

# Navigation Comparison

## JASON

- LBL & Doppler

(currently delivered as separate files)

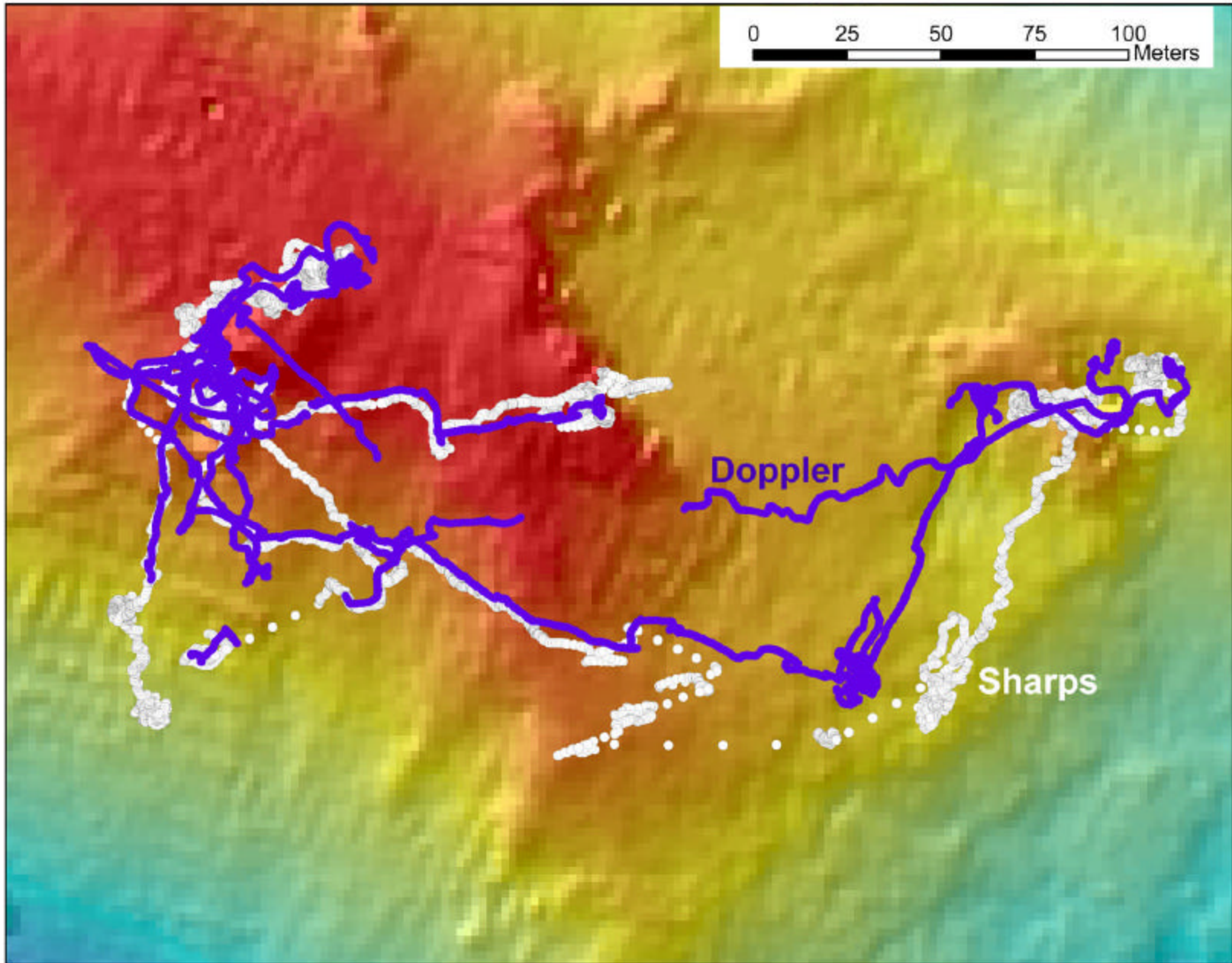
## ROPOS (cageless system for <2500 m)

- USBL & Doppler

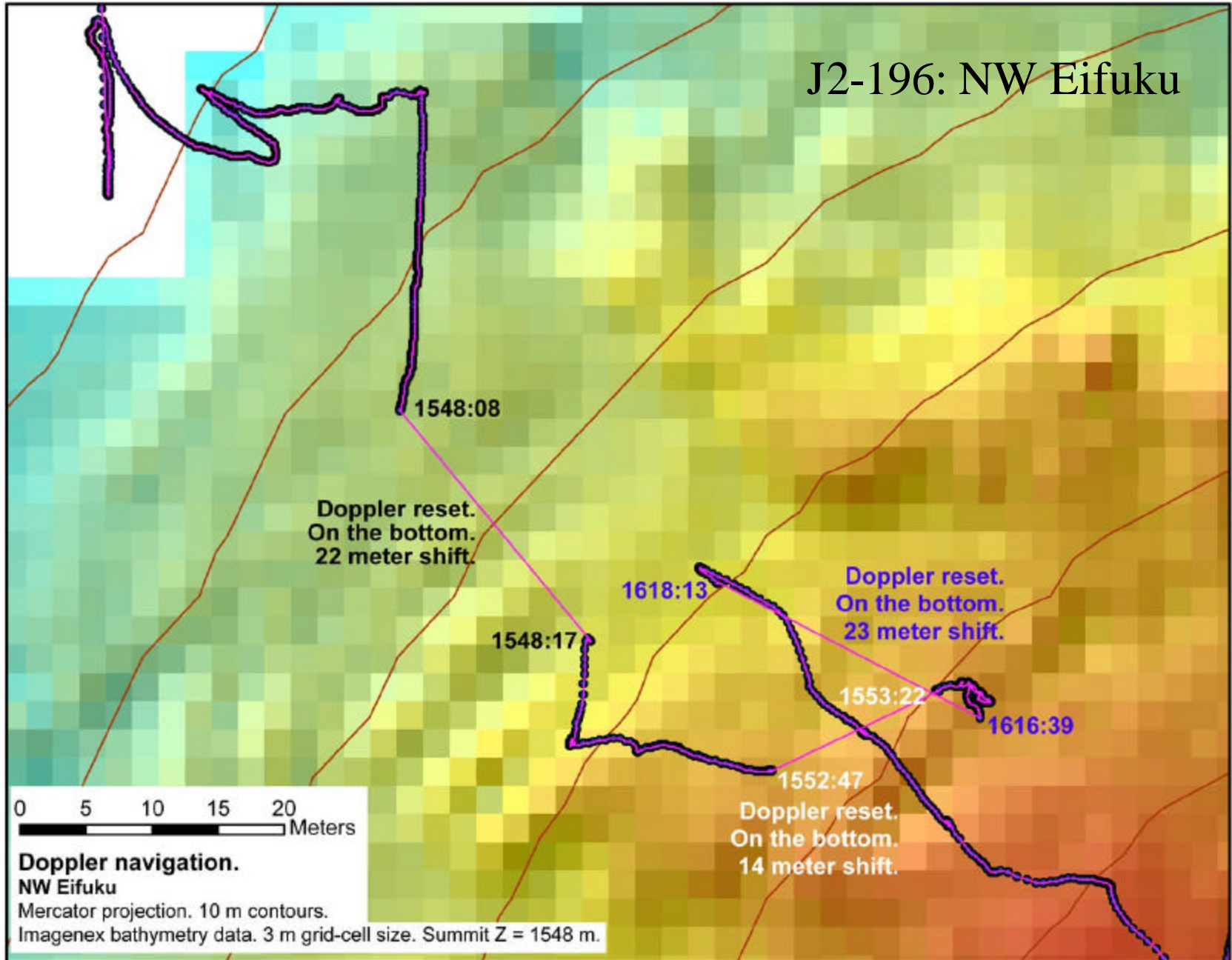
(merged in realtime via a Kalman filter)

NW Rota-1: Dive J2-187

White dots (bottom): Sharps navigation. Purple dots (top): Doppler navigation



# J2-196: NW Eifuku



Doppler reset.  
On the bottom.  
22 meter shift.

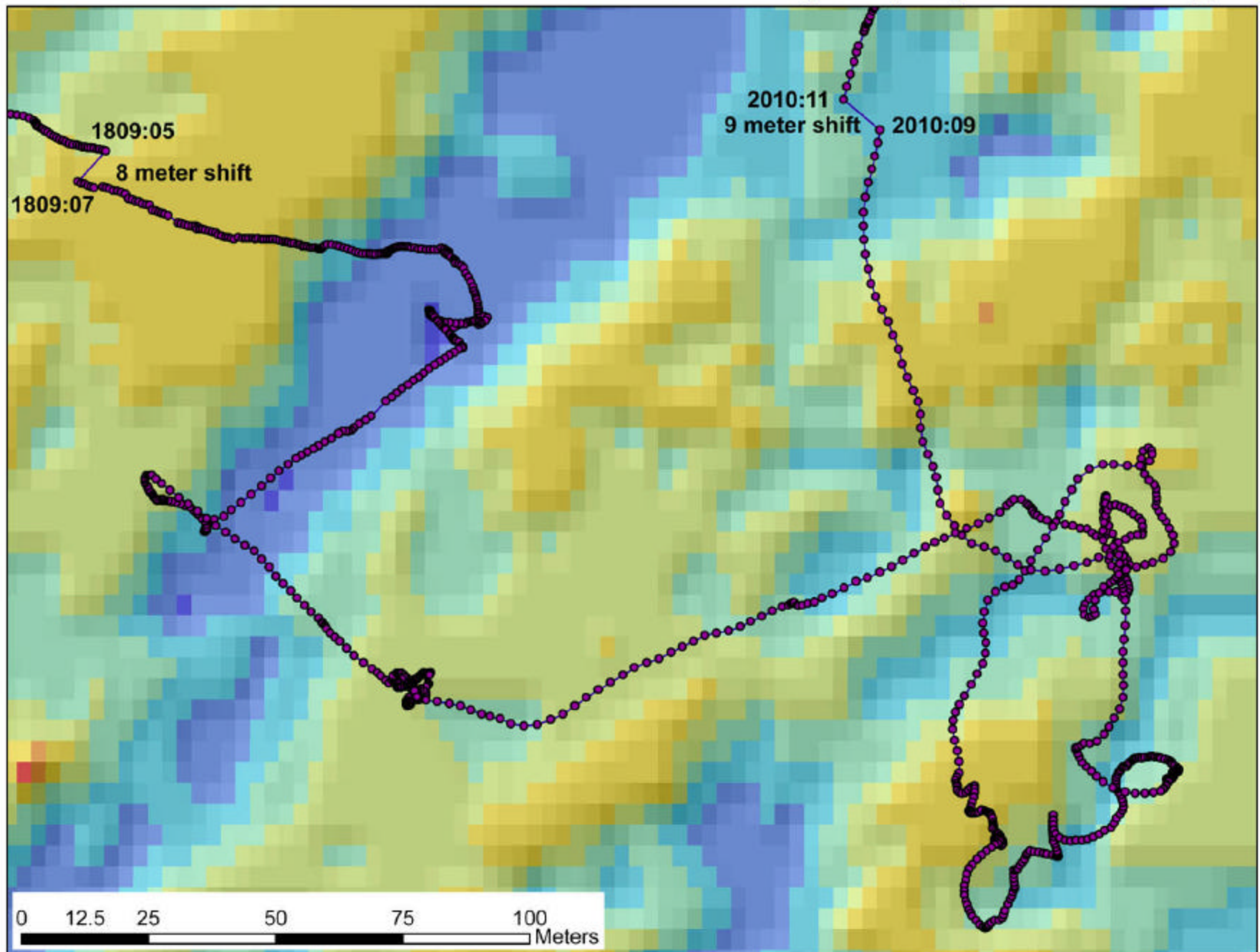
Doppler reset.  
On the bottom.  
23 meter shift.

Doppler reset.  
On the bottom.  
14 meter shift.

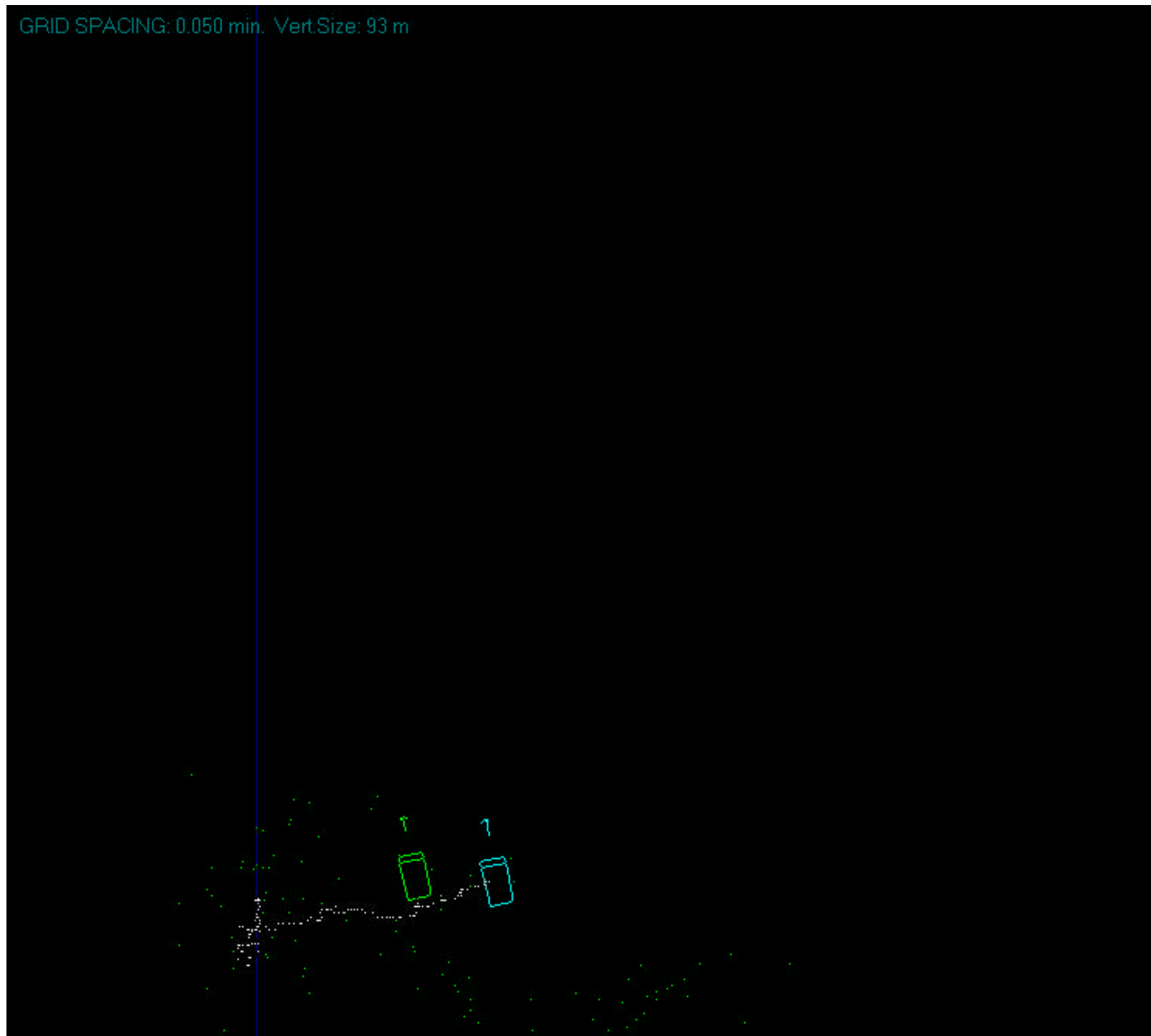
0 5 10 15 20  
Meters

**Doppler navigation.**  
NW Eifuku  
Mercator projection. 10 m contours.  
Imagenex bathymetry data. 3 m grid-cell size. Summit Z = 1548 m.

Axial Volcano 1998 lava flow area: ROPOS Dive R1014. Loki navigation (merge of USBL and Doppler)



GRID SPACING: 0.050 min. Vert.Size: 93 m



# ROPOS

IXSEA Gaps

USBL system

Doesn't require  
calibration - all  
sensors are within the  
transducer head

QuickTime™ and a  
Photo - JPEG decompressor  
are needed to see this picture.

# Navigation Comparison

## JASON

- LBL pros & cons:

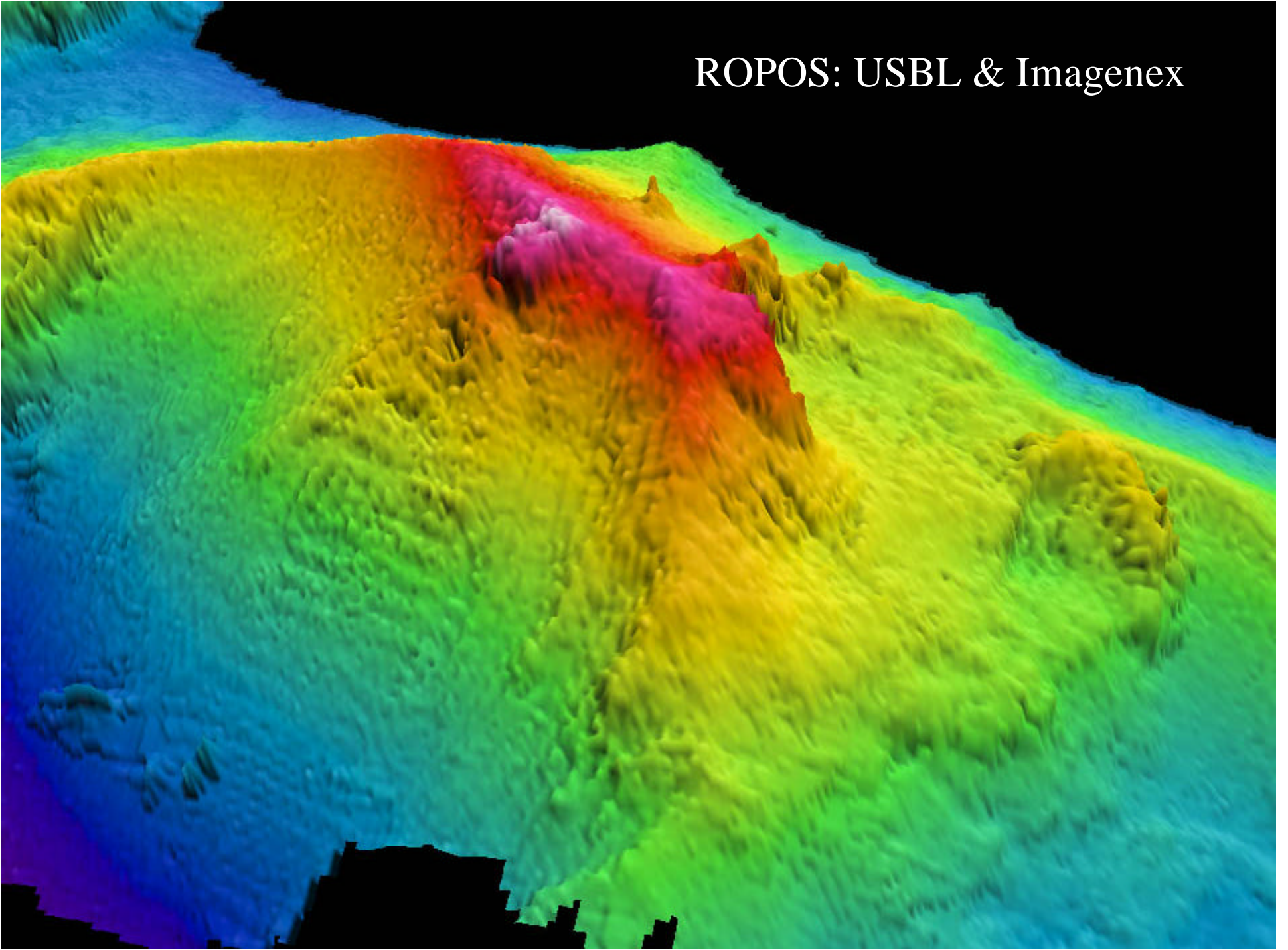
depth range, accuracy vs. time required (~12hrs)

## ROPOS (cageless system for <2500 m)

- USBL pros & cons:

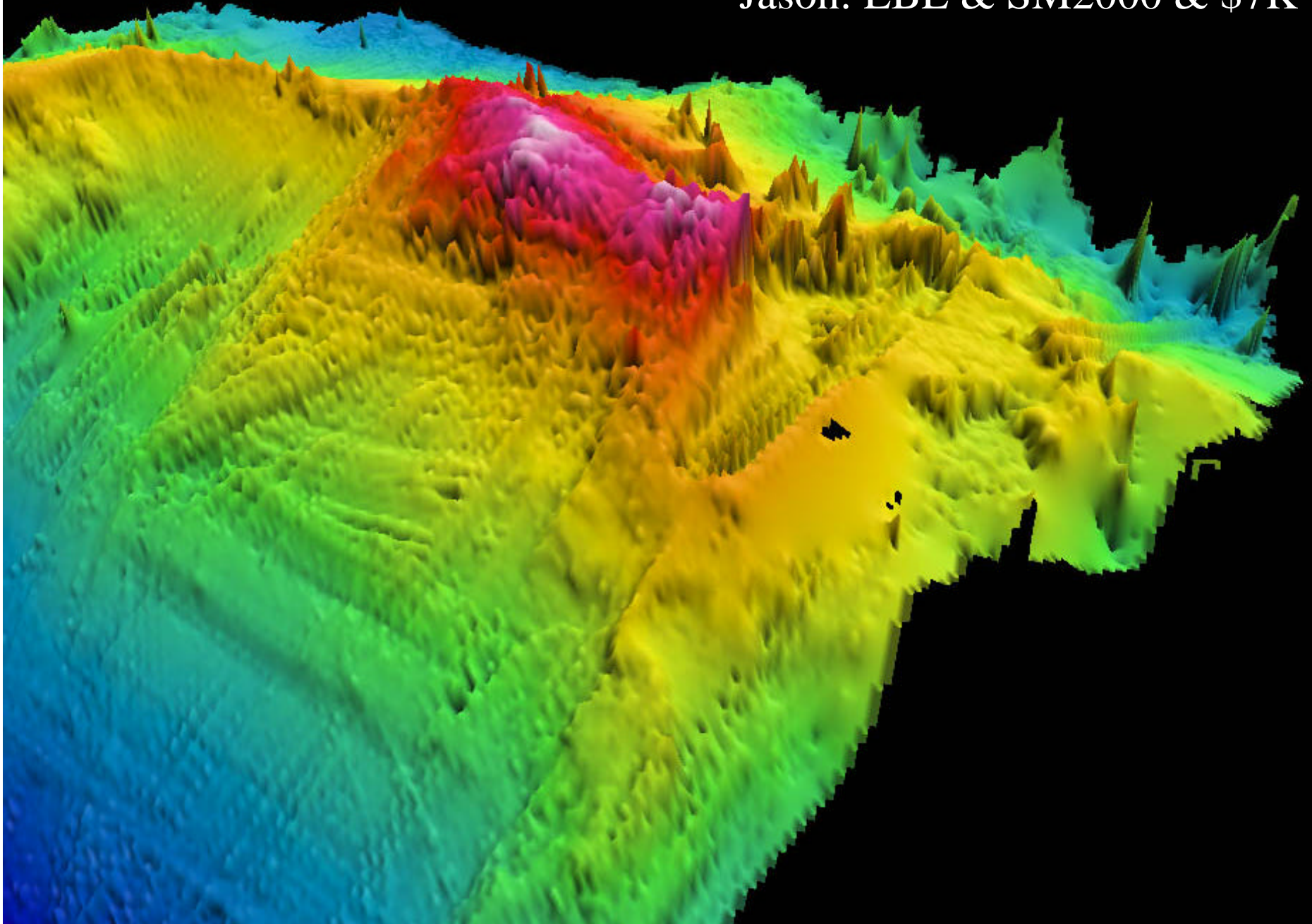
time required (~.5 hr) vs. depth range, accuracy

ROPOS: USBL & Imagenex





Jason: LBL & SM2000 & \$7K



ROPOS

Heavy-lift  
capability

QuickTime™ and a  
Photo - JPEG decompressor  
are needed to see this picture.