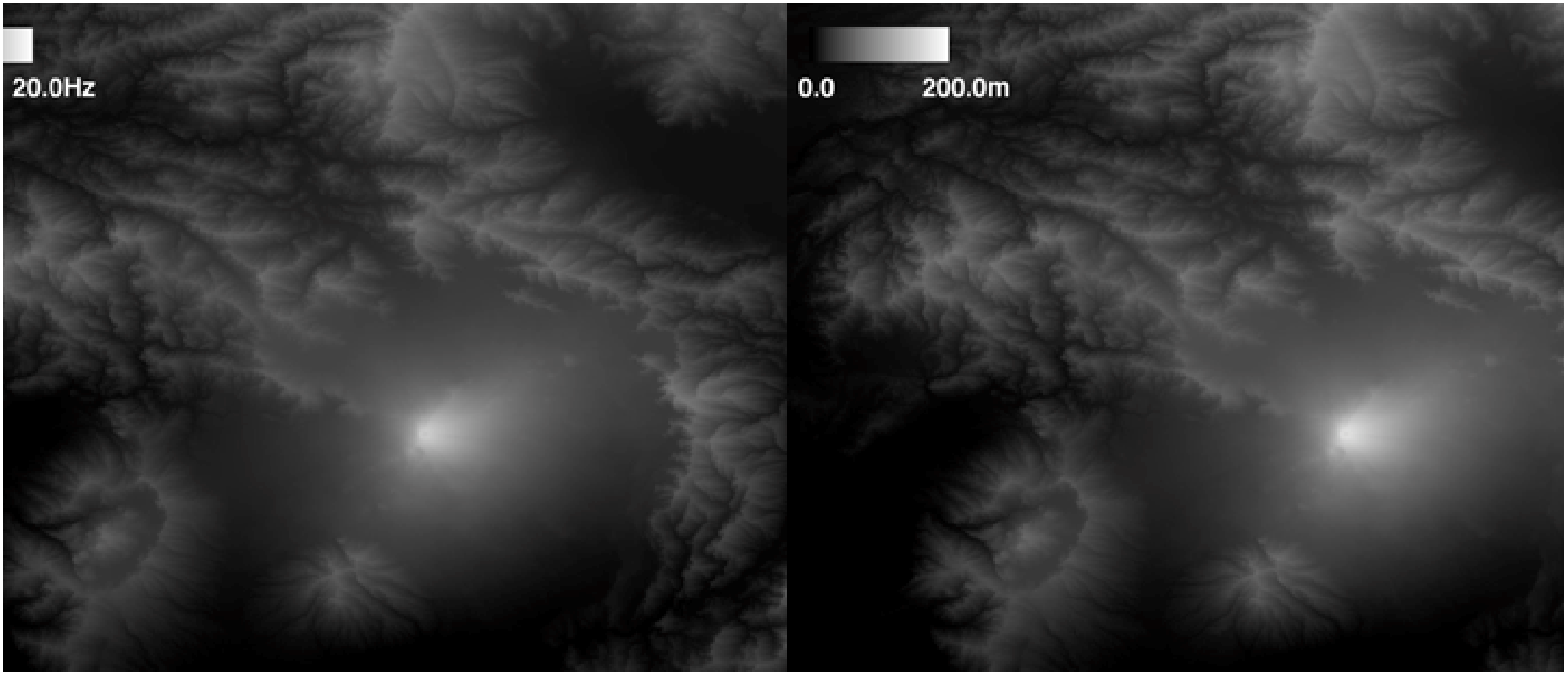


Doppler frequency disturbance due to the height



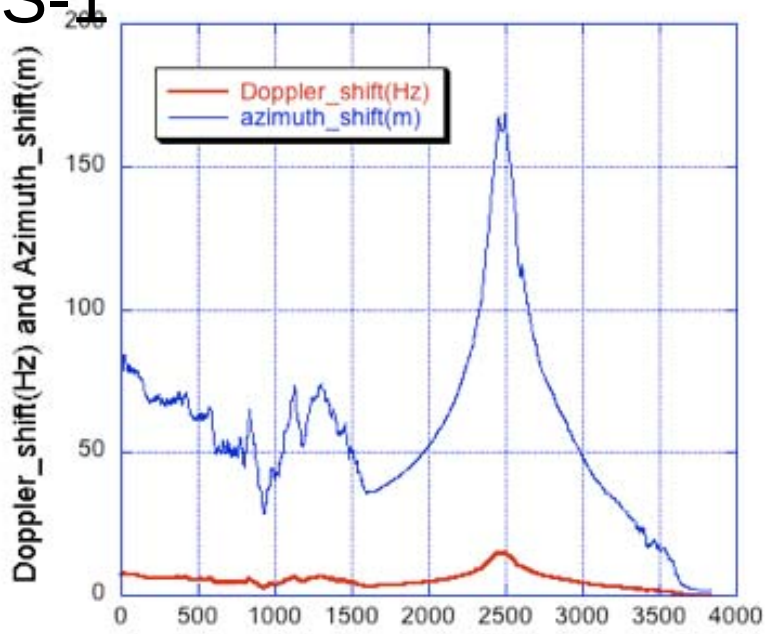


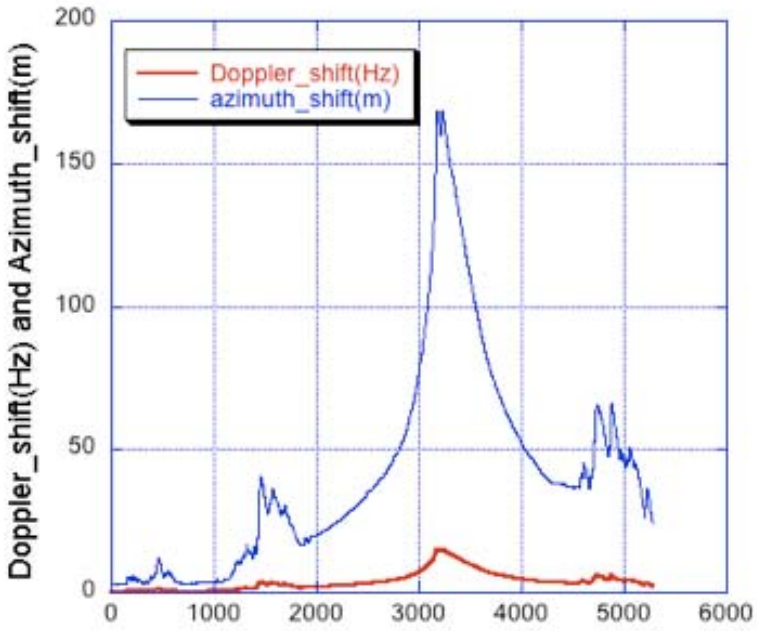
Comparison of the SAR image corrected for the azimuth pixel shift due to the height v
based simulated SAR image, which is only corrected for foreshortening. Here, vertical ax
rection and the horizontal axis is range direction.



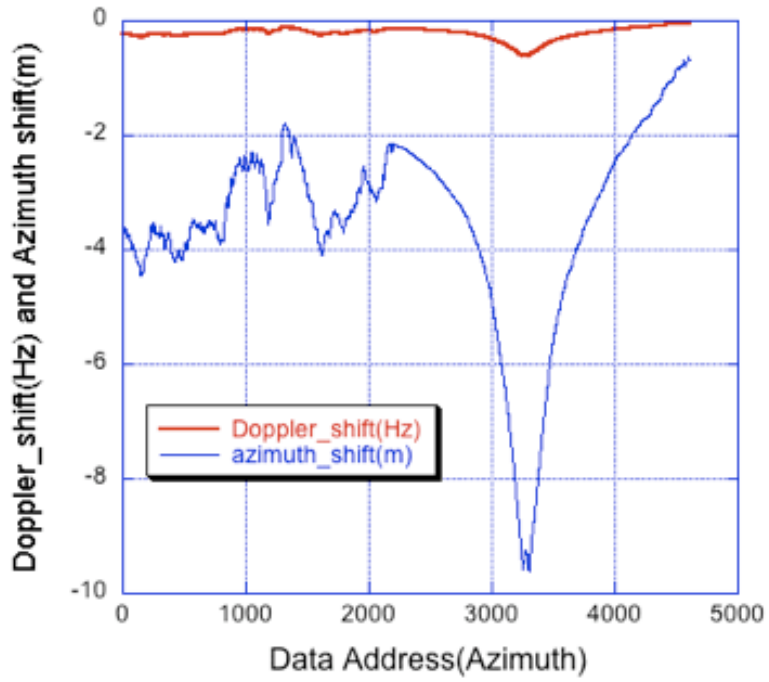
a) Doppler shift of the target area at Mt. Fuji, and b) corresponding shift image at Mt.

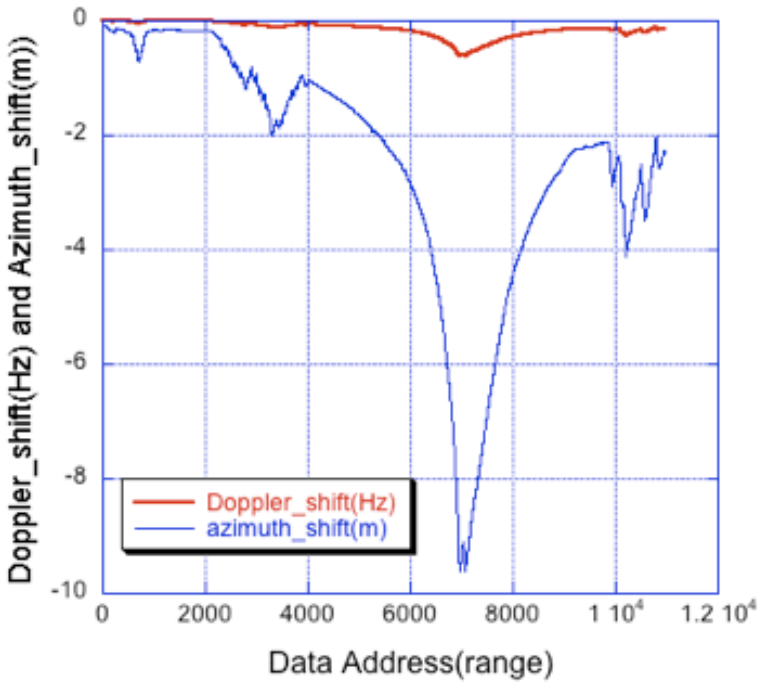
JERS-1





PALSAR





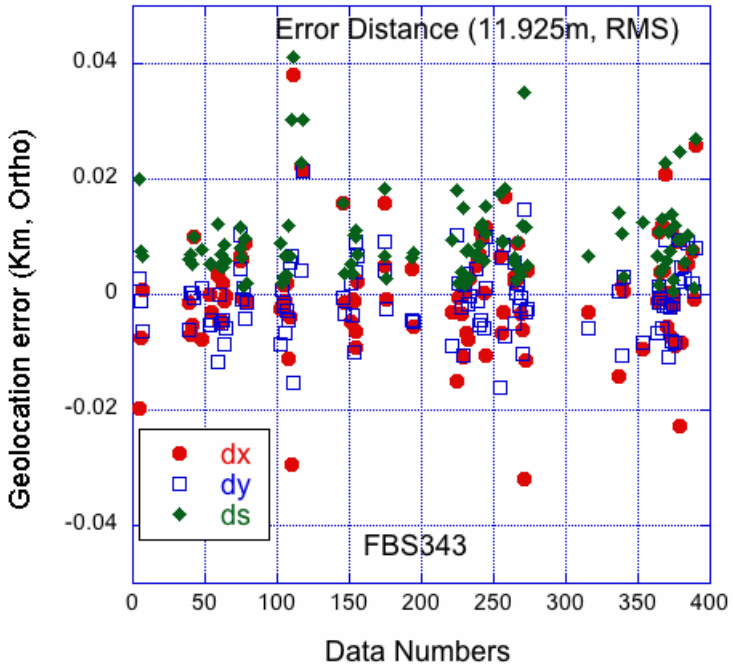
Ortho Rectification and slope correction

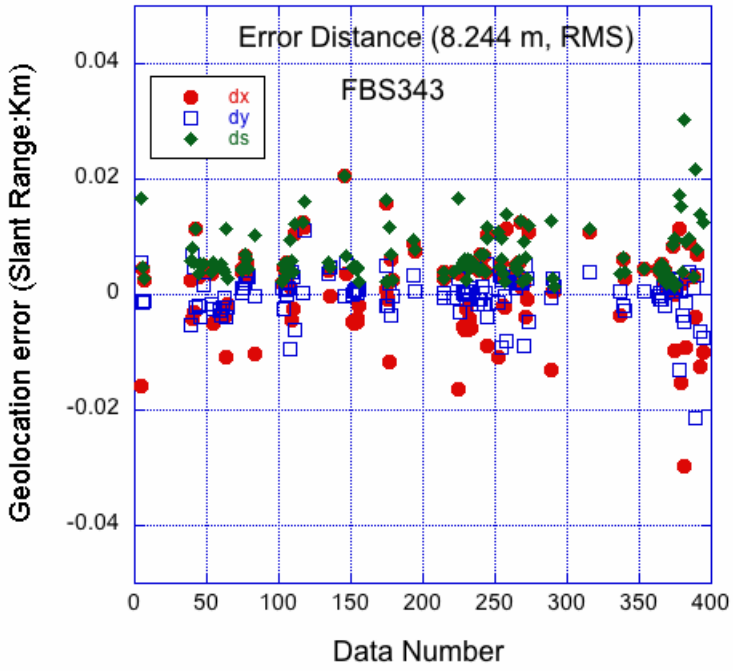
Purpose:

1)correct the foreshortening and azimuth shift to co-register with the map information

2) Additional slope correction reduces the area dependence of the scattering coefficient mainly.

Geo error (ortho)	>	Geo error (slant)





Slope correction

$$\sigma^0 = \tilde{\sigma}^0 \frac{\sin\theta}{\cos\psi}$$

$$\theta_l = \cos^{-1}\left\{\frac{\left(\mathbf{r}_s - \mathbf{r}_p\right)}{\left|\mathbf{r}_s - \mathbf{r}_p\right|} \cdot \mathbf{n}_l\right\}$$

$$\mathbf{n}_l = \frac{1}{\sqrt{h_x^2 + h_y^2 + 1}}\begin{pmatrix} h_x & h_y & 1 \end{pmatrix}^t$$

$$\cos\psi = \mathbf{n}_f \cdot \mathbf{n}_l = \frac{\sin\theta_l - \cos\theta_l \cdot h_x}{\sqrt{h_x^2 + h_y^2 + 1}}$$

Correction of the local incidence dependence

$$\gamma^0 \equiv \frac{\sigma^0}{\cos\theta} \cdot SCF$$

$$SCF = IACF \cdot LICF$$

$$IACF \equiv \frac{\cos\psi}{\sin\theta}$$

IACF: Illumination area correction factor

LICF:Local Incidence angle Factor

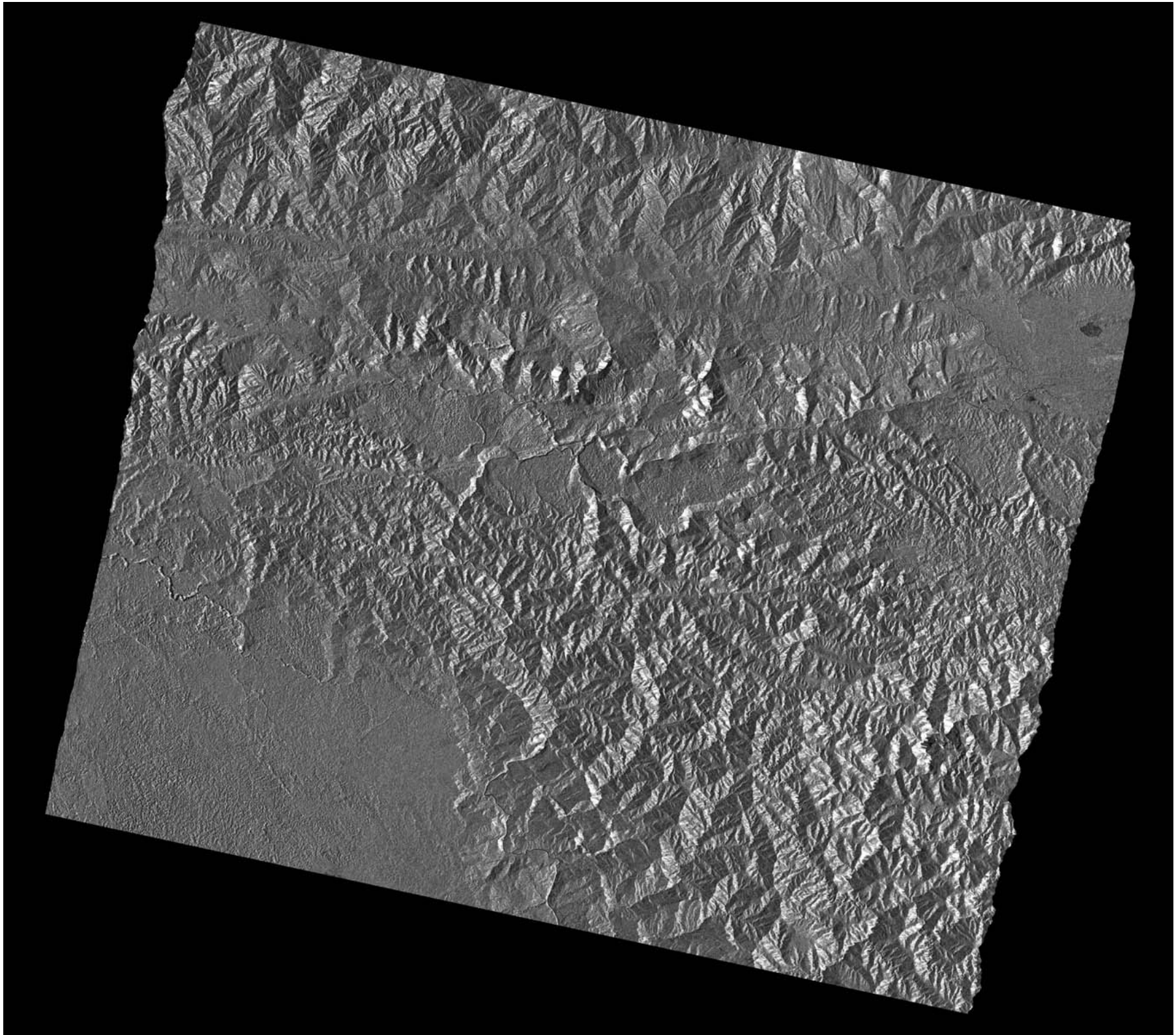
$$\Delta\sigma^0 \sim 10^{d\theta_l}$$

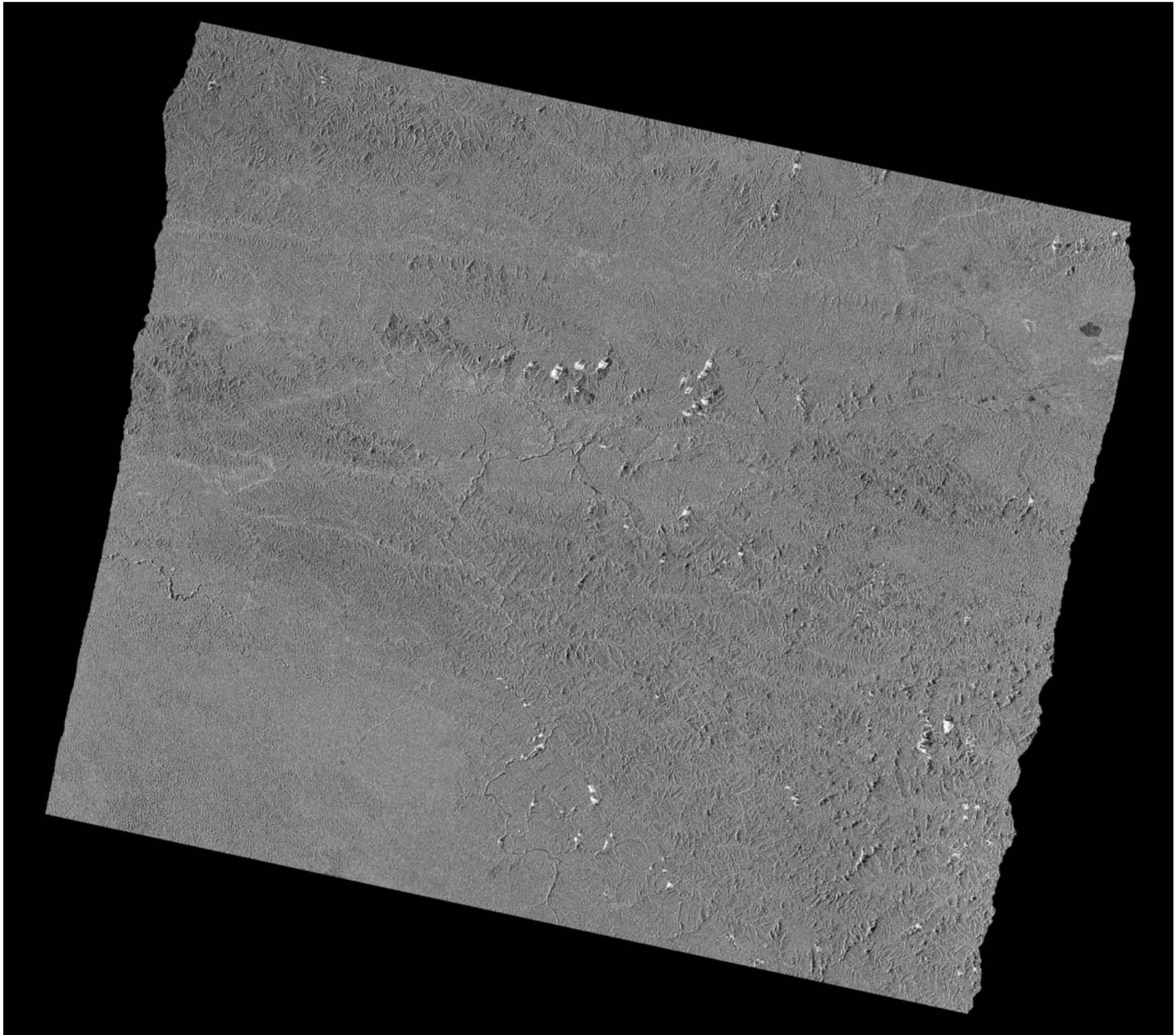
Layover

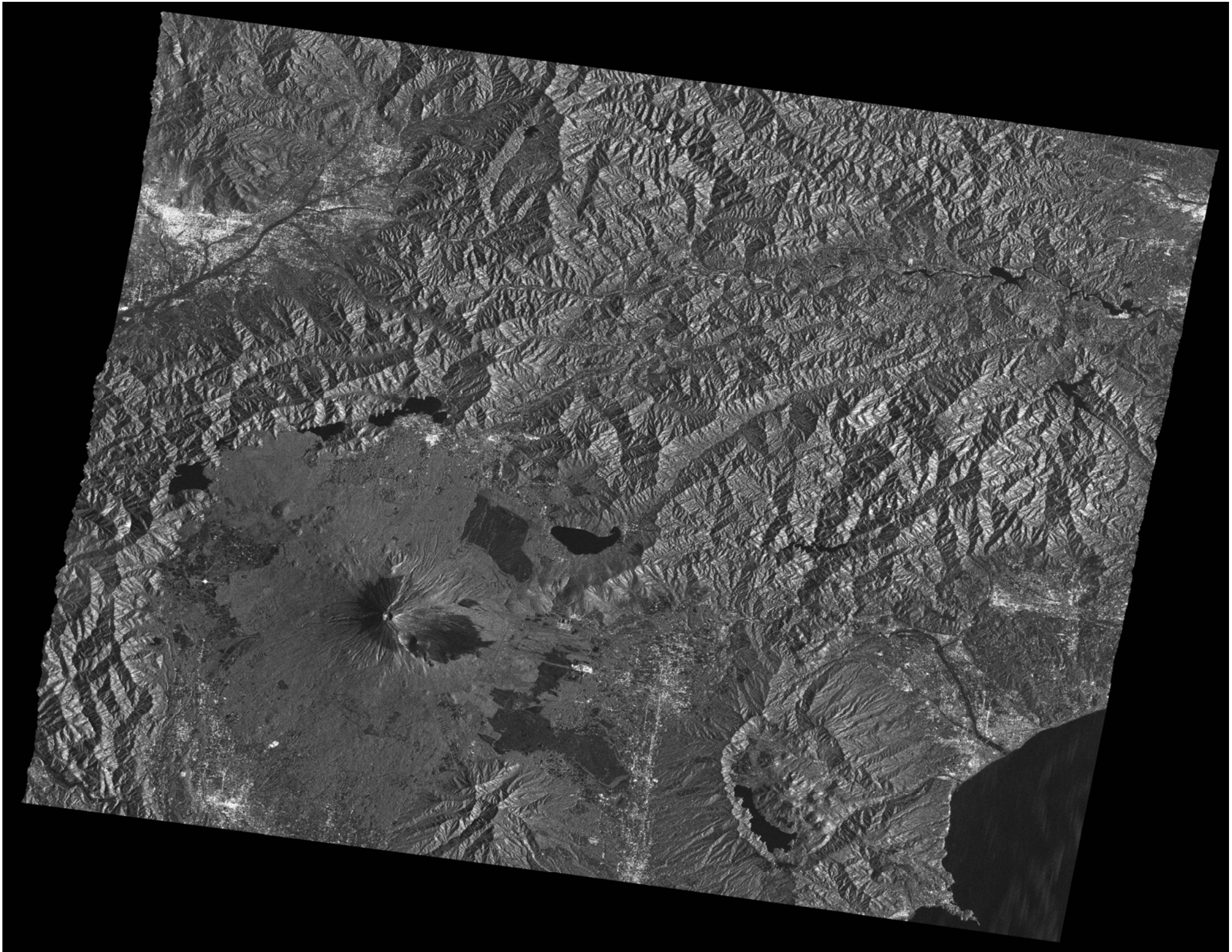
Calculate the area ratio

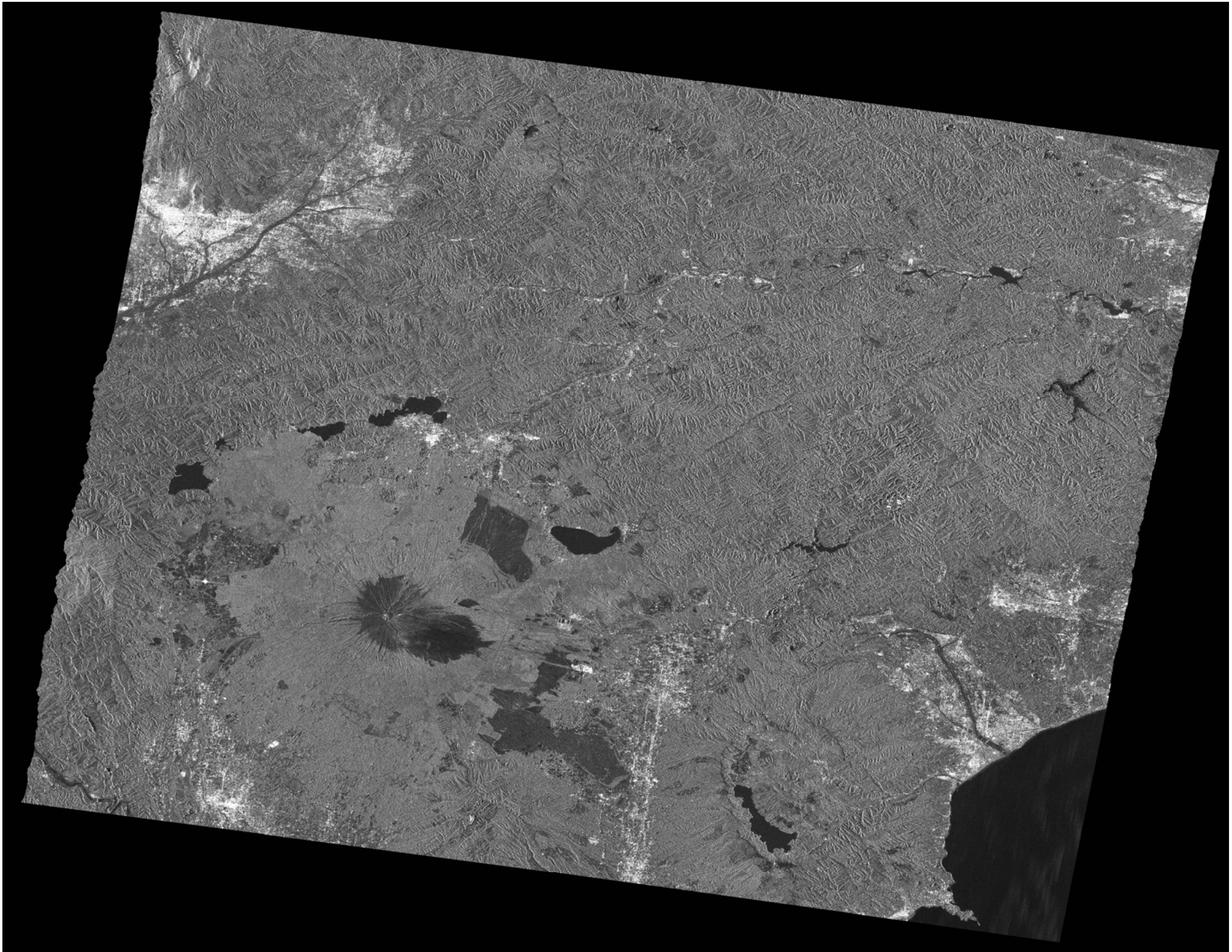
Or

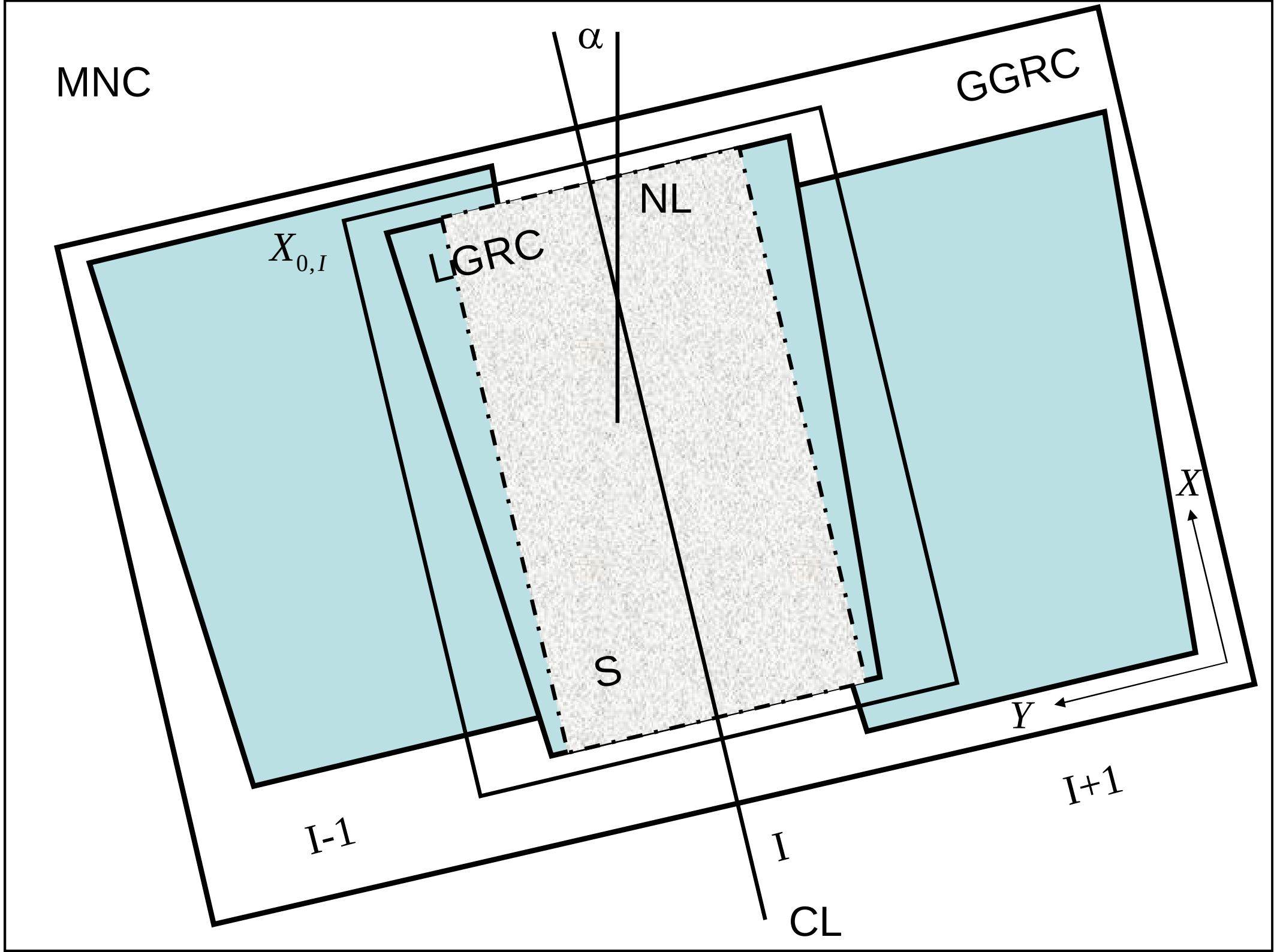
Fill the area by median filter

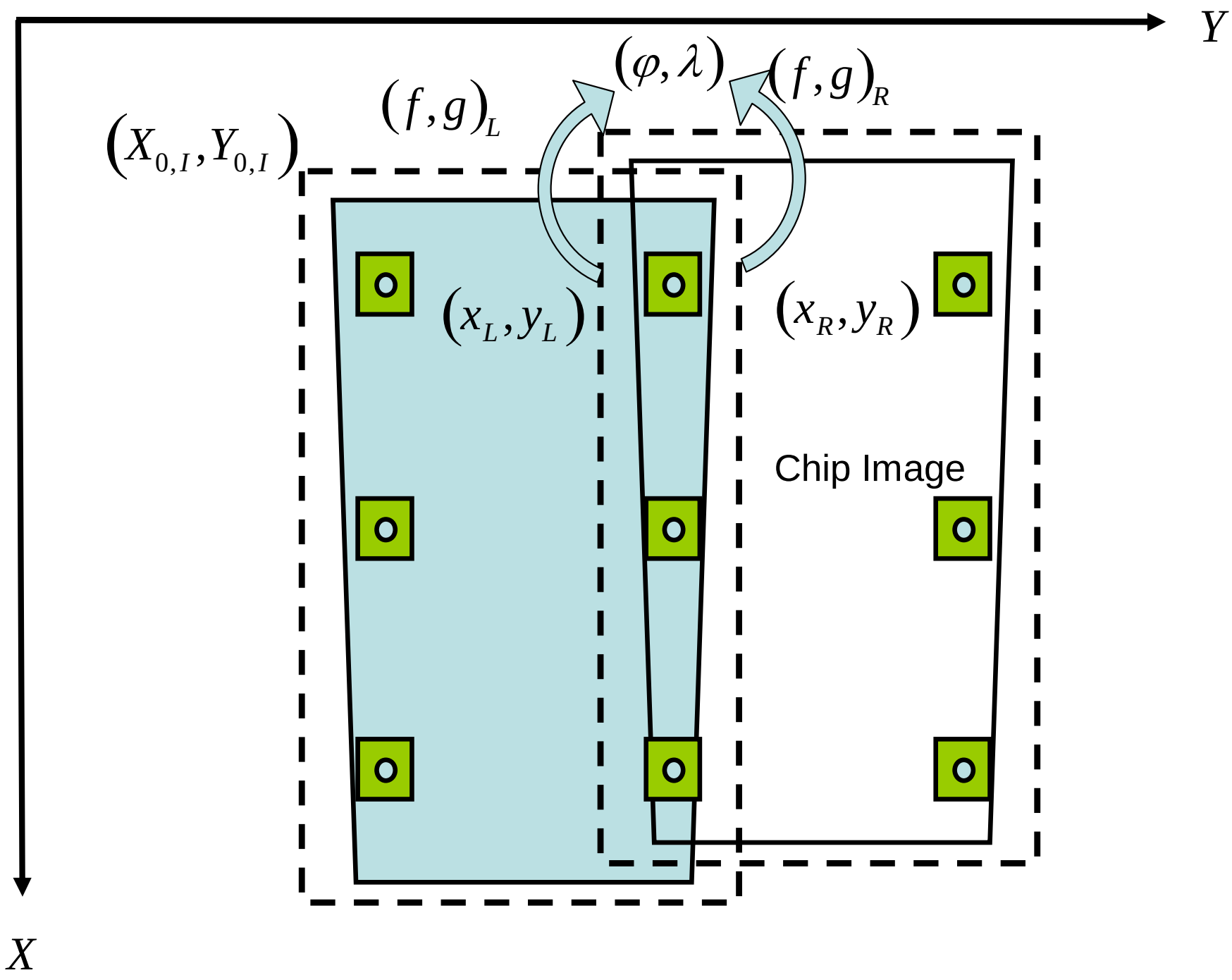


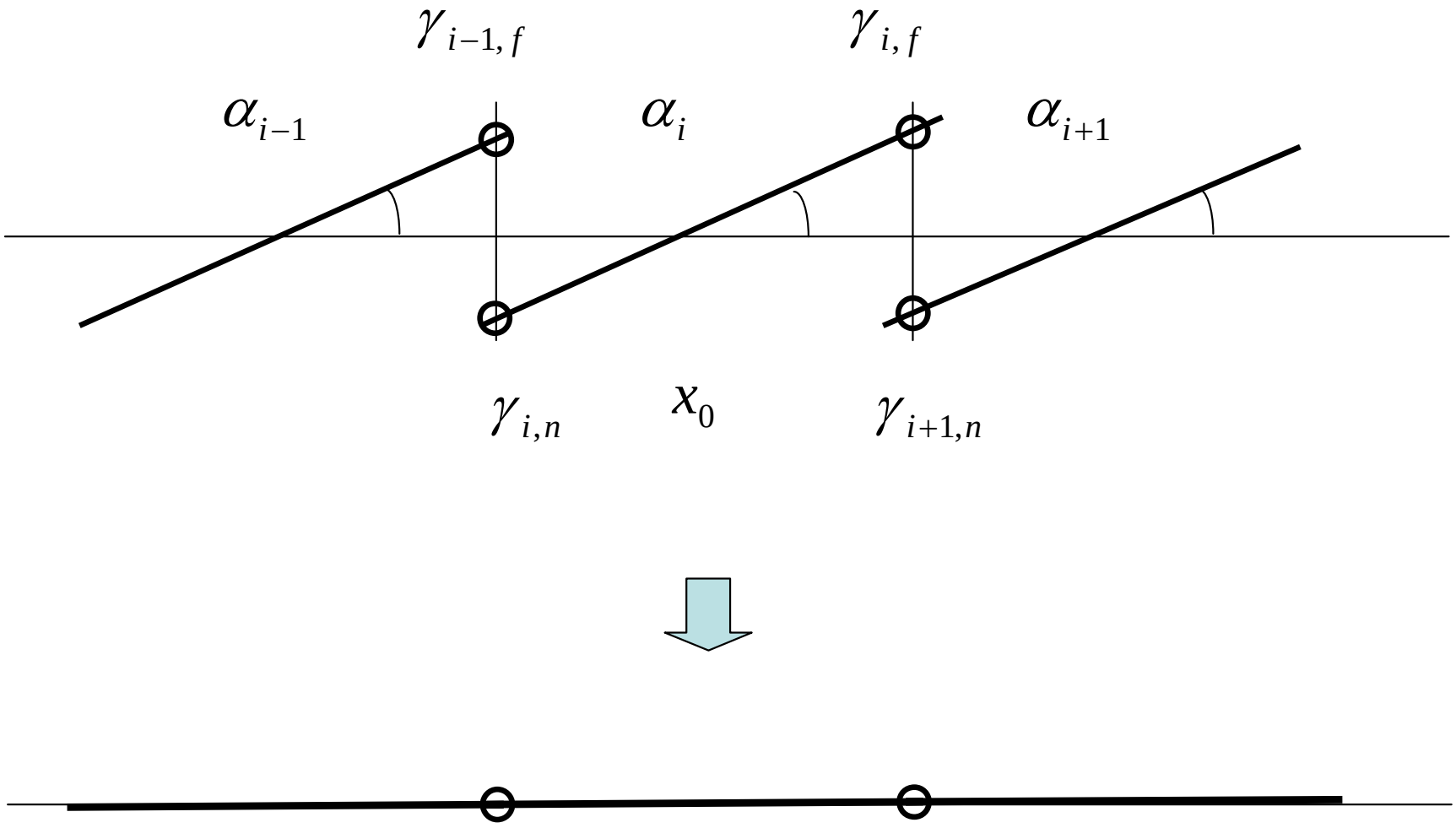







MNC
α
GGRC
NL
$X_{0,I}$
LGRC
S
X
Y
I-1
I
I+1
CL


Y
X
$(X_{0,I}, Y_{0,I})$
$(f,g)_L$
(φ,λ)
$(f,g)_R$
(x_L, y_L)
(x_R, y_R)
Chip Image
Path Image I
Path Image I+1


$\gamma_{i-1,f}$
$\gamma_{i,f}$
α_{i-1}
α_i
α_{i+1}
$\gamma_{i,n}$
x_0
$\gamma_{i+1,n}$

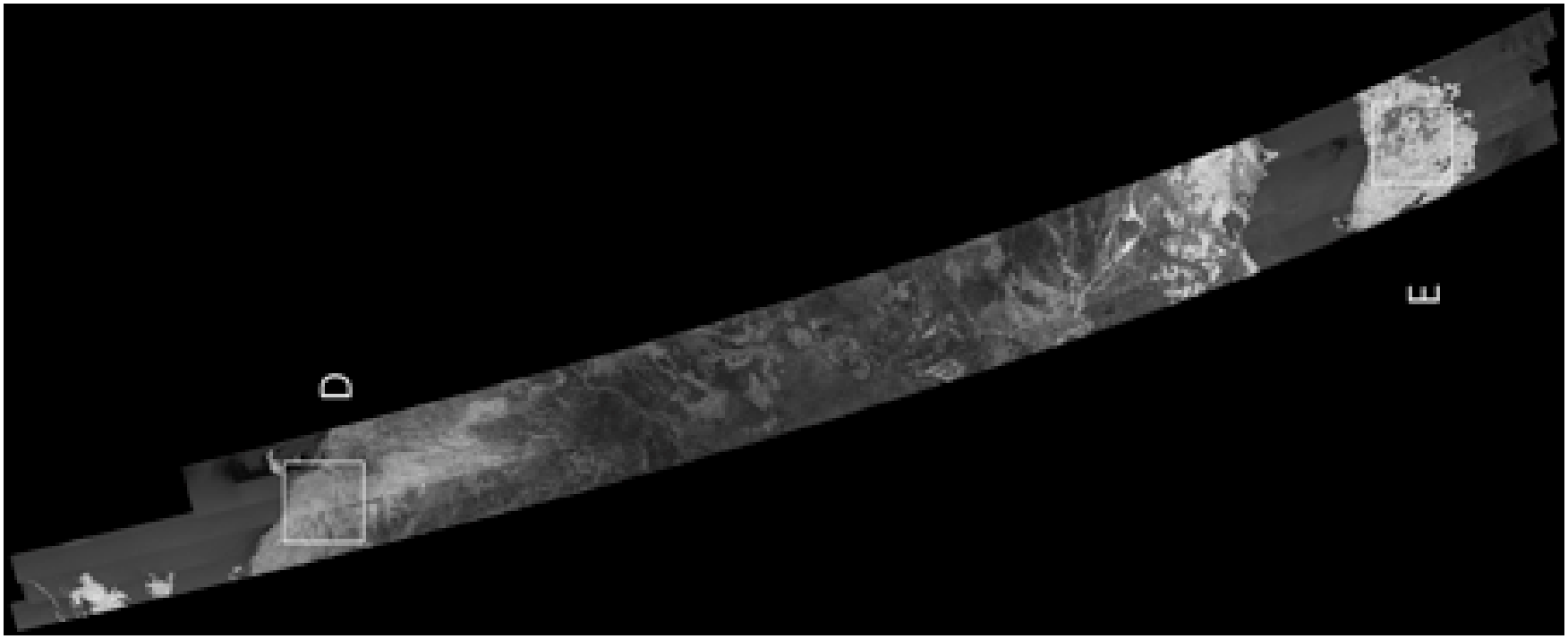


Fig. 17 Australian mosaic of five associated paths, including two test areas, D of northern Australia and E of Tasmania. Here, the image was rotated counterclockwise 90 degrees to fit the paper.

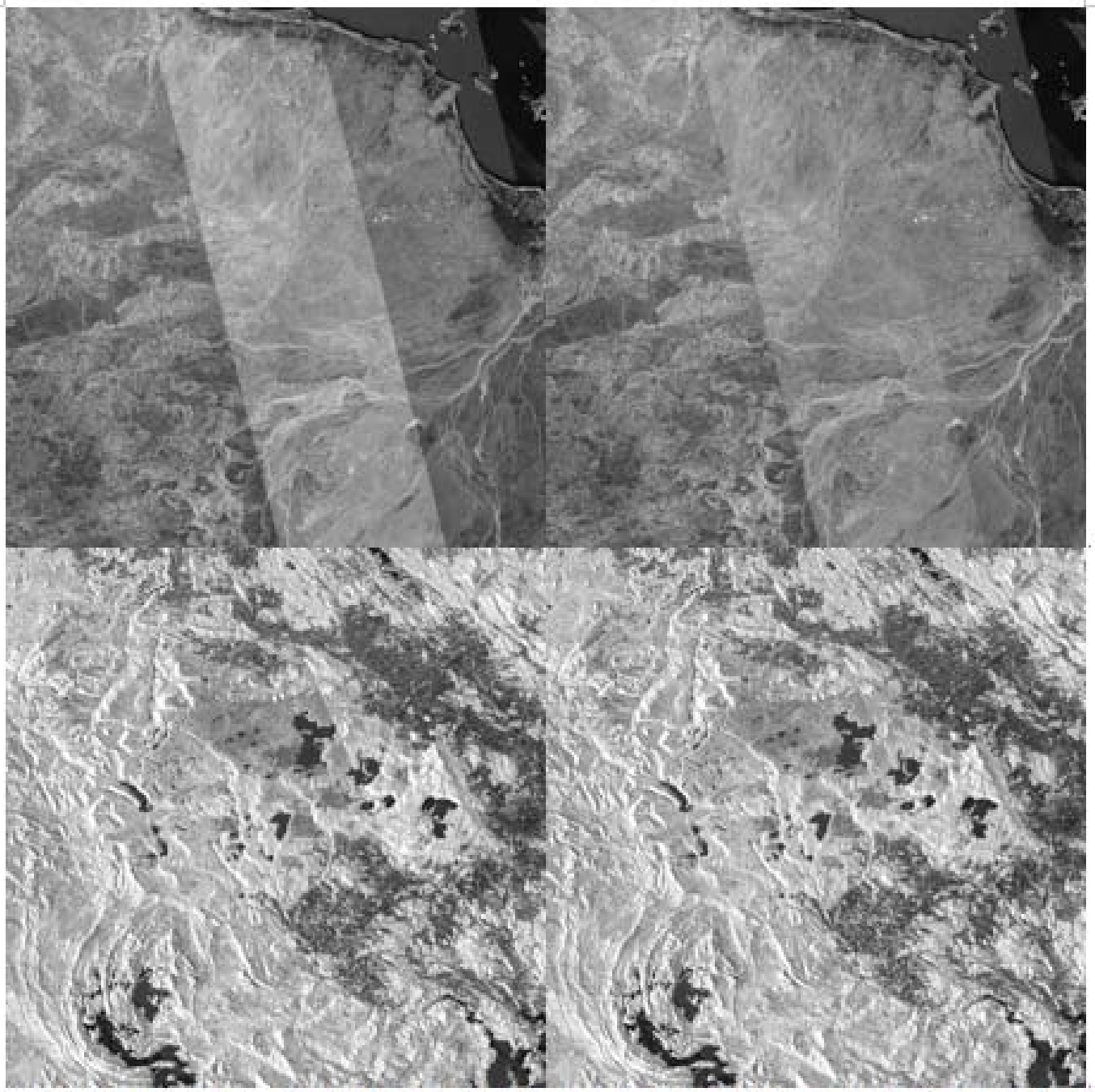


Fig. 18 Comparison of before and after corrections for areas D and E. a) Before correction for area D, b) after correction for area D, c) before correction for area E, and d) after correction of area E.

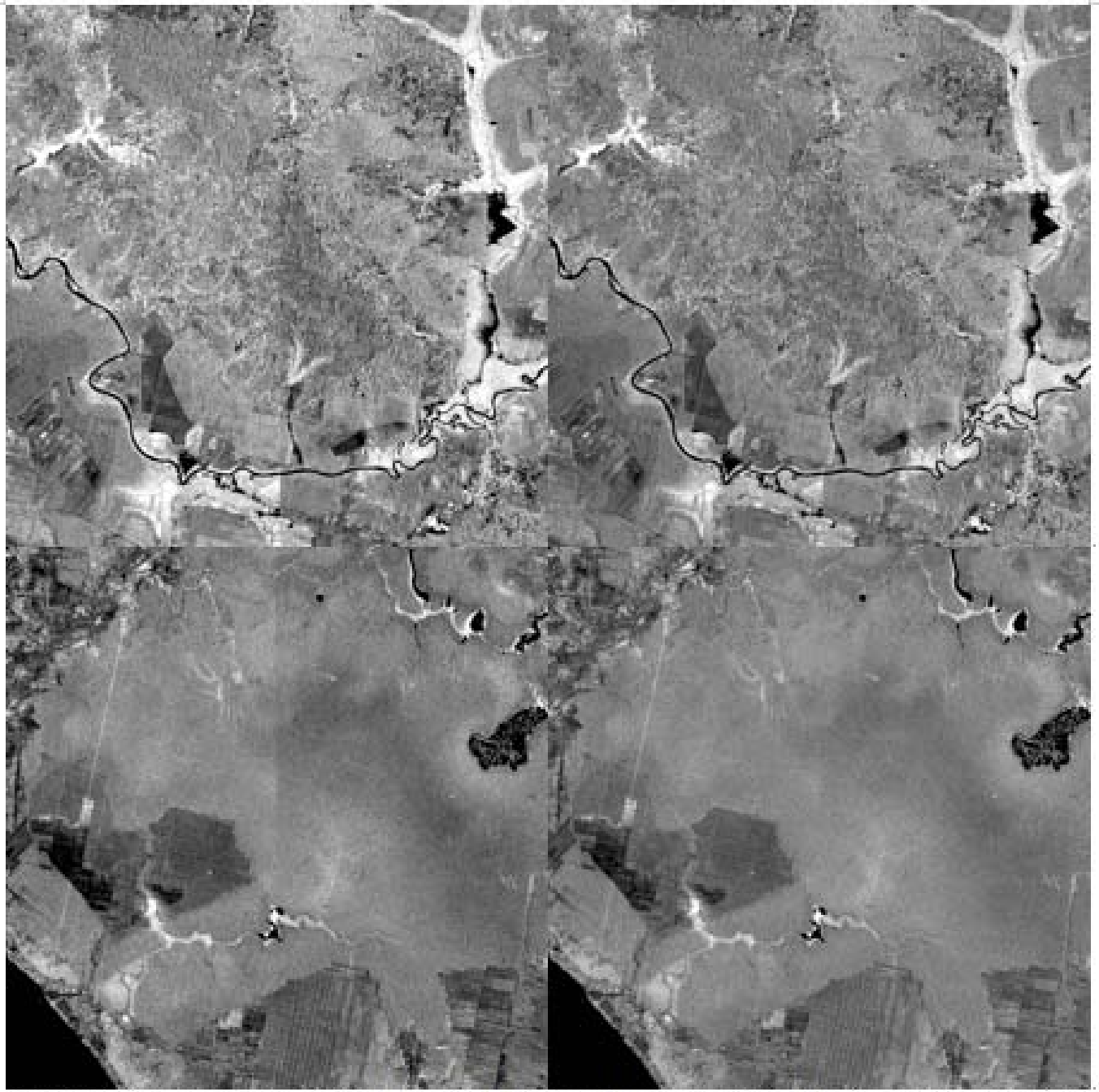


Fig. 13 Two image parts selected for the possible banding at the overlay regions. a) the image before correction for area A, b) the image after correction for area A, c) the image before correction for area B, and d) the image after

Table I List of Metadata

No.	Contents	Expression
1	Total days from the launch	Unsigned short integer, unit=1
2	Local incidence angle	Unsigned char:0-90, unit: 1 degree in positive
3	Mask	Unsigned character: 255: Normal, 0: Outside the image, 50: Ocean, 100: Layover, 150: shadowing.

Publiscations

1. Generating Continent-scale High-quality SAR Mosaic Datasets: Application to PALSAR Data for Global Monitoring
> J-STAR

2. Ortho-rectification of the SAR data using the DEM based simulated data and its accuracy evaluation
> *J-START (if door is open)*