

An aerial photograph of a vast, forested mountain range. The terrain is rugged with numerous ridges and valleys, all covered in dense green forest. A central text box is overlaid on the image, containing the title and meeting information.

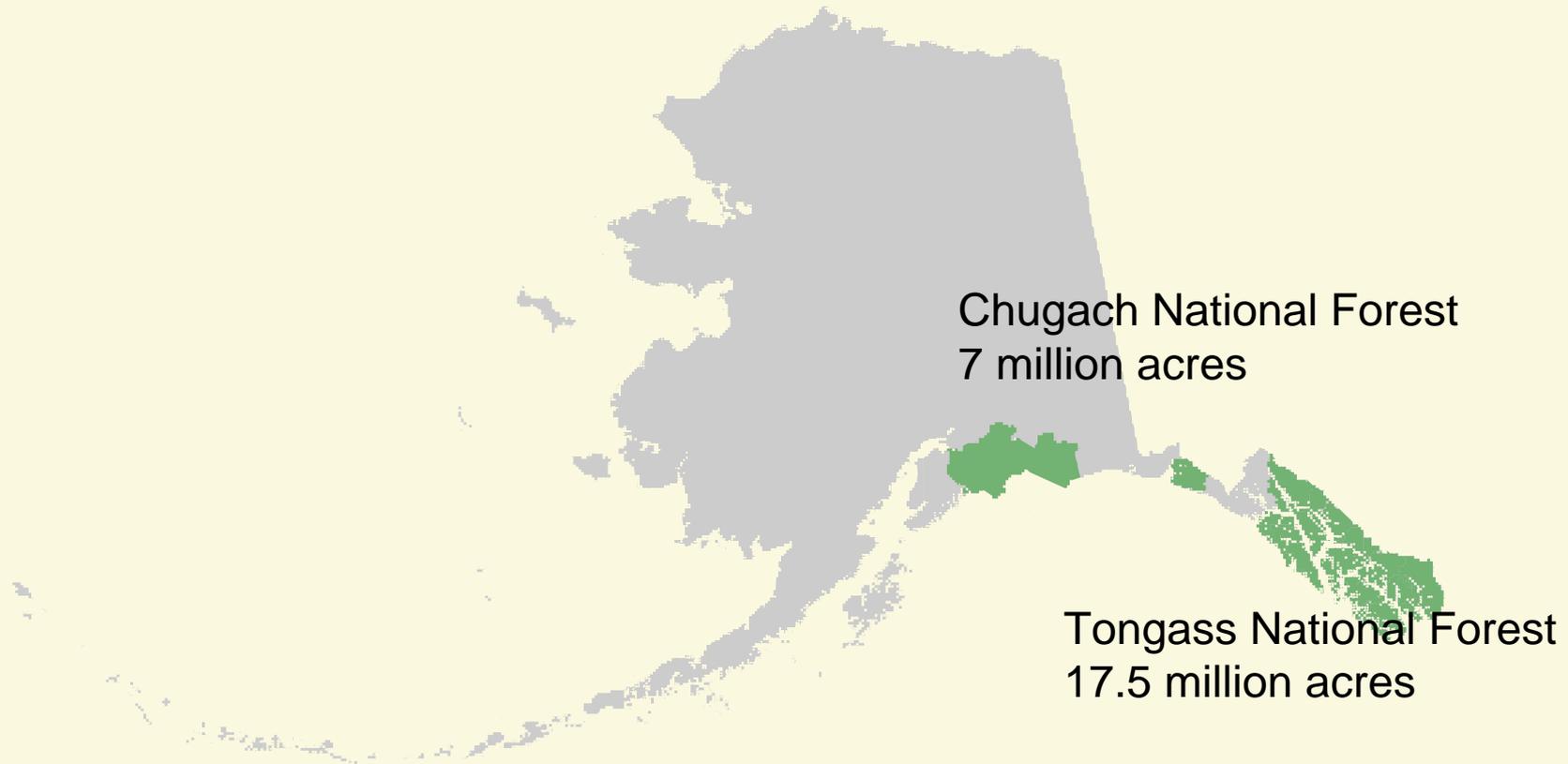
Image Acquisition Update

Forest Service Region 10

USDA Imagery Planning and Coordination Meeting
December 2007
Aerial Photography Field Office

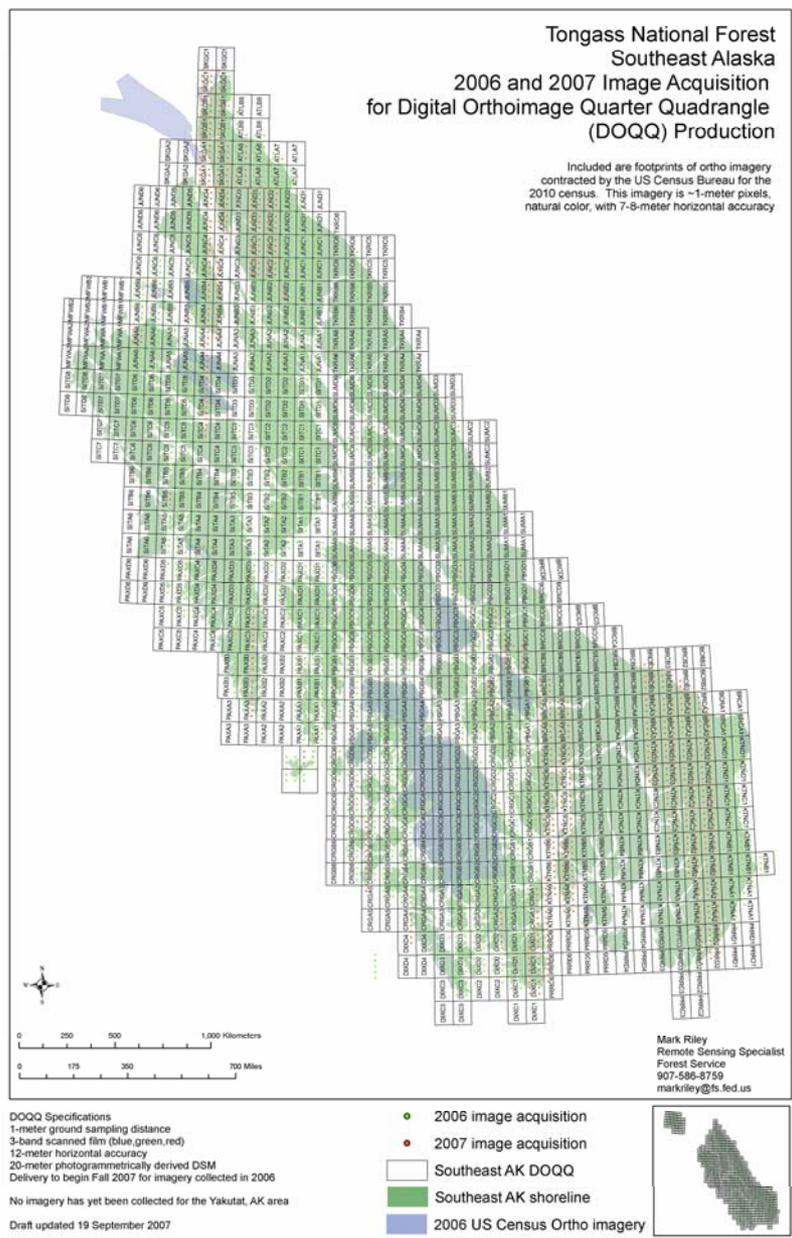
Mark Riley
Remote Sensing Specialist
Forest Service

Alaska's National Forests



Tongass National Forest
Southeast Alaska
2006 and 2007 Image Acquisition
for Digital Orthoimage Quarter Quadrangle
(DOQQ) Production

Included are footprints of ortho imagery
contracted by the US Census Bureau for the
2010 census. This imagery is ~1-meter pixels,
natural color, with 7-8-meter horizontal accuracy



Tongass National Forest Digital Orthophoto Quarter Quadrangles and Digital Elevation Model

1m natural color scanned film

12m H accuracy

Use of **IMU** and ABGPS

20m DEM

More ground control

Entire TNF: 794 DOQQs

Status:

2006 imagery being processed

Delivery of DOQQs beginning late 2007

20m posting DEM included

Piecemeal for partial DOQQ coverage

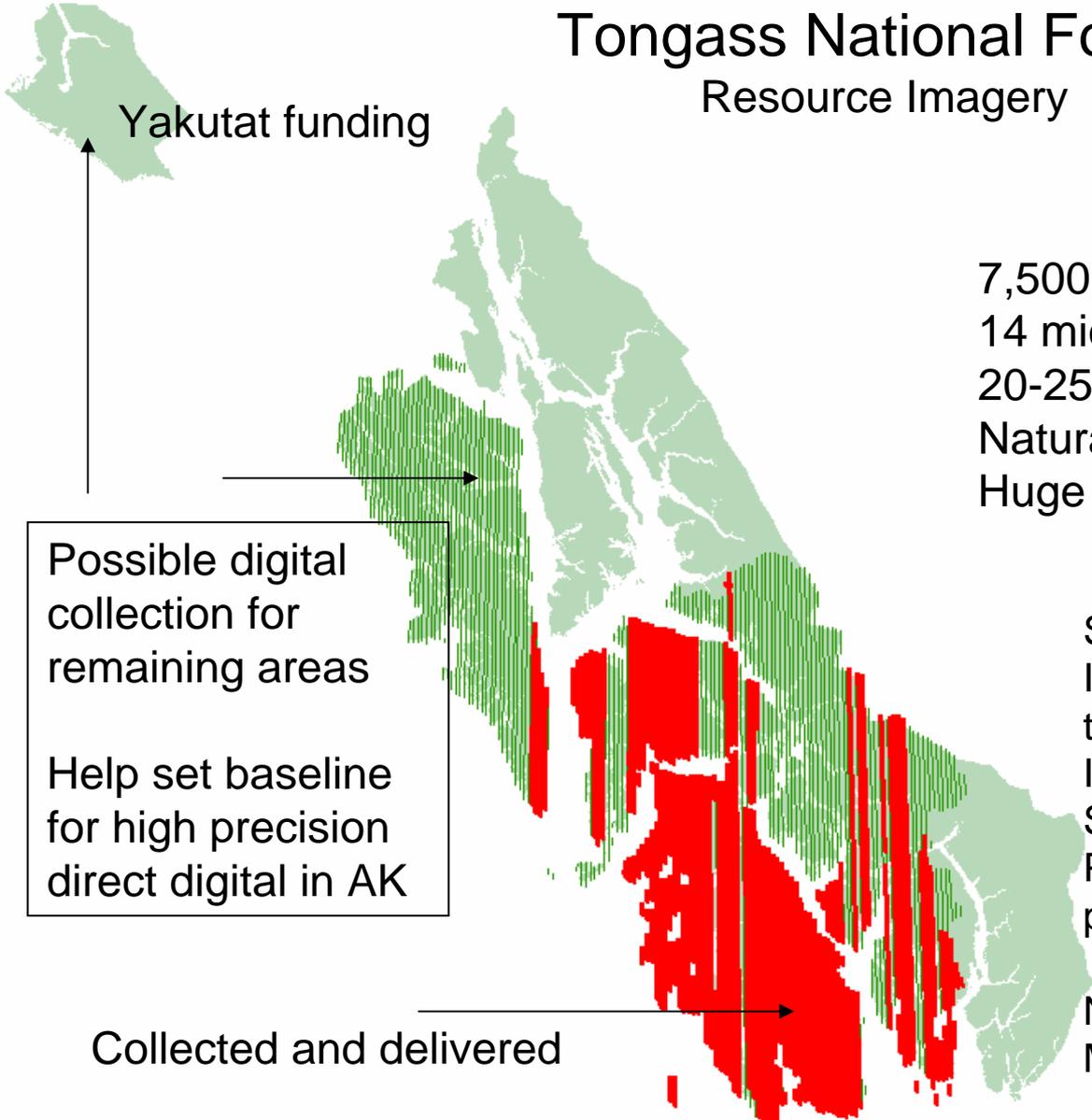
Collection to continue in 2008

No collection over Yakutat RD yet

Imagery collect for ~670 DOQQs (of 794)

~84% complete

Tongass National Forest Resource Imagery



Yakutat funding

Possible digital collection for remaining areas

Help set baseline for high precision direct digital in AK

Collected and delivered

7,500 images collected in 2005
14 micron scans (20 minutes/scan)
20-25cm GSD
Natural color film
Huge files, 750mb each (5.5tb)

Status:
Iterative delivery from APFO through 2007
Image set delivered to Petersburg SO and distributed to RDs
Project level work/3d stereo and prints

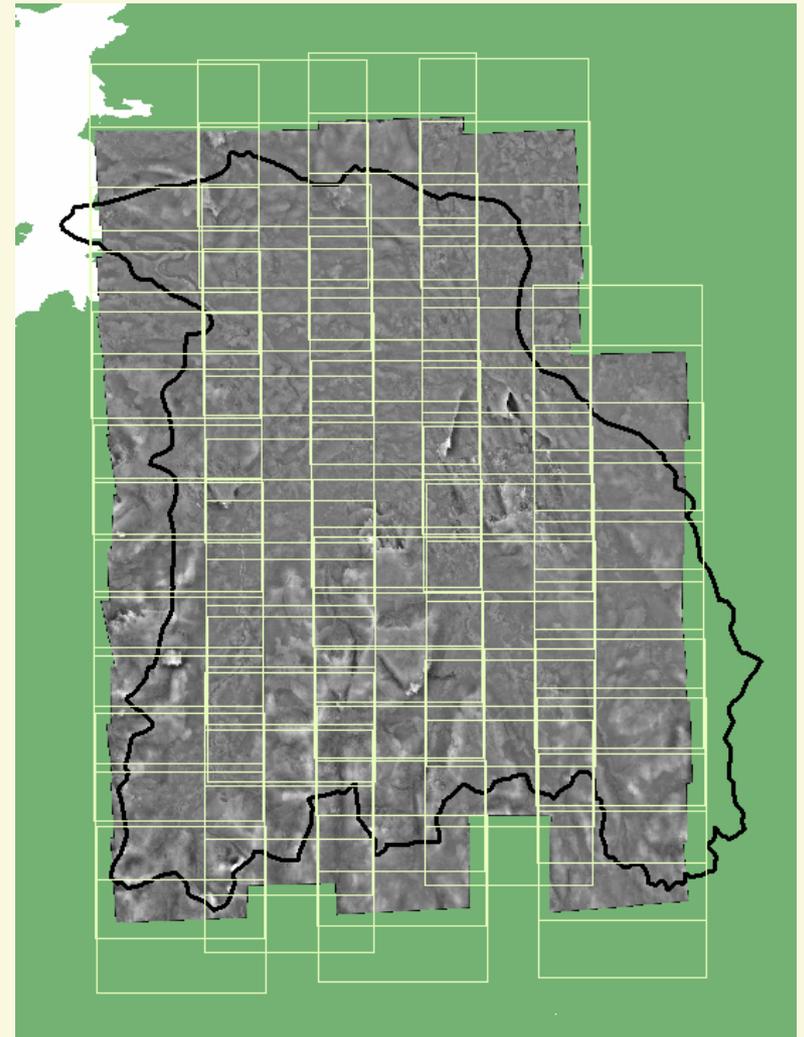
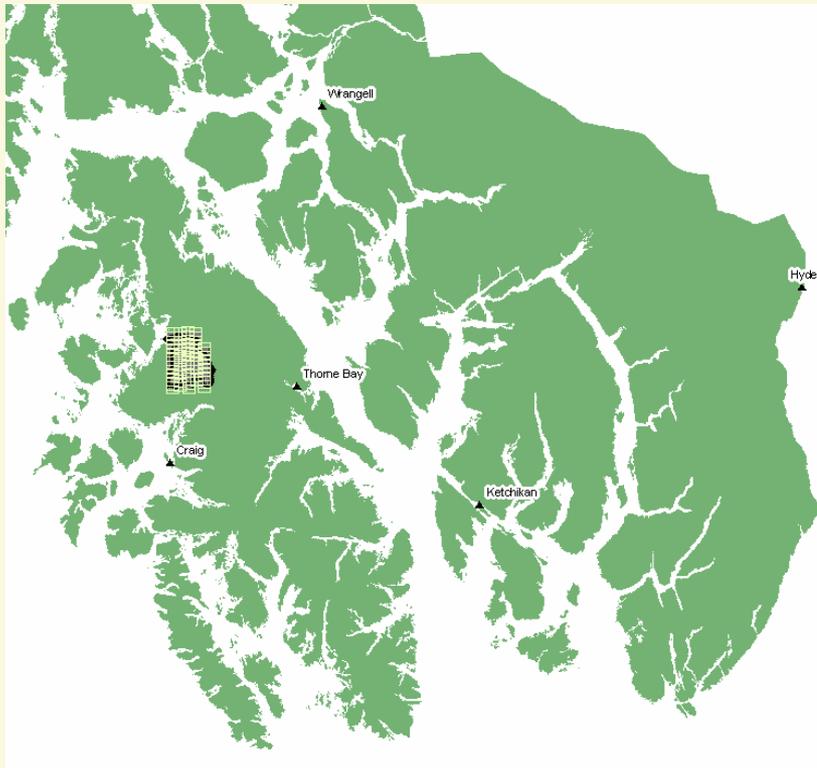
No collection in 2006 – 2007
May continue through 2008

**LPS processing for block files, DEMs, and orthos
No IMU and near debilitating lack of accurate ground control
makes it really, really hard but not impossible**

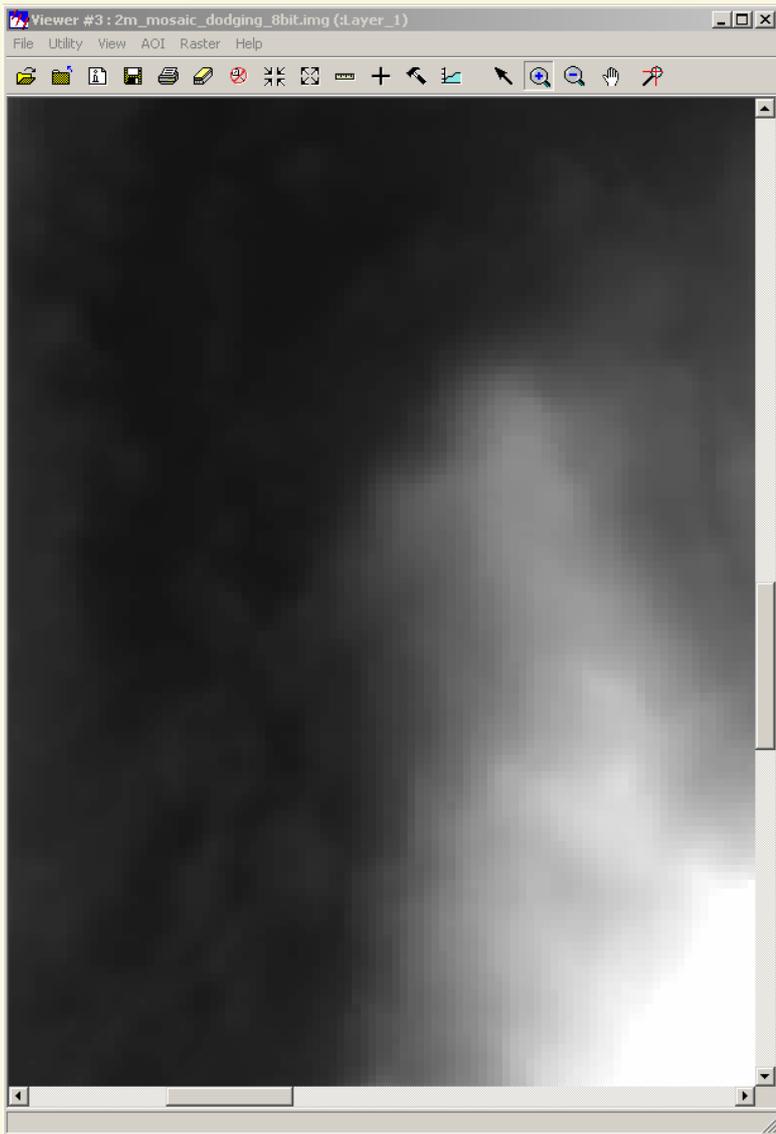


Staney Creek Watershed

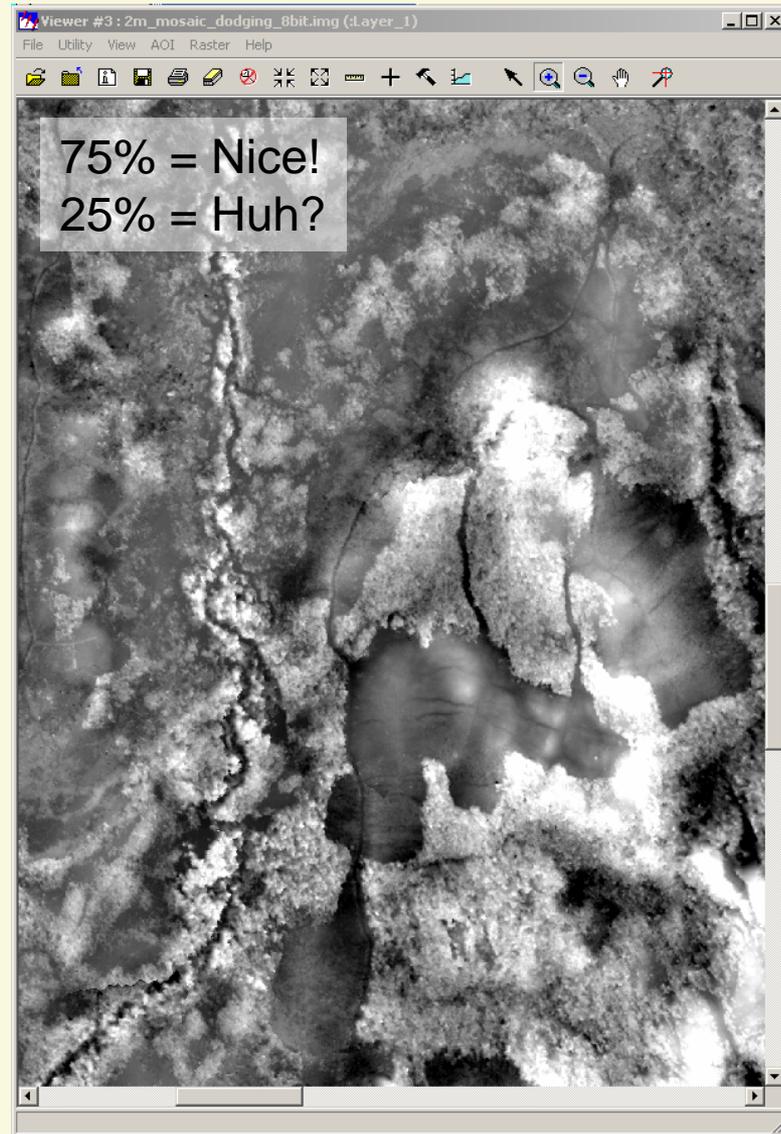
6th level HUC watershed, with an area of around 39,500 acres. It is heavily managed, multiple entry, and identified by The Nature Conservancy as high priority for restoration evaluation. The stereo blockfile and digital elevation model by-product deliverables will be used by resource specialists for various analyses such as stream channel delineation, tree height measurement, visual 3d image draping, identification of landslide hazards, and for running a sediment risk model.



Improved DEM Precision



30m SRTM



2m photogrammetric DSM from 0.25m inputs

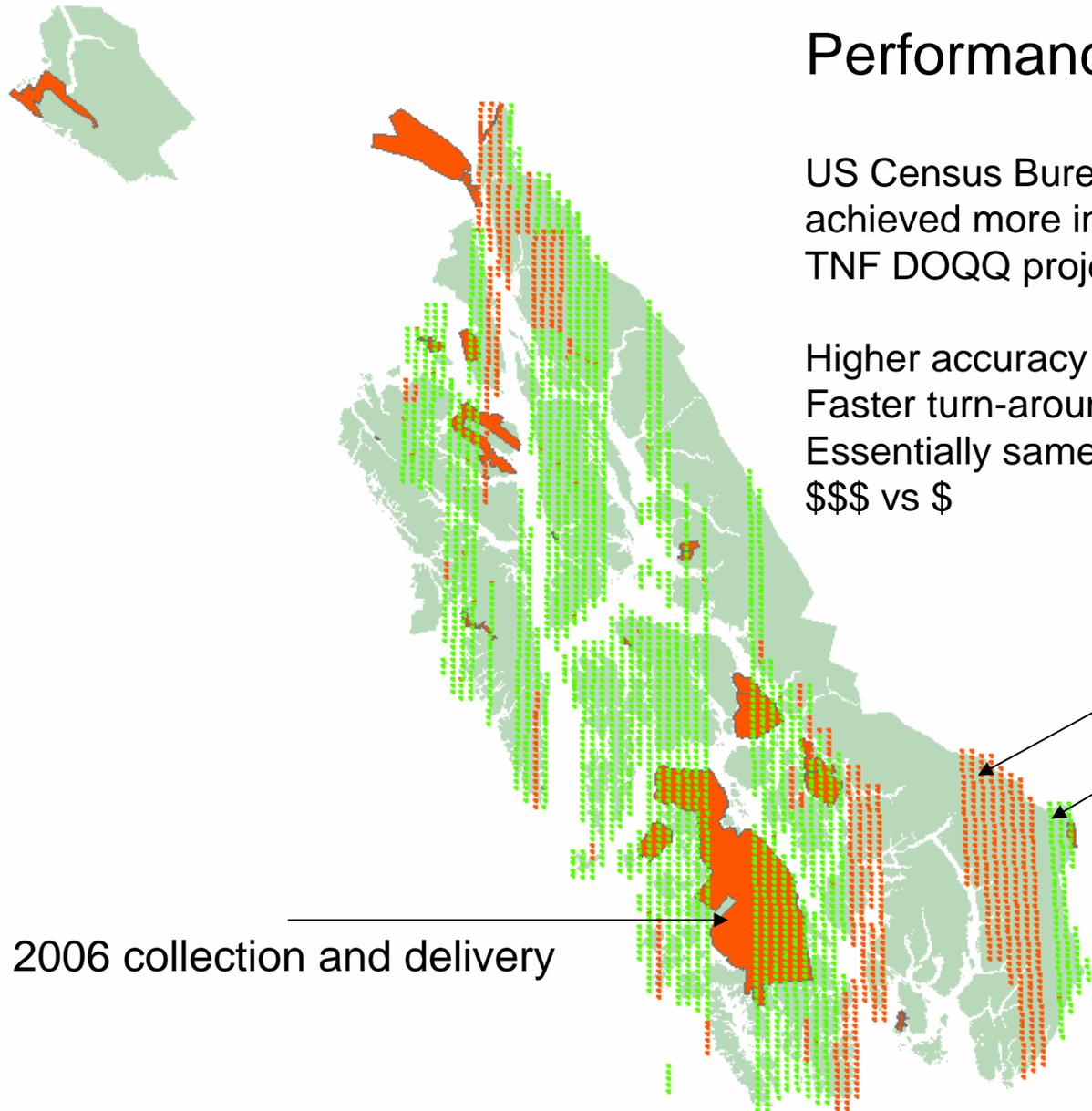
Performance

US Census Bureau contract with TNF contractor achieved more in one season than multi-year TNF DOQQ project

Higher accuracy (7m vs 12m)

Faster turn-around

Essentially same specs as TNF DOQQ contract
 \$\$\$ vs \$



FS 2007 collection

FS 2006 collection

2006 collection and delivery

- 1) Direct digital conversion
- 2) Aircraft mechanical
- 3) Coordination
- 4) Weather
- 5) Too few bids
- 6) Insufficient funding

Small Project Digital Airborne System...almost

September 2007

- Current system is old Hasselblad that failed before it saw the air, cutting edge during the Apollo mission
- Year end funds, proposal accepted (\$80k w/out IMU and GPS)
- Provide some image acquisition continuity and special project support, small area collection for veg mapping, timber, wildlife, hydrology, response
- Identified RolleiMetric AIC, compatible with H25 (PhaseOne), GPS and IMU
- Affordable (compared to ADS40, DMC, DSS, UltracamD etc.)
- RFP cancelled
- Specified camera body, had manufacturer's quote used as pricing guideline, specified requirements at FedBizOpps
- Requesting FY08 funding and will resubmit RFP with add'l details limiting potential bids

Chugach National Forest

Digital Orthophoto Quarter Quadrangles

60cm GSD (sharpened)

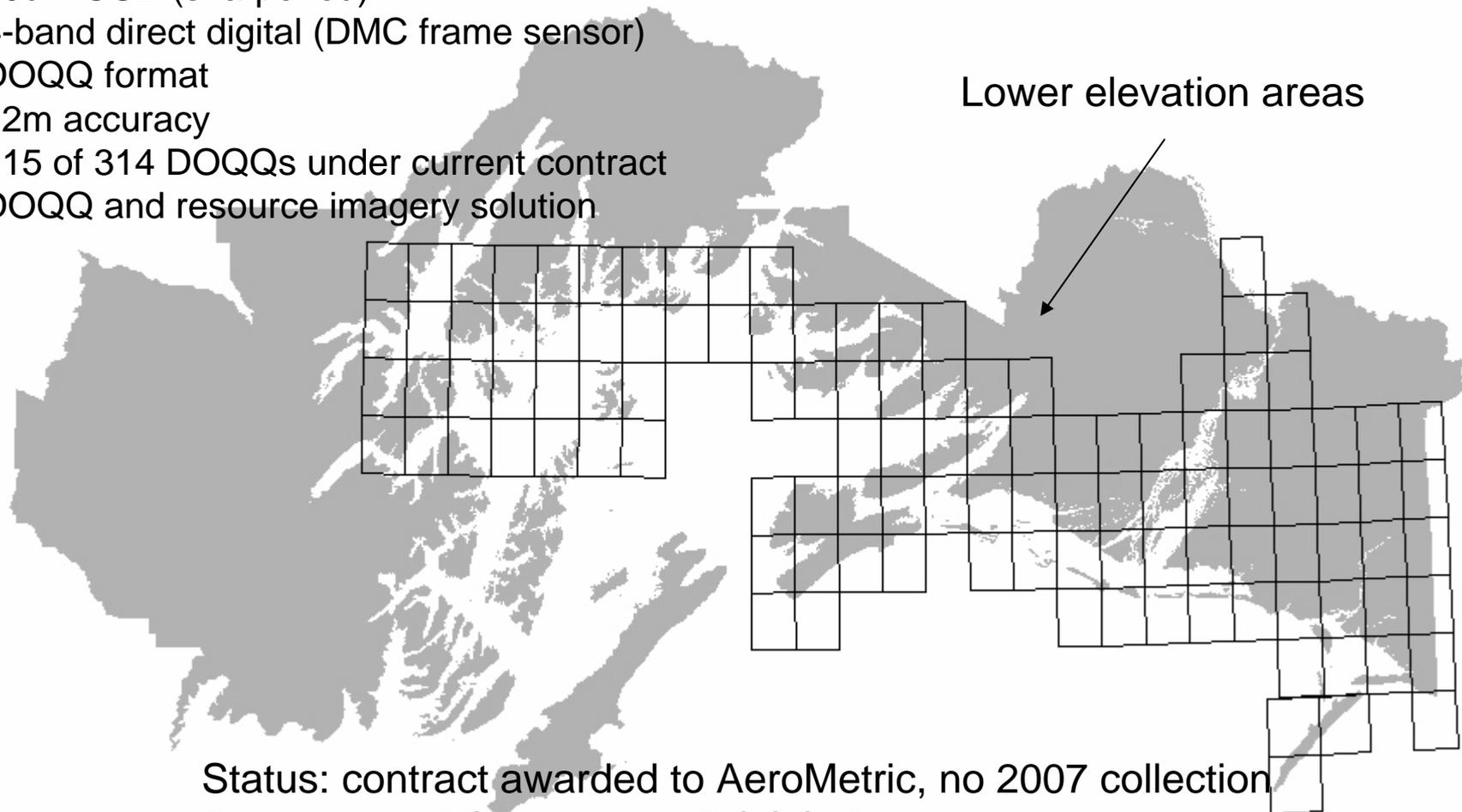
4-band direct digital (DMC frame sensor)

DOQQ format

12m accuracy

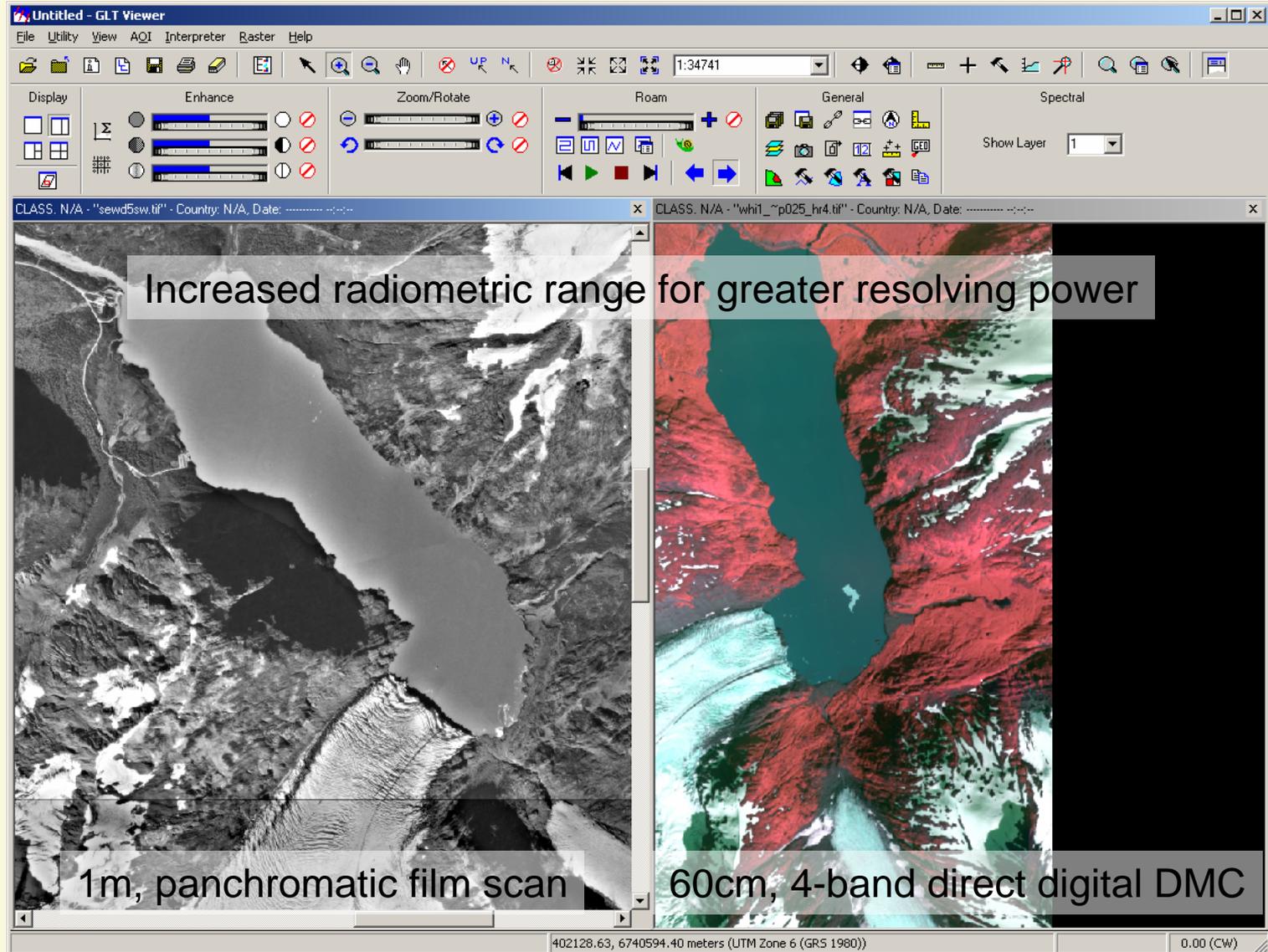
115 of 314 DOQQs under current contract

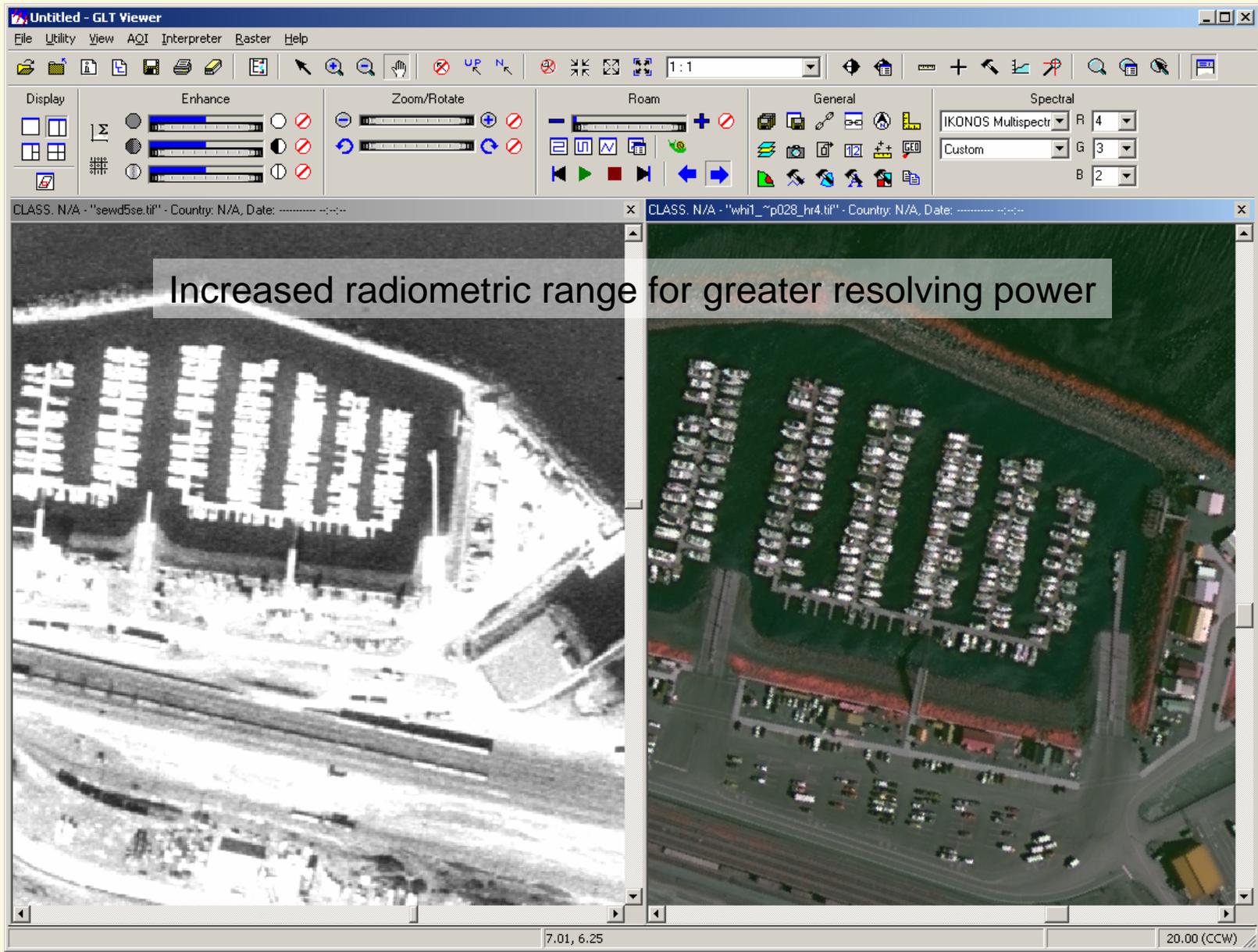
DOQQ and resource imagery solution



Status: contract awarded to AeroMetric, no 2007 collection
Remainder of Chugach for DOQQs?

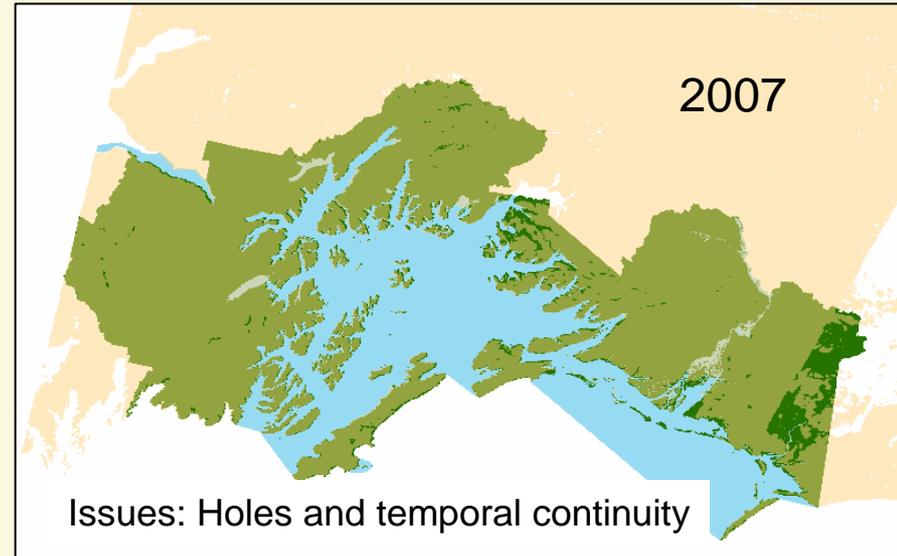
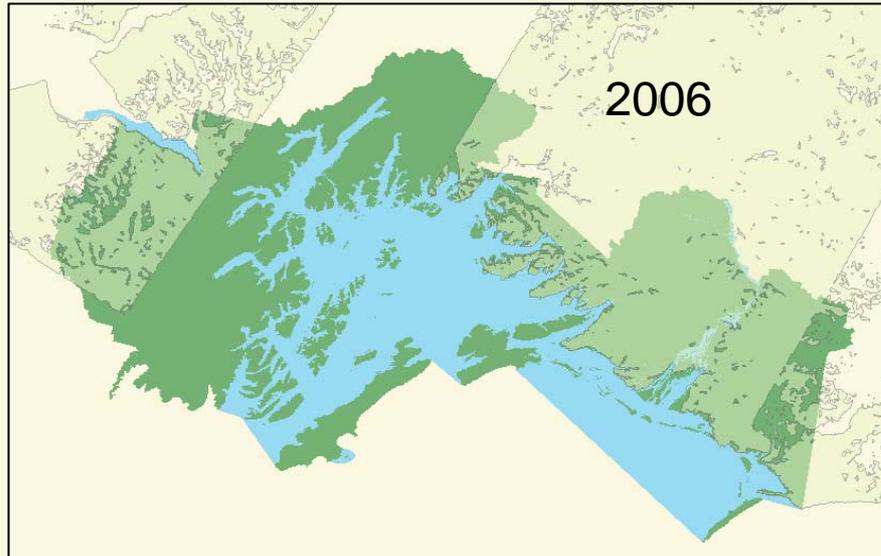
Seward D5 Southwest





Chugach National Forest

HRS Digital Elevation Model Coverage

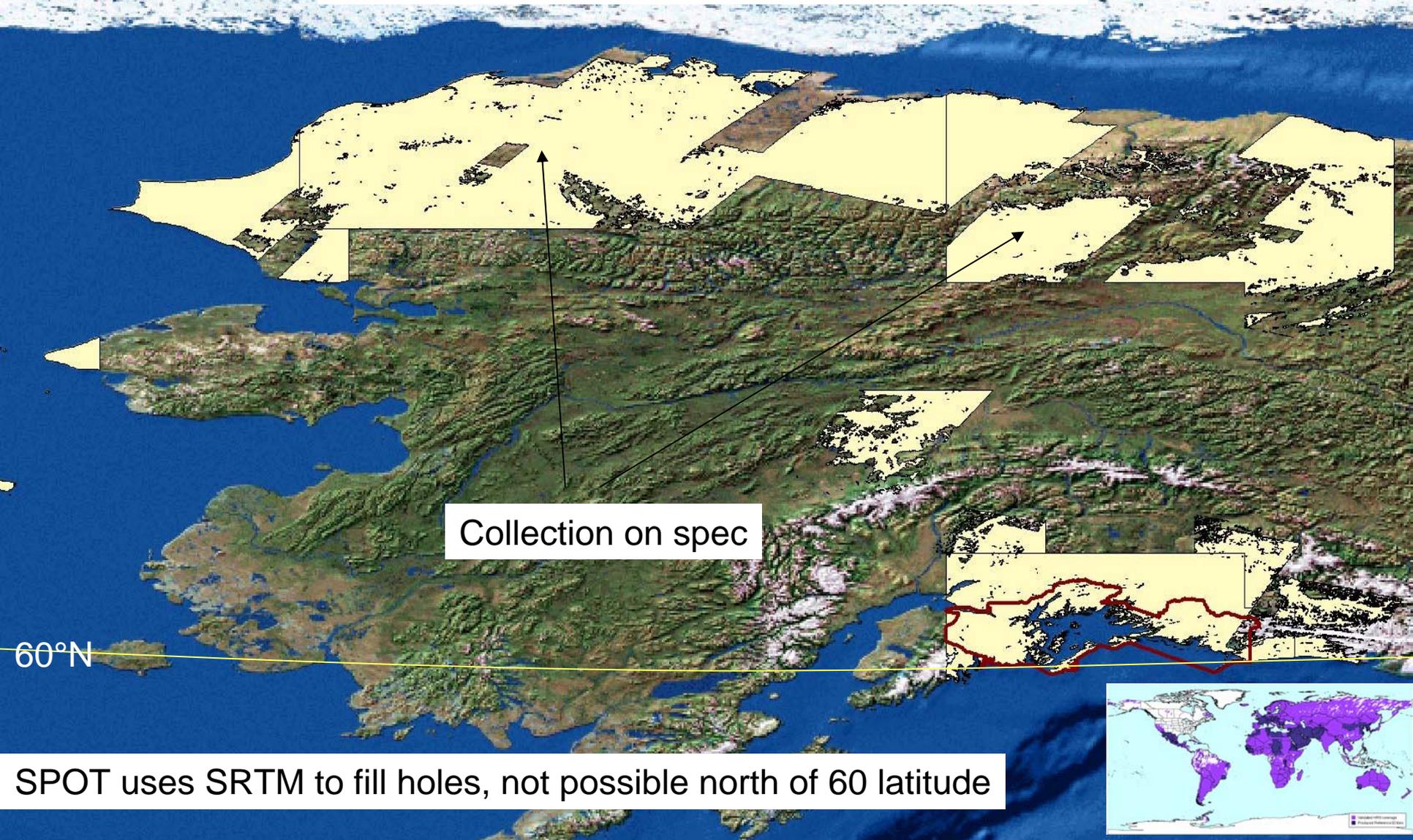


SPOT 5 stereo satellite (HRS)
20m GSD
10m-15m H and V accuracy
\$4 sq km, agency licensing, possible tier 3 uplift (commercial)
No concurrent multispectral collection, DEM only

Status: probable partial delivery in 2007, continue collection in 2008, IDIQ

SPOT 5 HRS Alaska Coverage 2006-2007

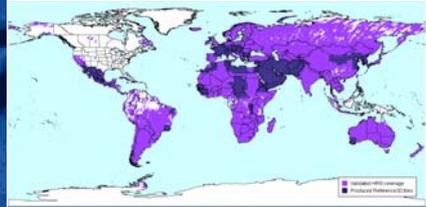
A long way to go



Collection on spec

60°N

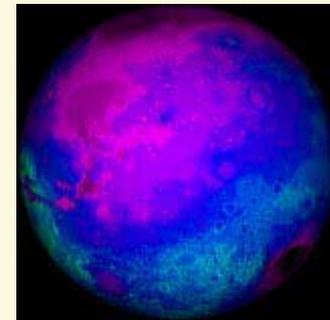
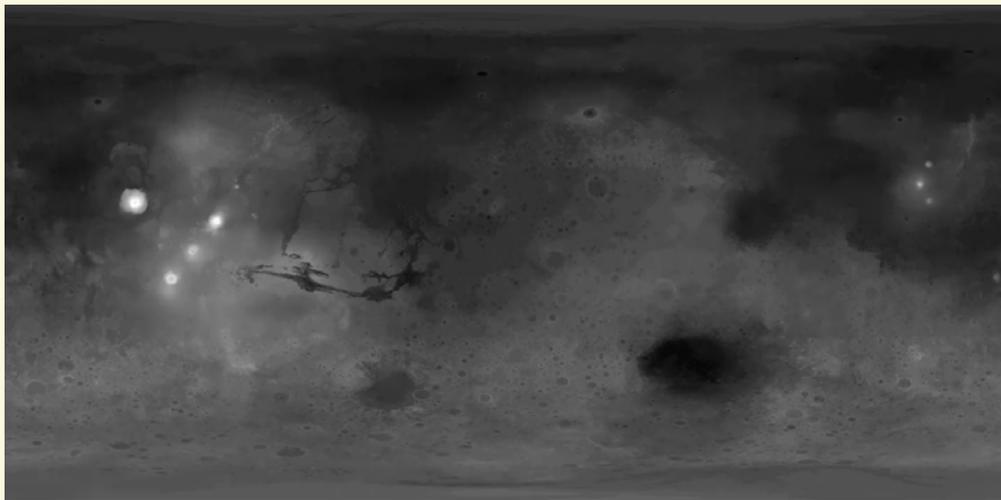
SPOT uses SRTM to fill holes, not possible north of 60 latitude



60m x 45m DTM NED for Alaska pre-dates statehood

Some lidar, photogrammetric, and insar (e.g. srtm, x-band) coverage for relatively small areas

Planet Mars has more current, accurate, and extensive linear DEM coverage than the vast majority of the State of Alaska



Lidar (Mars Orbiter Laser Altimeter) and photogrammetry (Viking images)

(animation: Grant Hutchison, NASA, 1999)