

ALOS SCANSAR Calibration

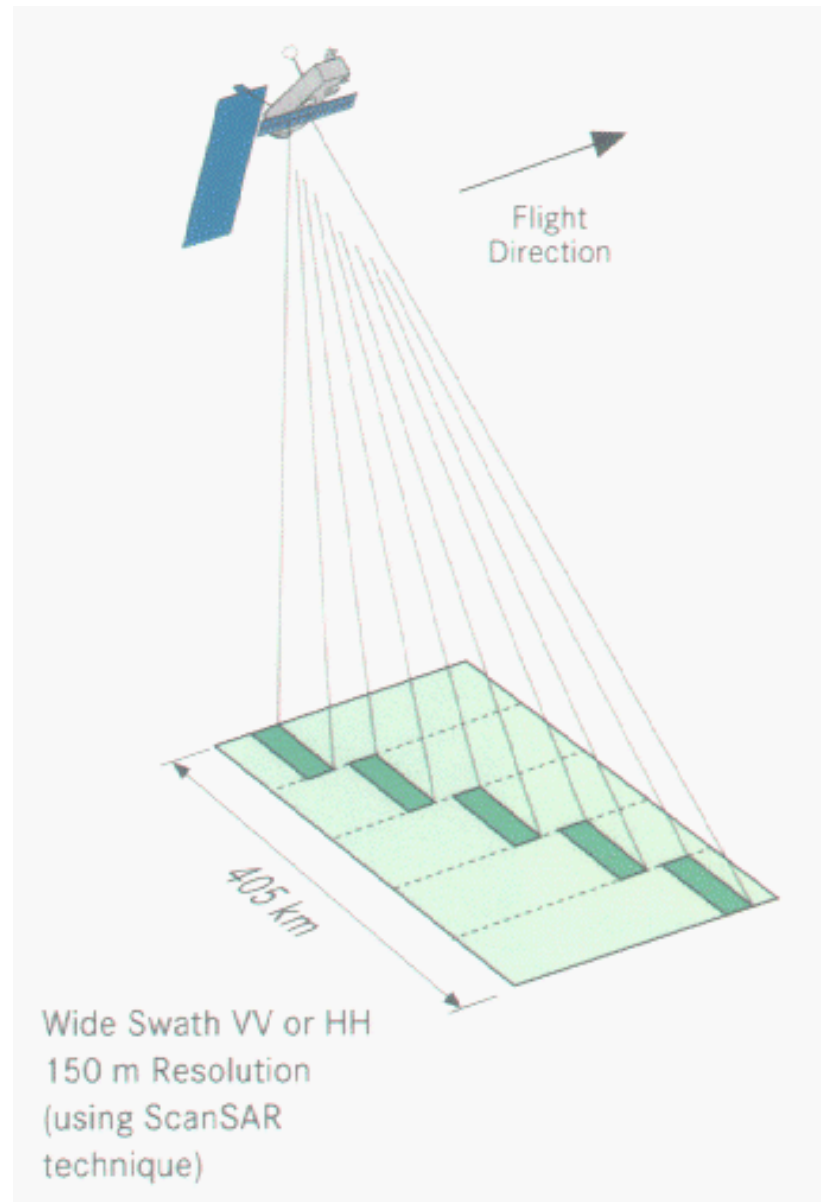
Bruce Chapman

- Action item from 1st Kyoto and Carbon Initiative science advisory panel meeting (Tokyo, November 2001)

ALOS Kyoto and Carbon Initiative science advisory panel meeting, UCSB, May 14-15, 2002

SCANSAR mode

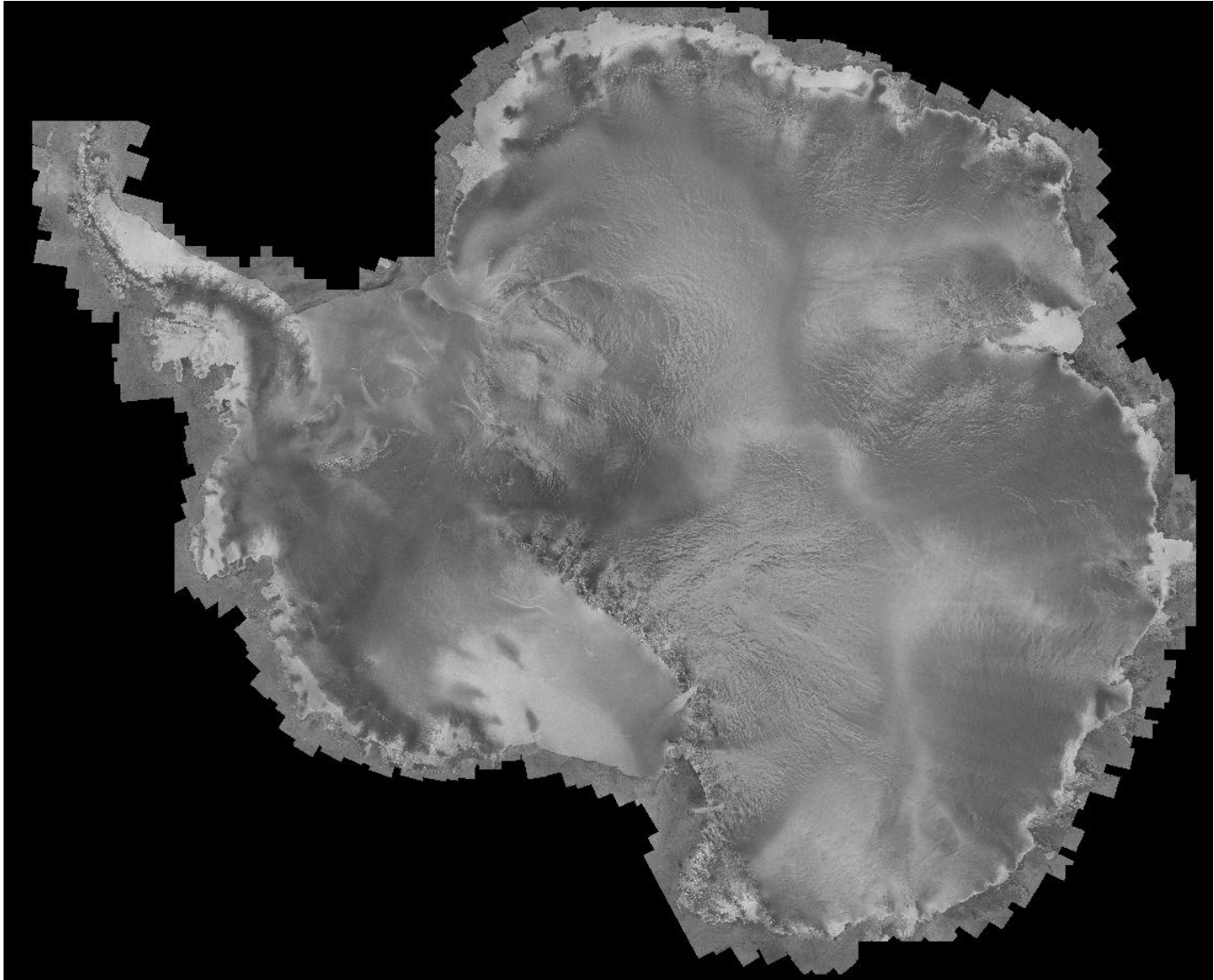
(Envisat figure)



RADARSAT SCANSAR DATA

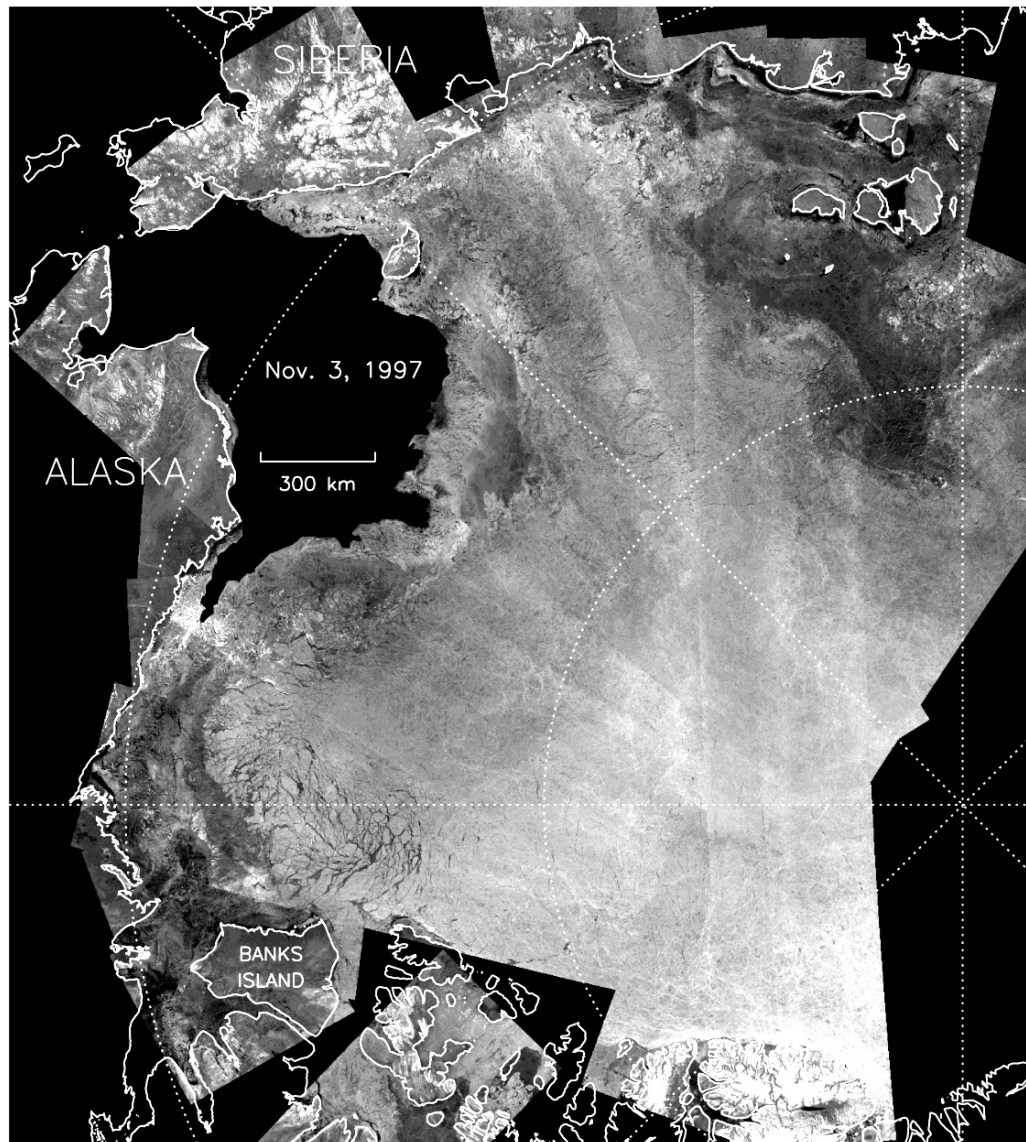


RADARSAT SCANSAR – Antarctica

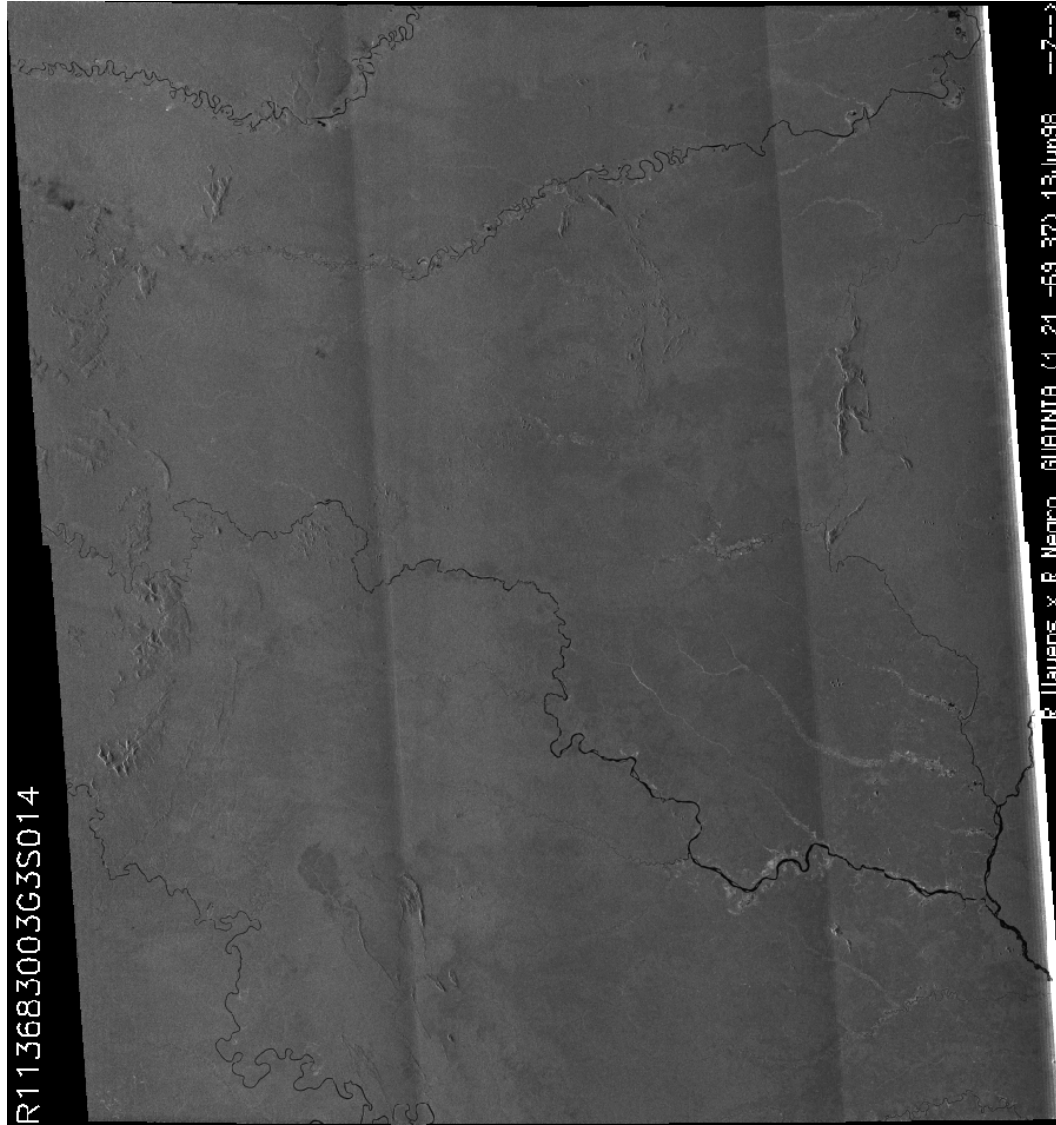


RADARSAT
SCANSAR –
Arctic Ocean

(from Ron
Kwok)



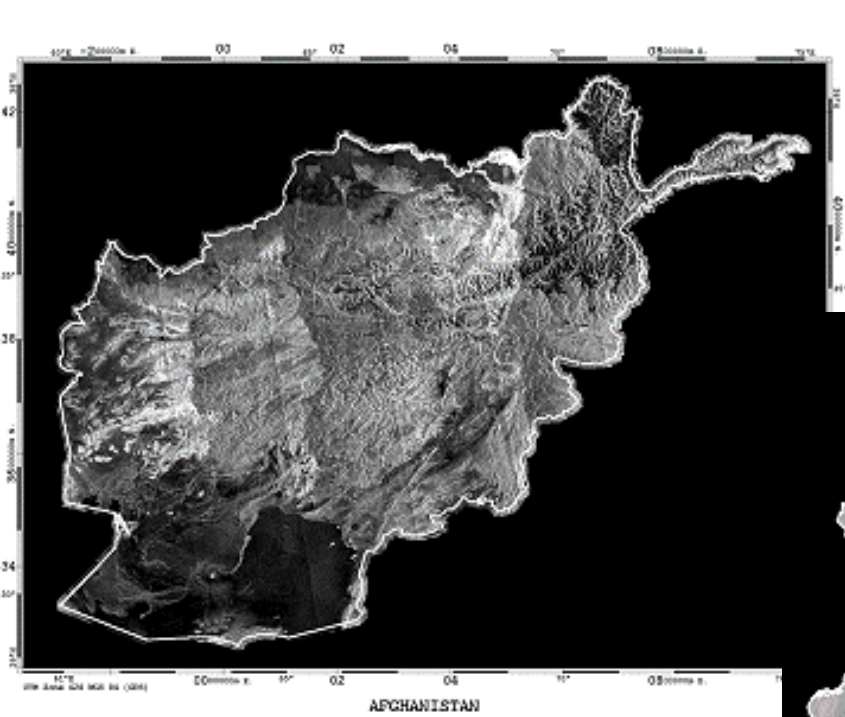
RADARSAT SCANSAR - Amazon



R113683003G3S014

R. Uaupés x R. Negro GUAYANA (4.24, -69.37) 13 JUN 98

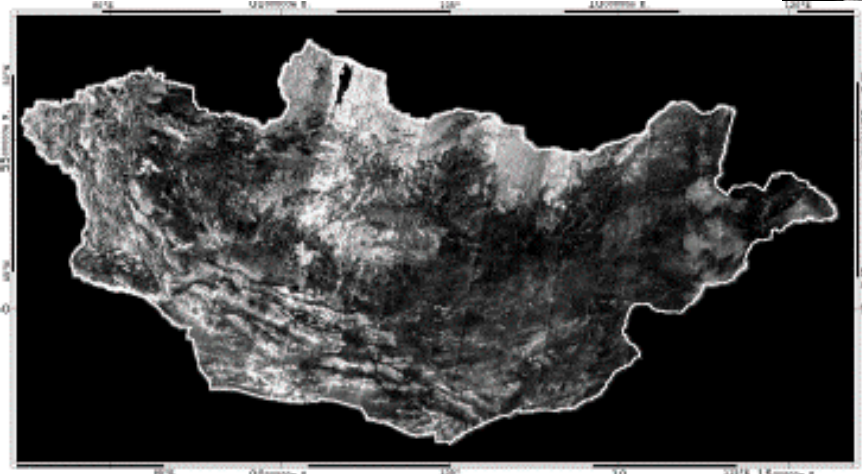
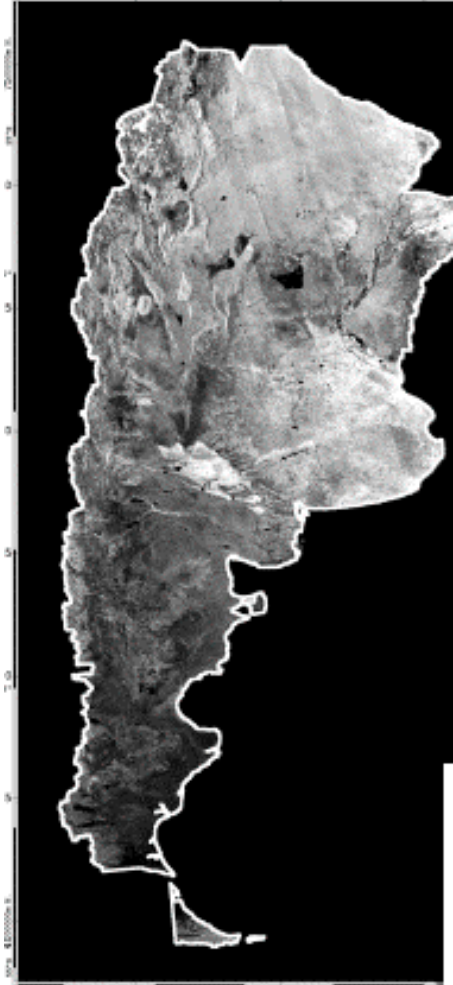
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AFGHANISTAN



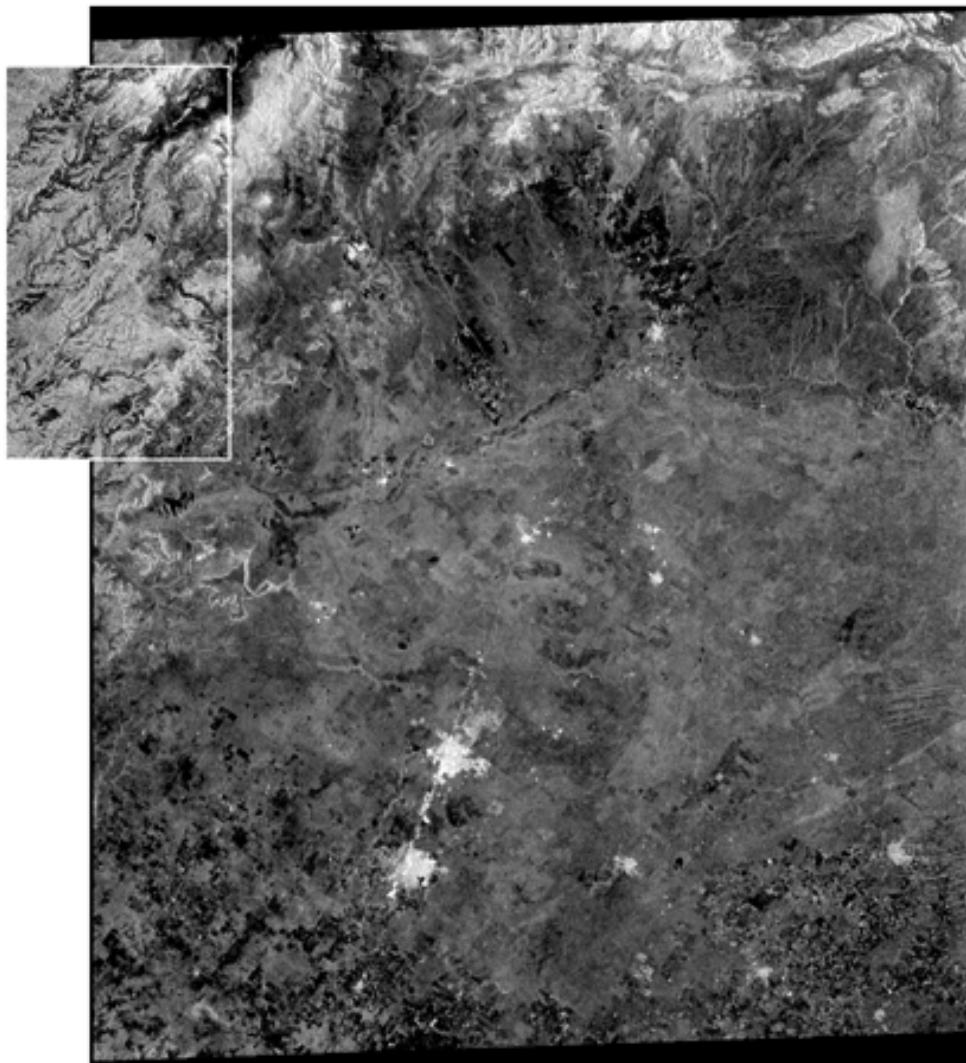
COLOMBIA



MONGOLIA

RADARSAT SCANSAR
mosaics from WWW

SIR-C L-band SCANSAR image of Texas



SCANSAR calibration difficulties for RADARSAT

- (from paper by Martyn et al, IGARSS99)
- Scalloping
 - Periodic along track amplitude variation
 - Periodicity depends on period of bursts along track
 - Cause :
 - incorrect radiometric compensation for the azimuth antenna pattern
 - Radarsat does not yaw steer to 0 doppler
 - center doppler frequency not known accurately enough

SCANSAR calibration difficulties for RADARSAT

- (from paper by Martyn et al, IGARSS99)
- Beam overlap regions
 - Boundary between beams visible
 - Cause :
 - incorrect radiometric compensation for the range antenna pattern
 - Roll angle not well enough known

RADARSAT SCANSAR Calibration

- (from Ron Kwok)
- At ASF, RADARSAT calibration was “tuned” to the high latitude data takes (the primary interest at ASF).
- At the equator, calibration determined from high latitude datatakes did not perform as well.

ALOS vs. RADARSAT SCANSAR calibration

- (email from Richard Carande at Vexcel)
- Scalloping
 - L-band bursts can have more pulses due to larger azimuth beam. – doppler estimation will be more robust.
- Beam overlap
 - ALOS roll angle estimation will be better than possible with RADARSAT.

ALOS SCANSAR calibration conclusions

- SCANSAR Calibration will be good quality if :
 - Roll angle is well known and properly compensated
 - Doppler center frequency is well known and properly compensated
 - Antenna pattern in range and azimuth direction is well characterized
- The calibration of SCANSAR versus calibration of four adjacent fine resolution mode images will probably be comparable.