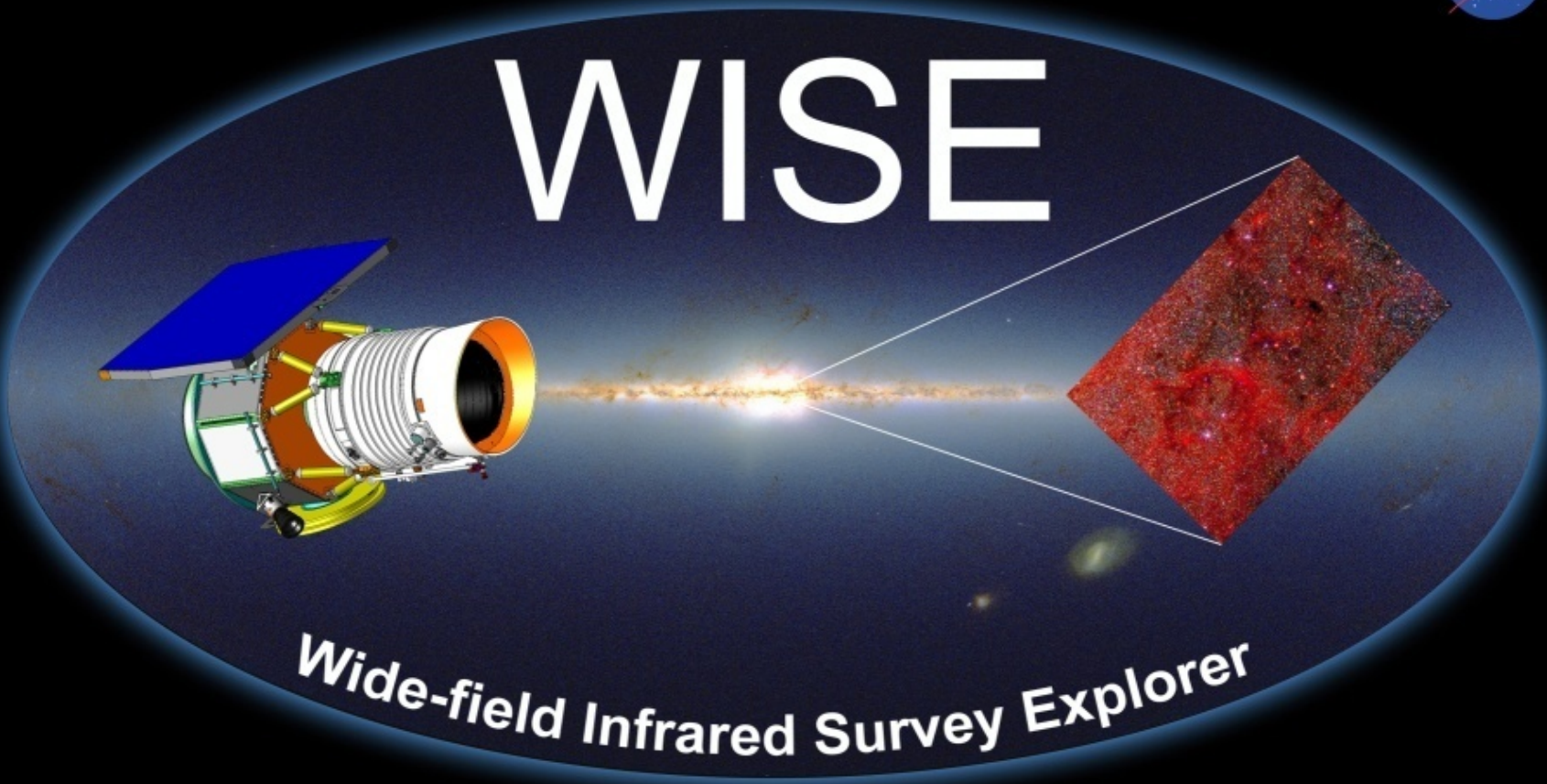
National Aeronautics and Space Administration

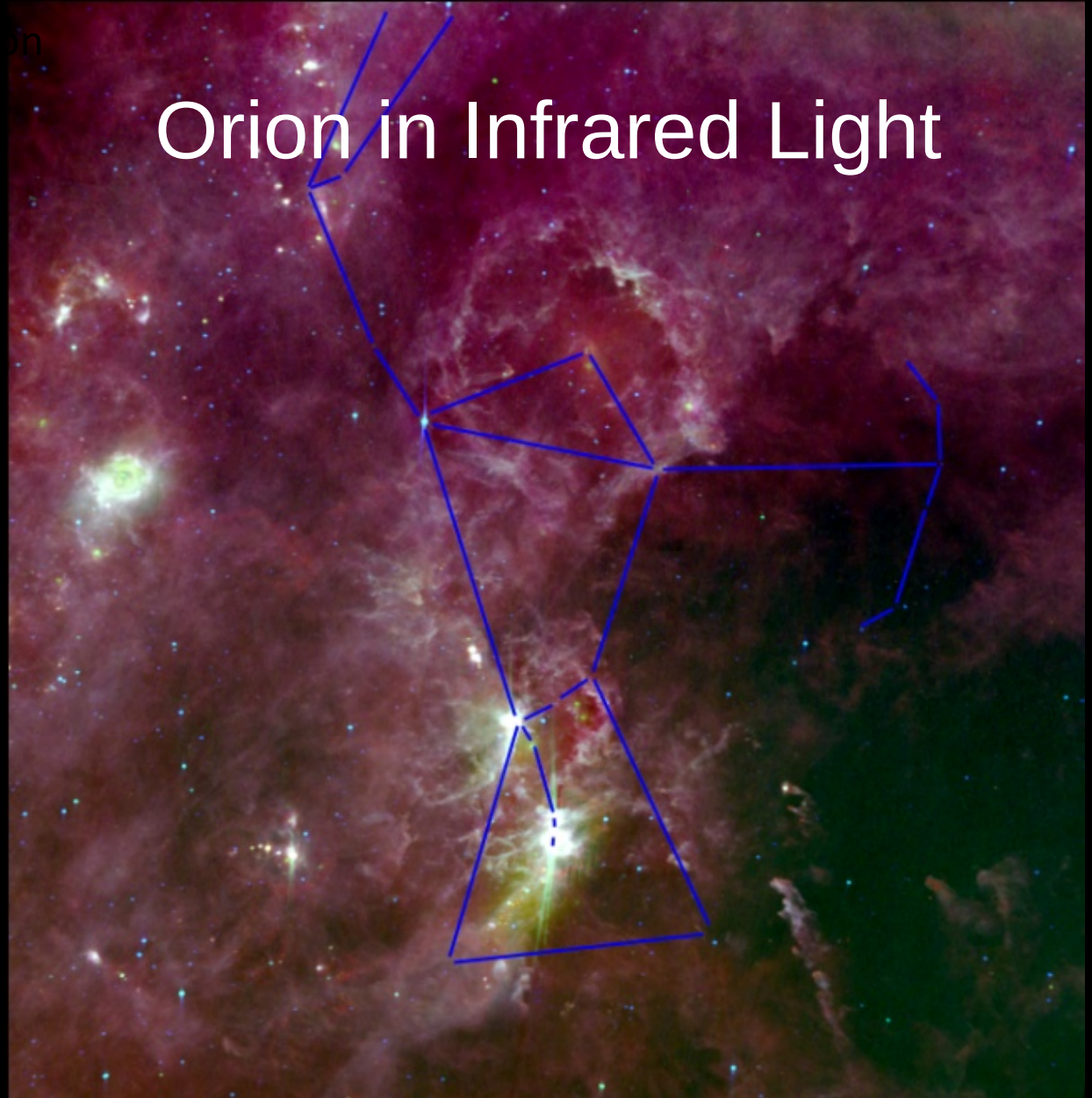



http://wise.astro.ucla.edu

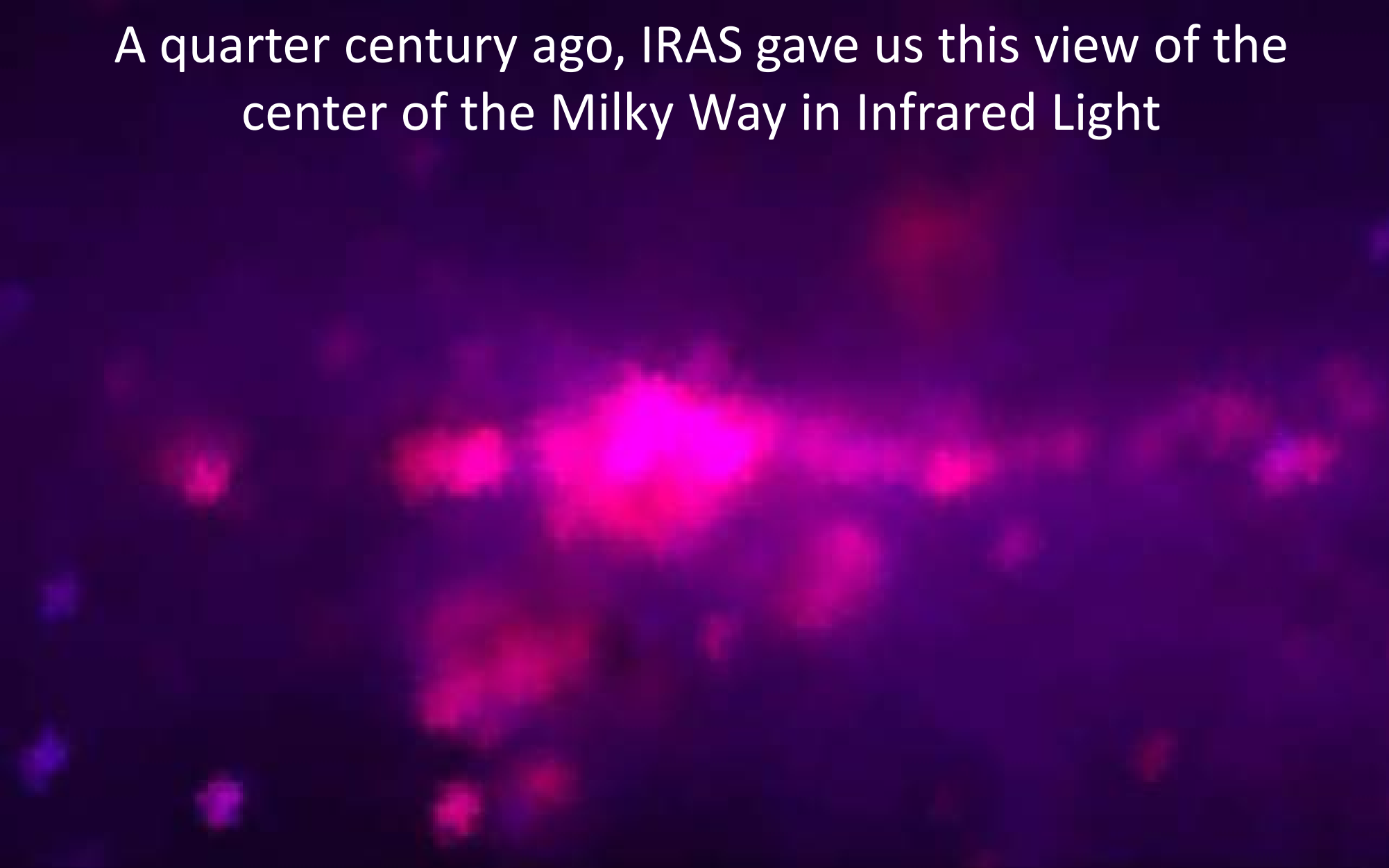
UCLA • JPL • BALL • SDL • IPAC • UCB

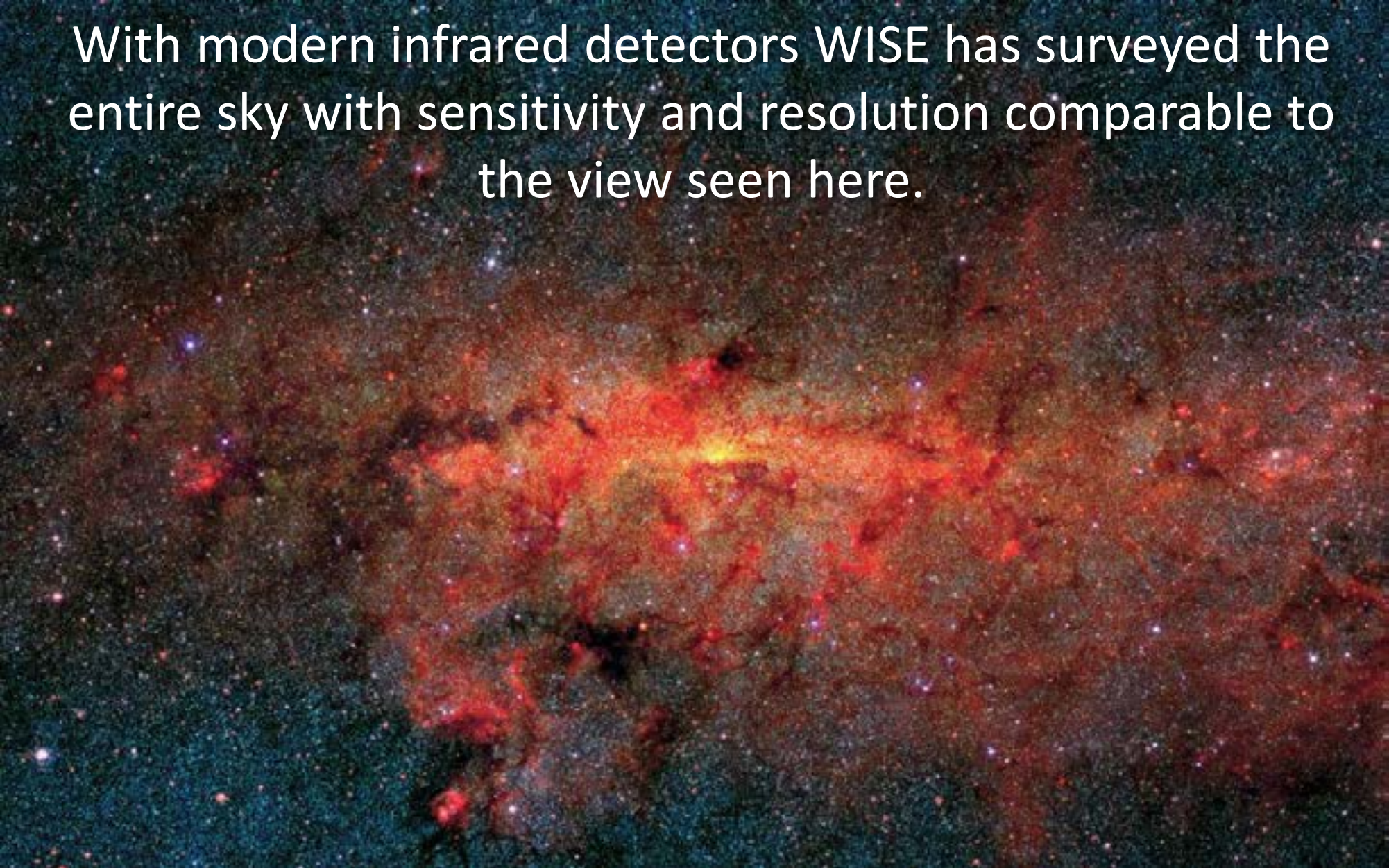
# Orion in Visible Light

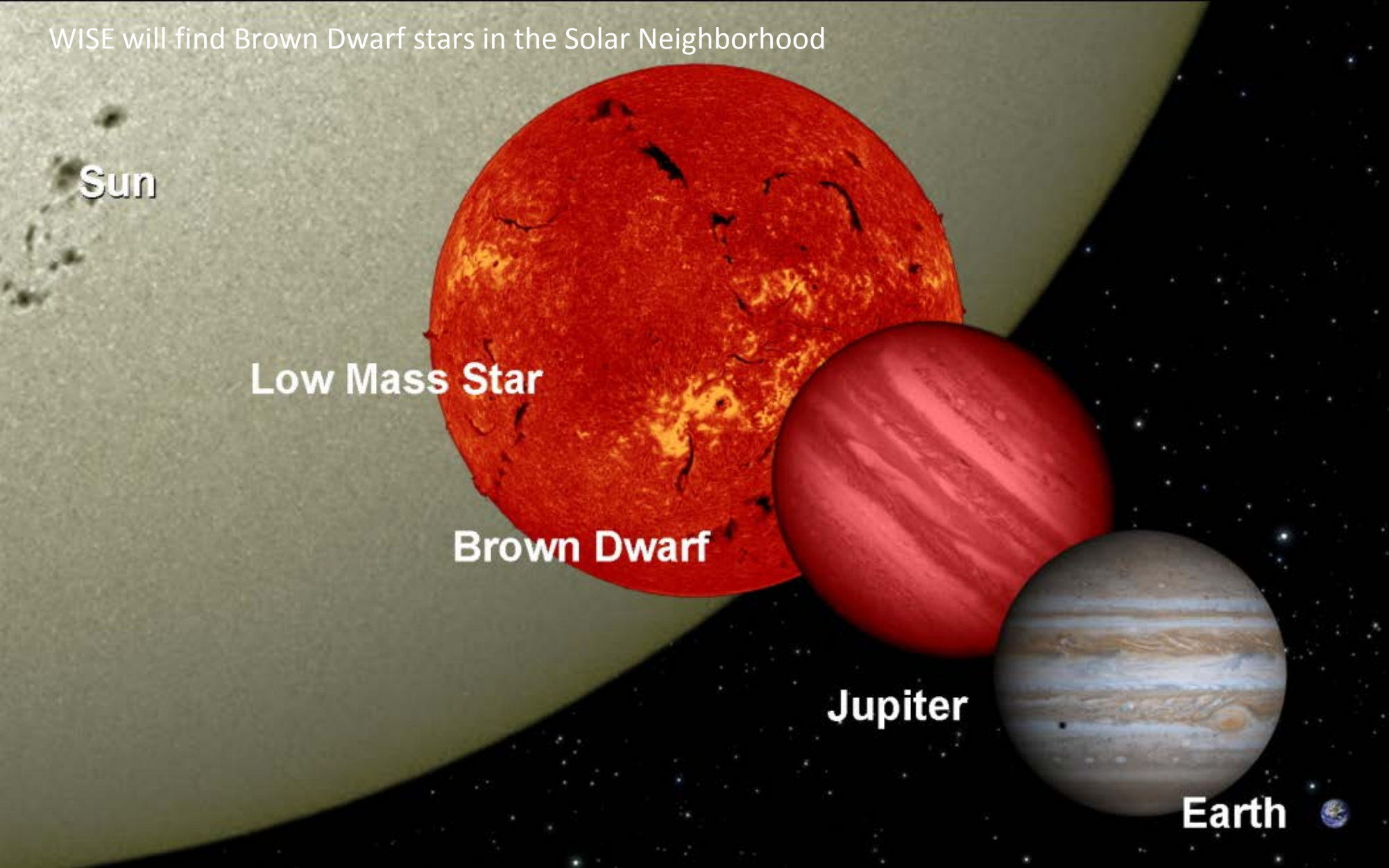
# Orion in Infrared Light



A quarter century ago, IRAS gave us this view of the center of the Milky Way in Infrared Light

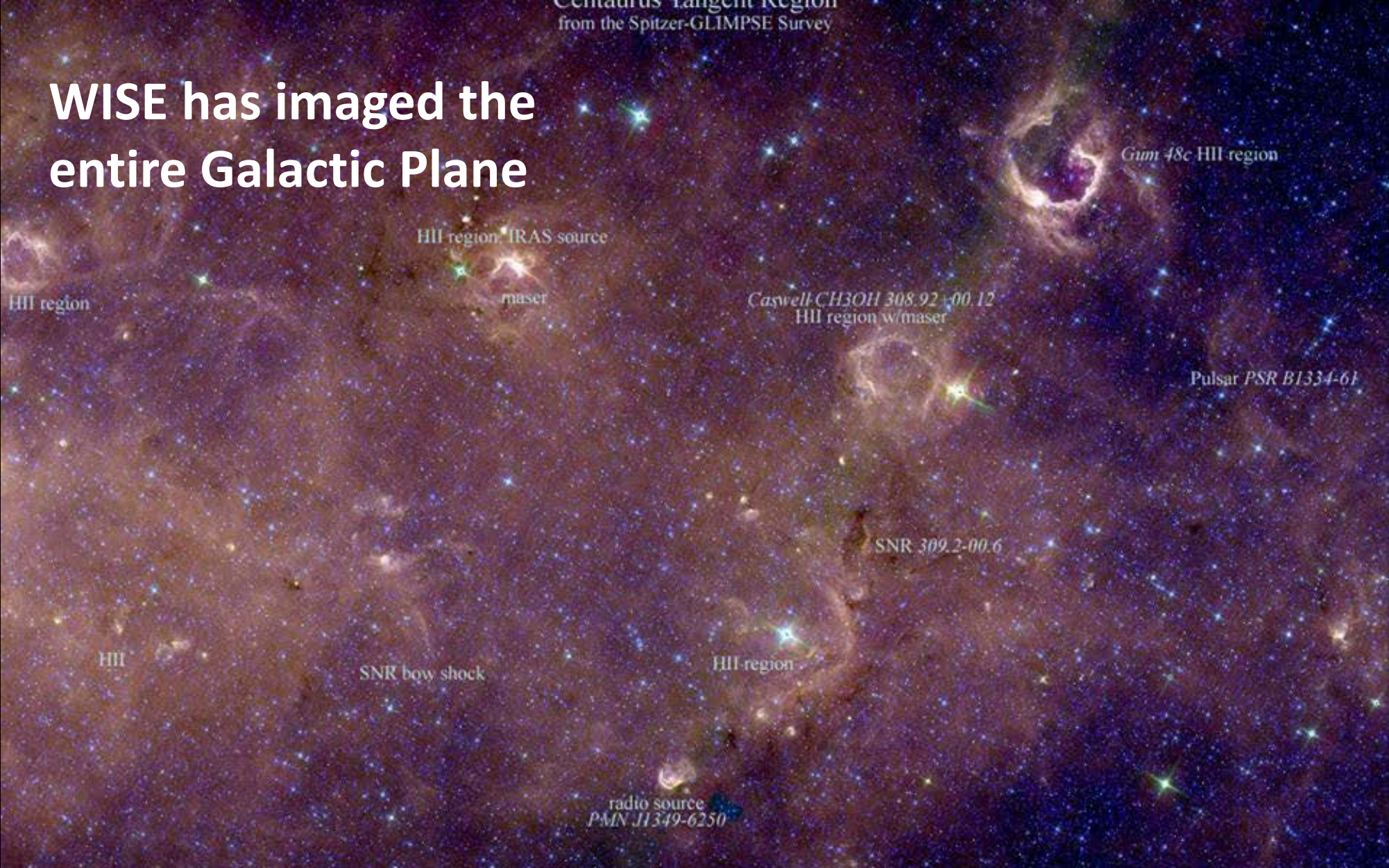



With modern infrared detectors WISE has surveyed the entire sky with sensitivity and resolution comparable to the view seen here.


WISE will find Brown Dwarf stars in the Solar Neighborhood
Sun
Low Mass Star
Brown Dwarf
Jupiter
Earth

Known stars within 25 light-years of the Sun

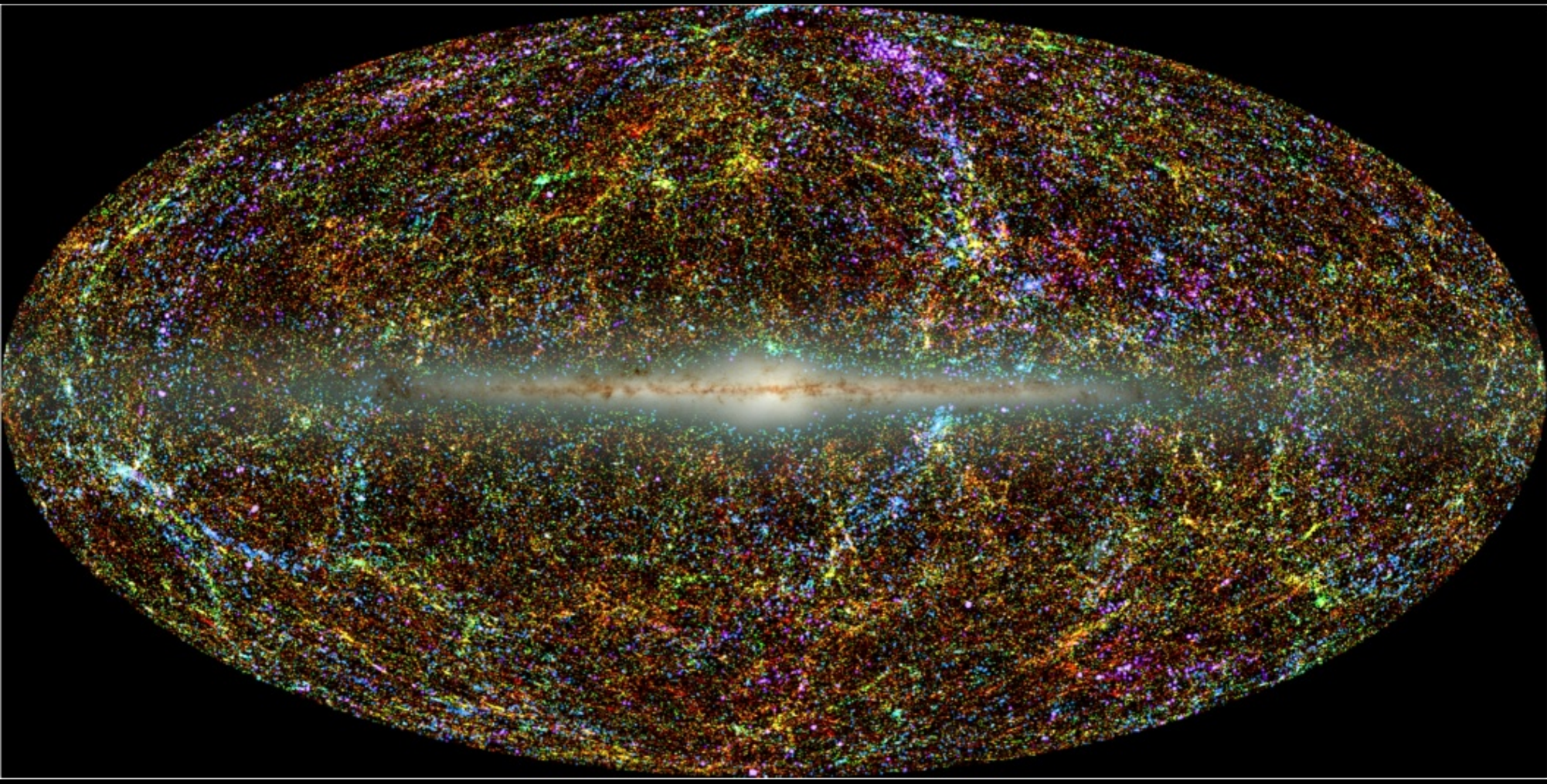
Stars within 25 light-years of the Sun after the WISE data is processed


Centaurus Tangent Region
from the Spitzer-GLIMPSE Survey
WISE has imaged the entire Galactic Plane
Gum 48c HII region
HII region, IRAS source
maser
HII region
Caswell CH3OH 308.92+00.12
HII region w/maser
Pulsar PSR B1334-61
SNR 309.2-00.6
HII
SNR bow shock
HII region
radio source
PMN J1349-6250

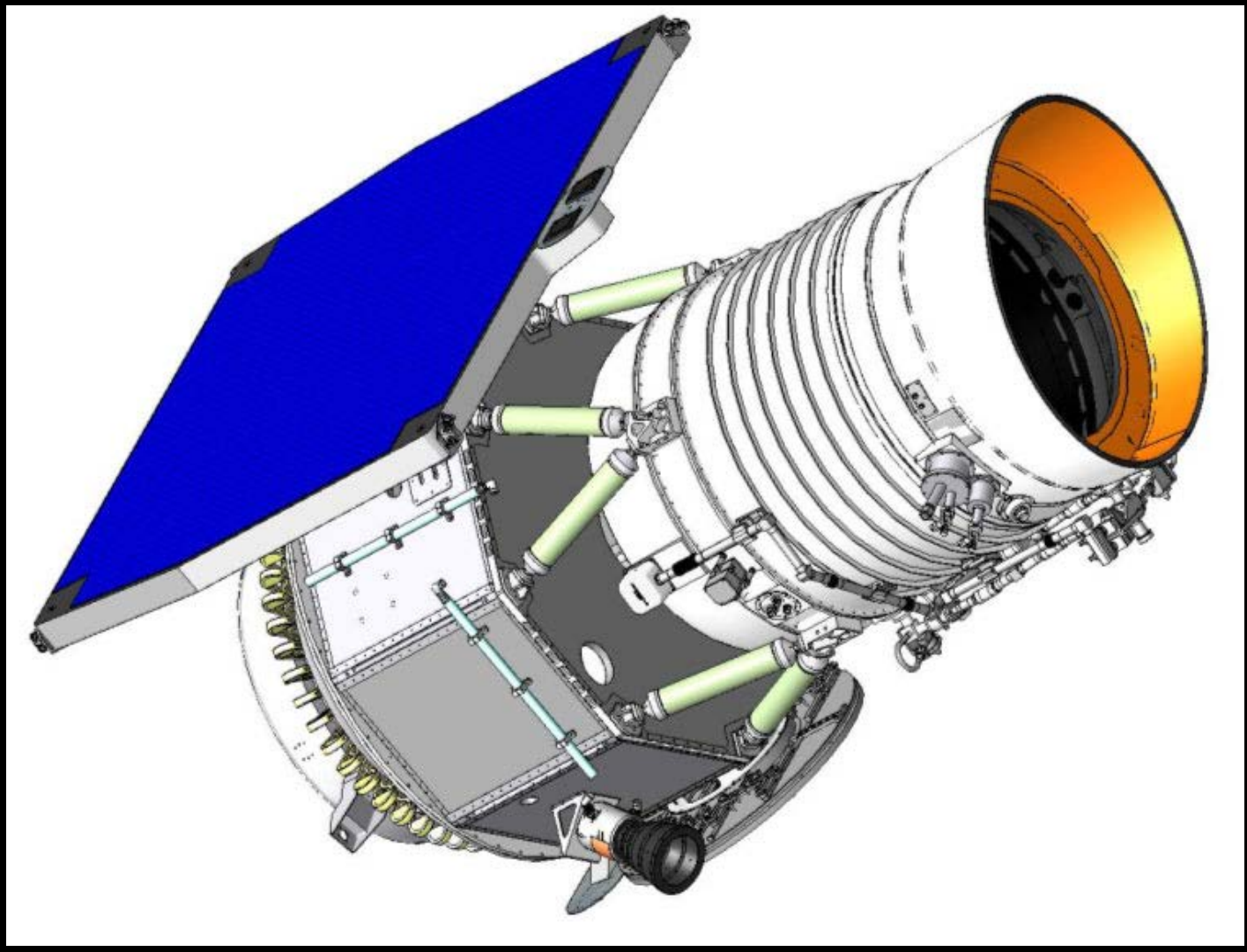

WISE has imaged all
nearby galaxies

WISE has imaged all nearby galaxies

2MASS Surveyed Large Scale Structure out to 1.3 Billion Light-years (z ~ 0.1)
WISE surveyed out to 6.7 Billion Light-years (z ~ 0.5)

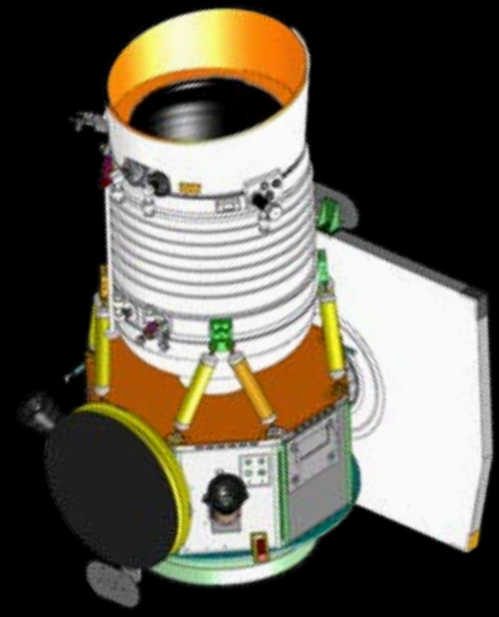


# WISE Mission: Flight System



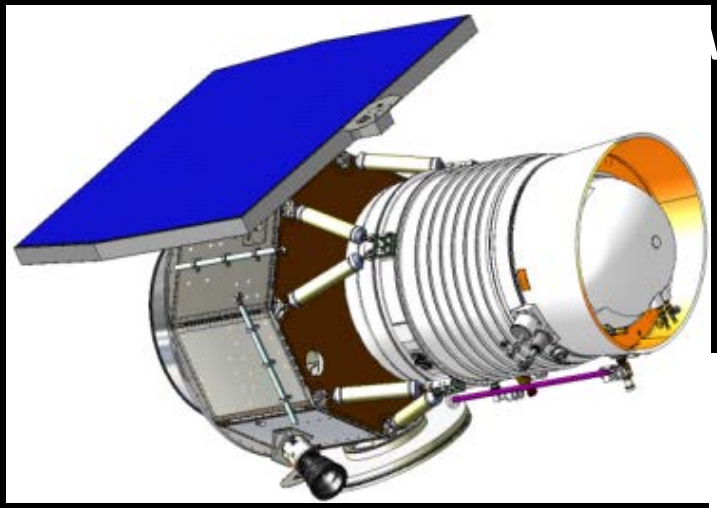
A cold 40 cm telescope in Earth orbit

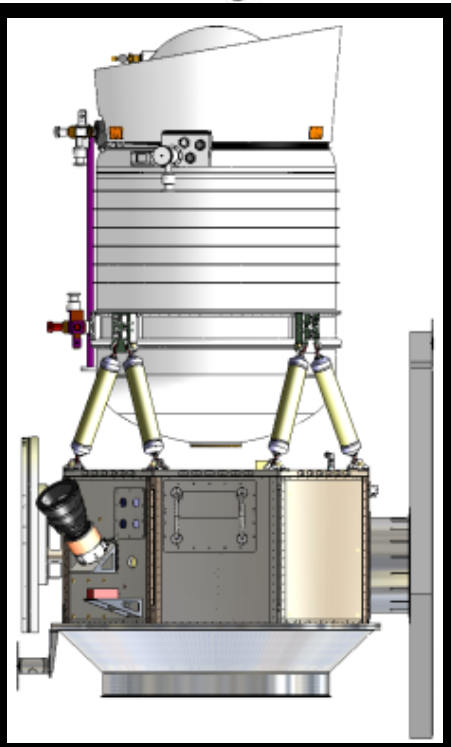
Enabled by new megapixel infrared detector arrays

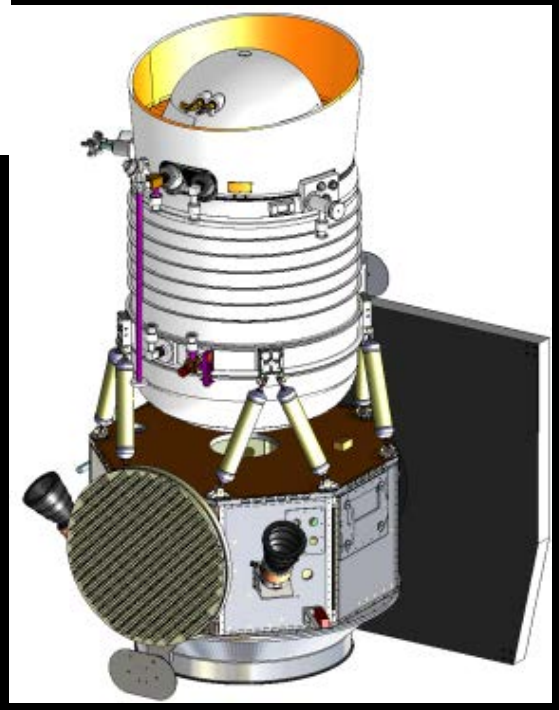


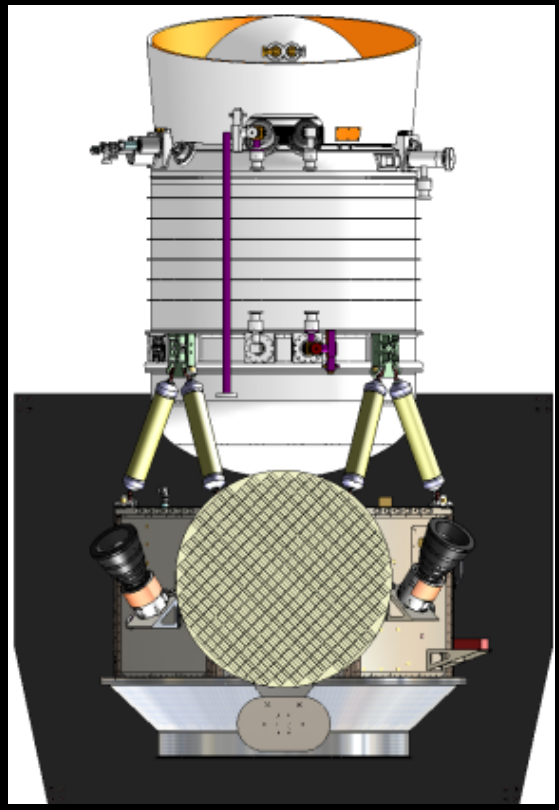
By being in space, the 40 cm WISE telescope is as powerful as 6,000 8-meter telescopes on the ground!

# VISE Mission: Flight System



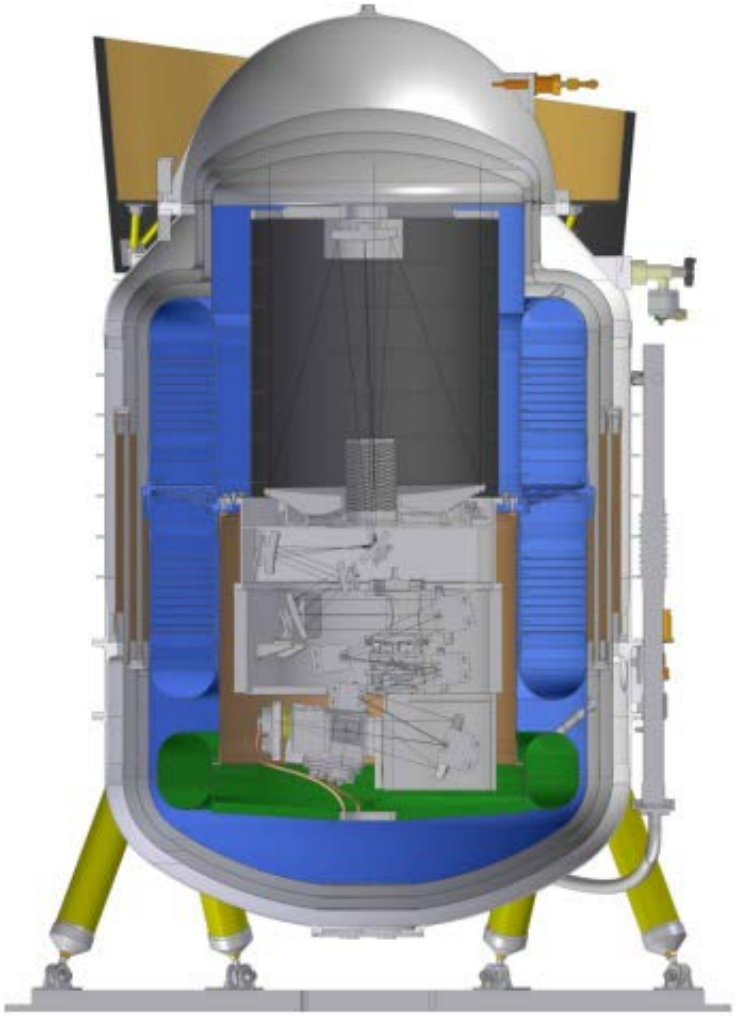


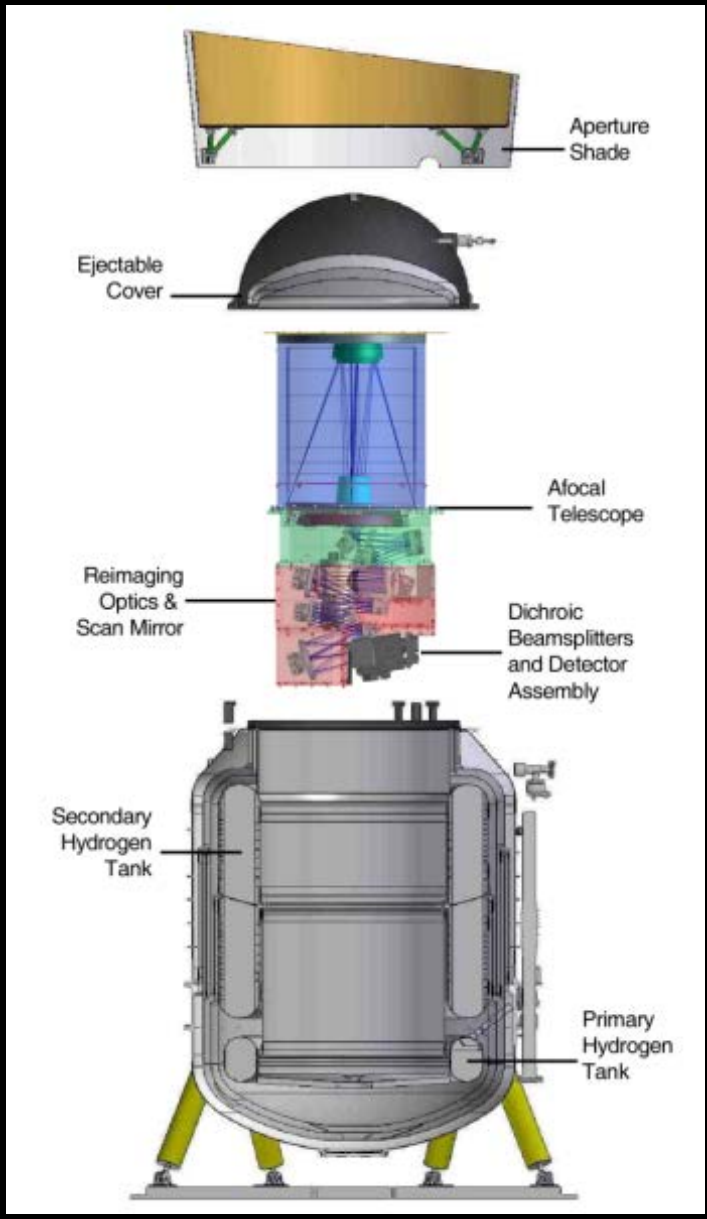




# WISE Mission: Flight System

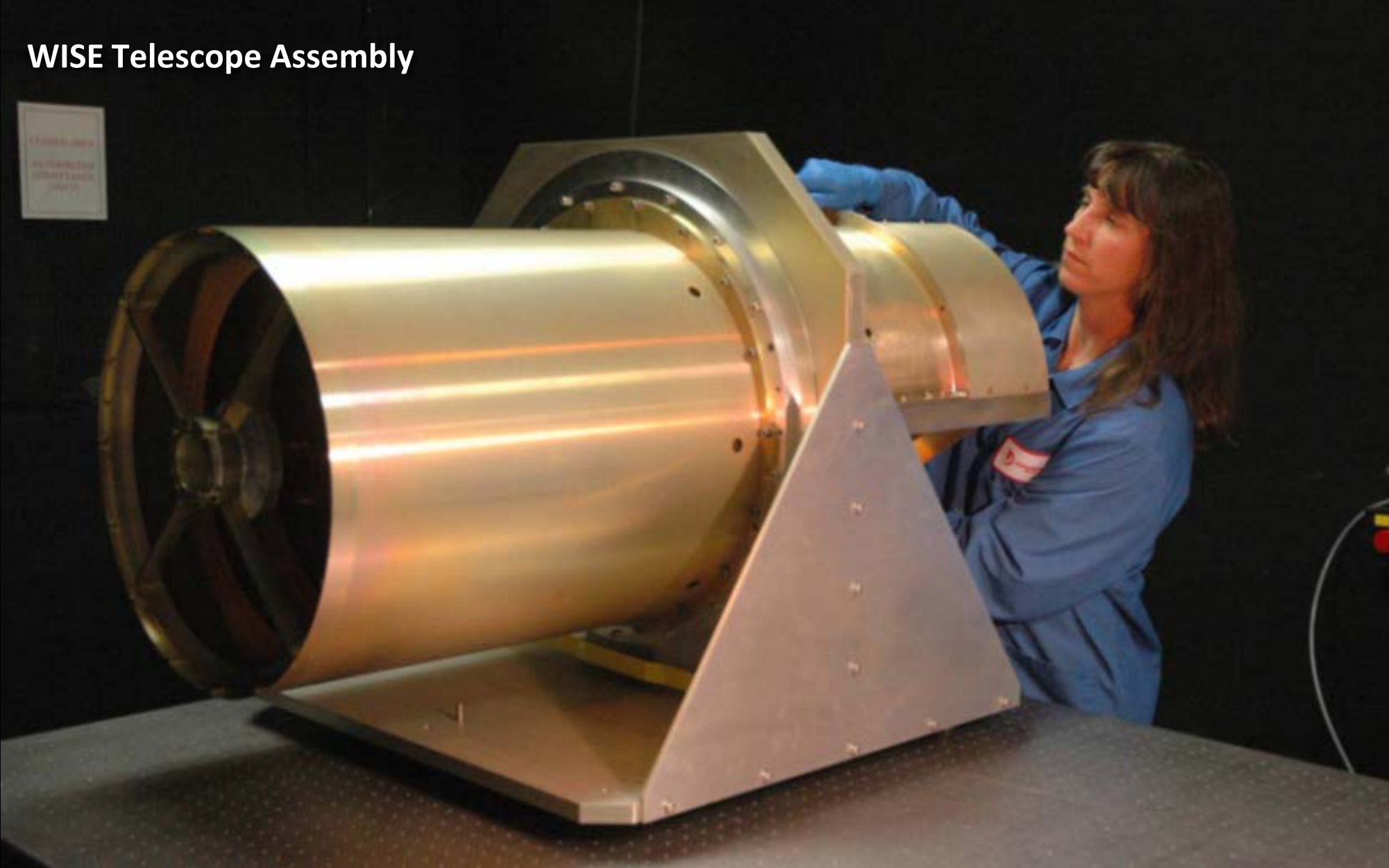
# WISE Mission: Payload –
# Constructed by Space Dynamics Laboratory



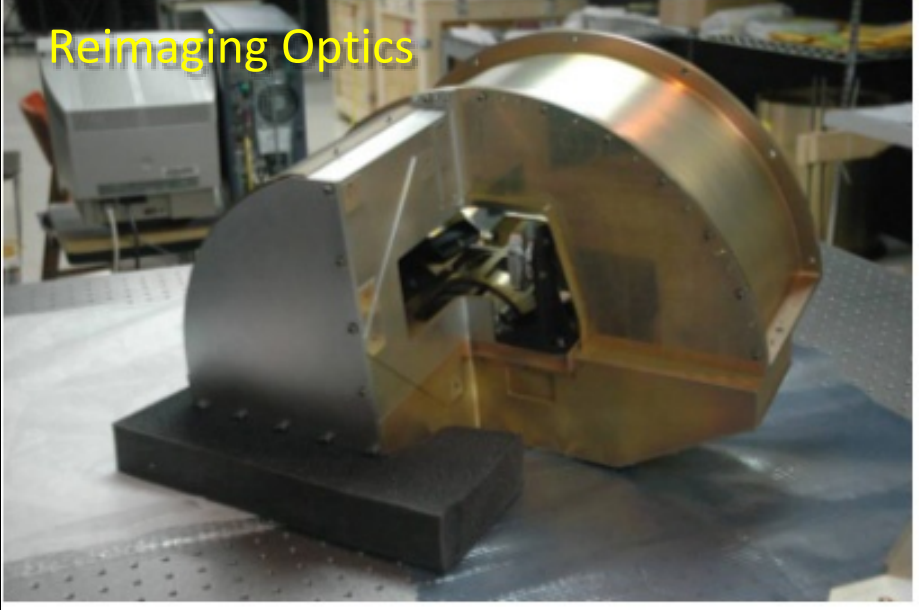


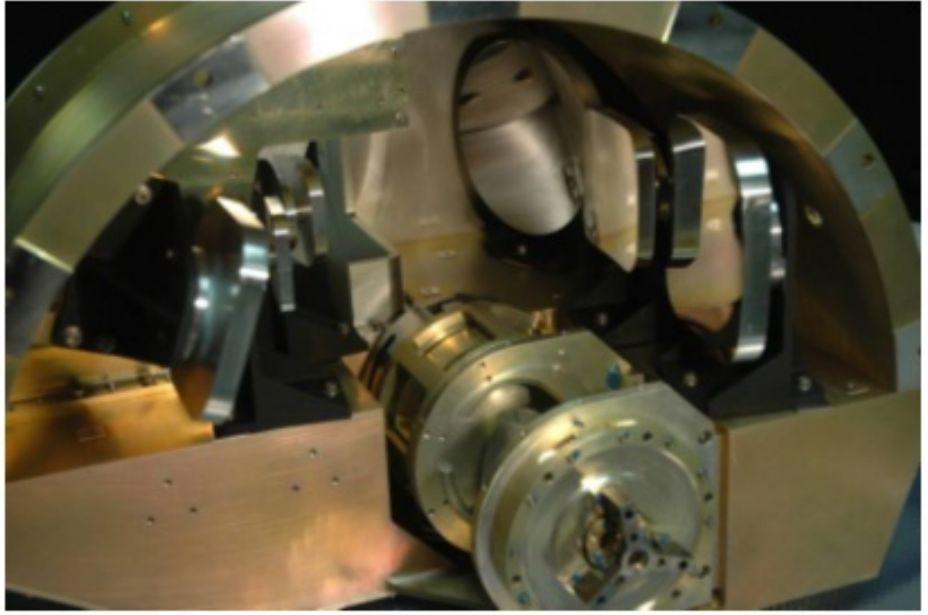

40 cm Afocal Primary Mirror

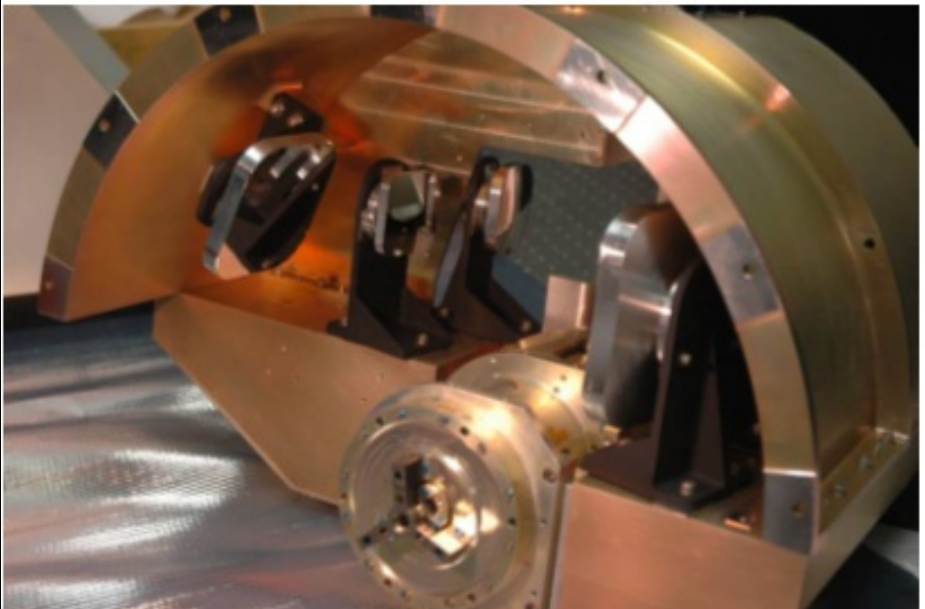
# WISE Telescope Assembly

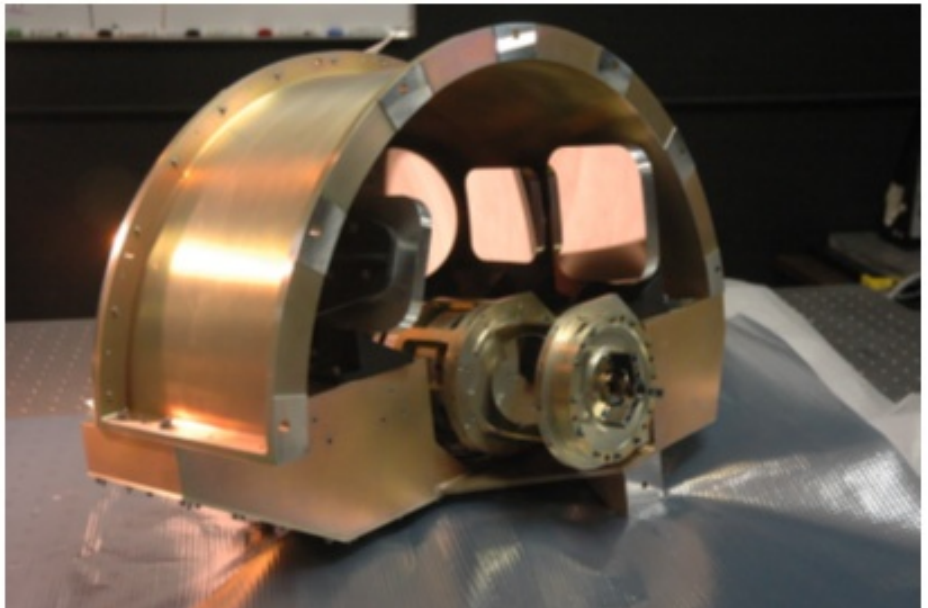


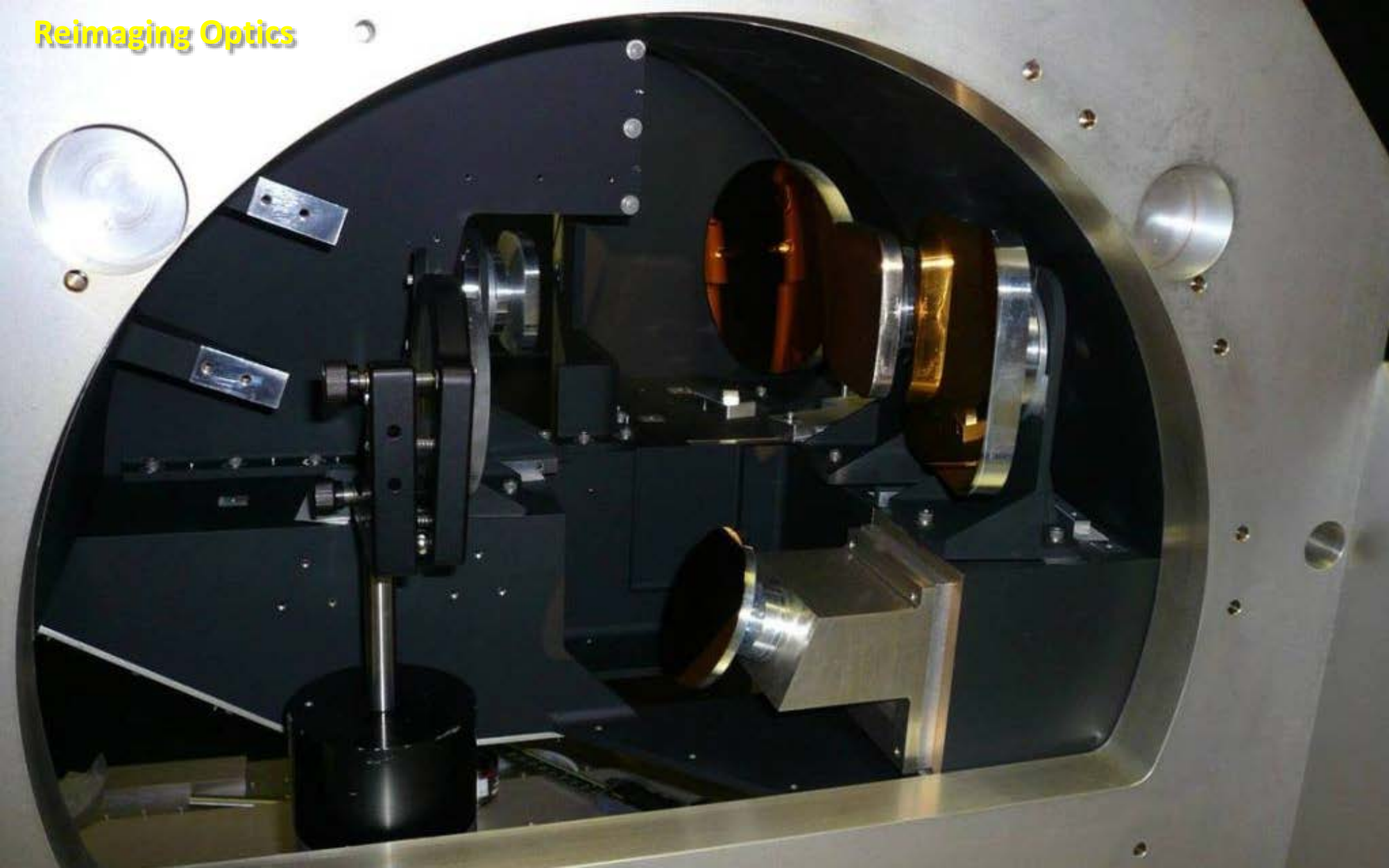
# Reimaging Optics

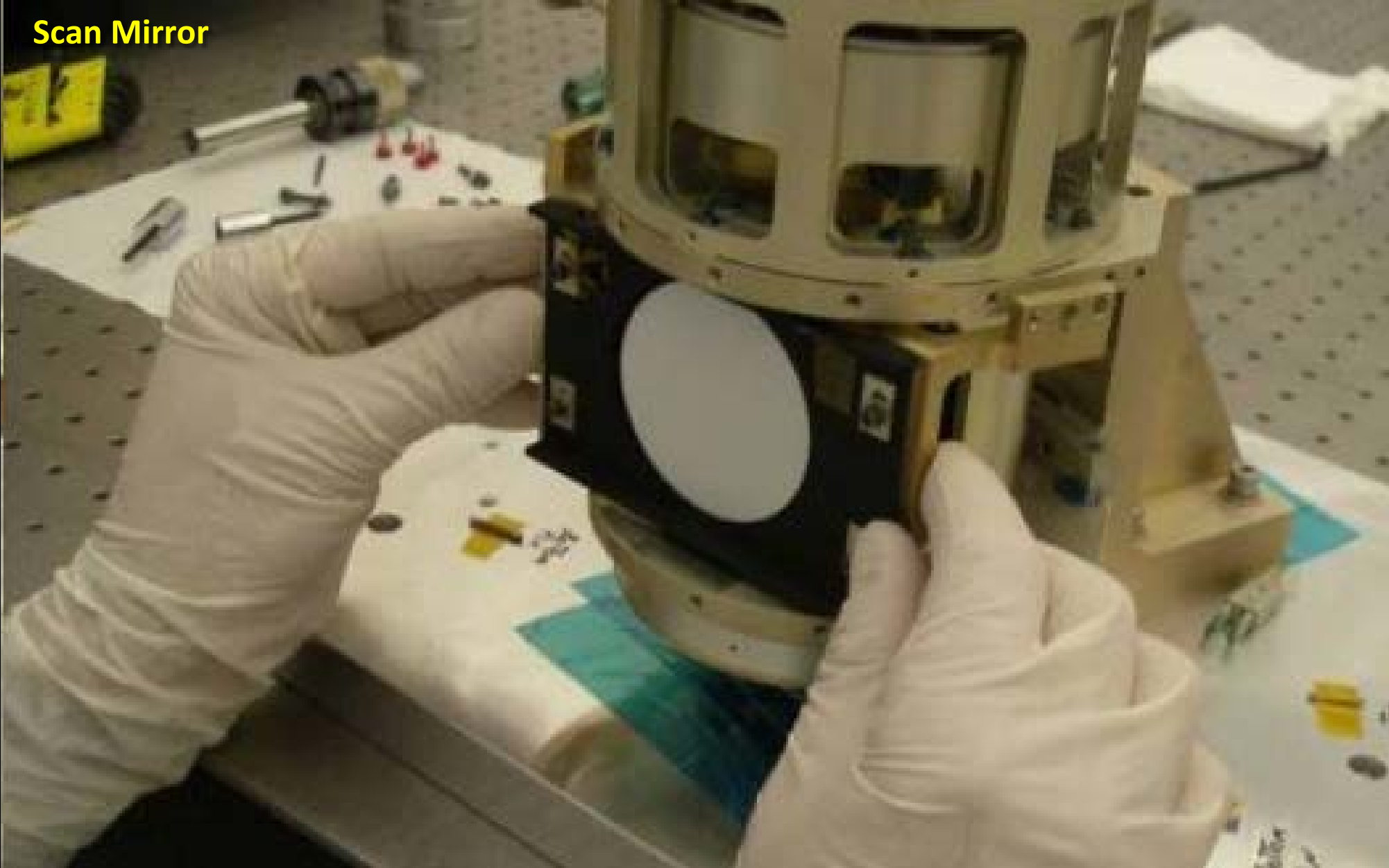


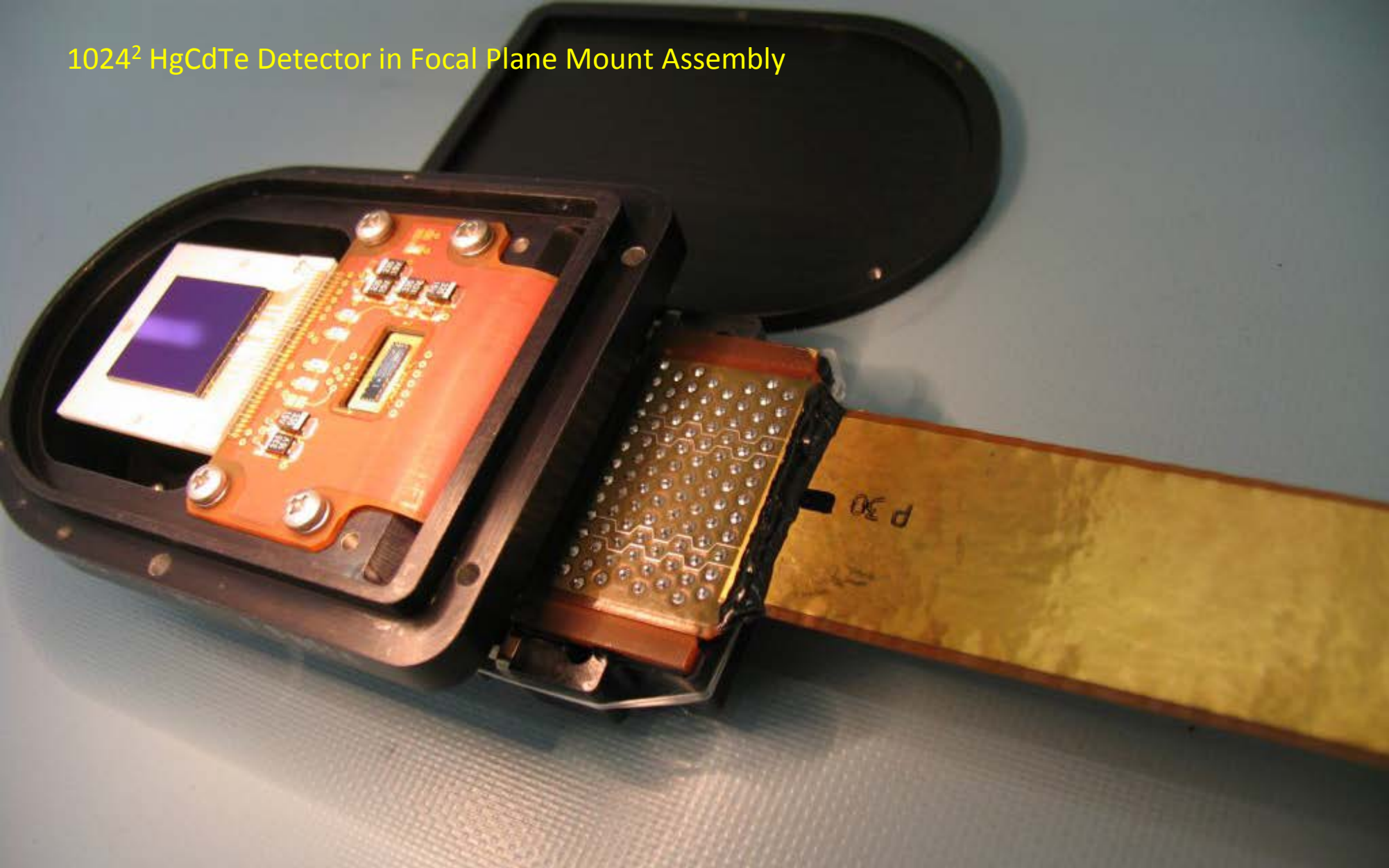




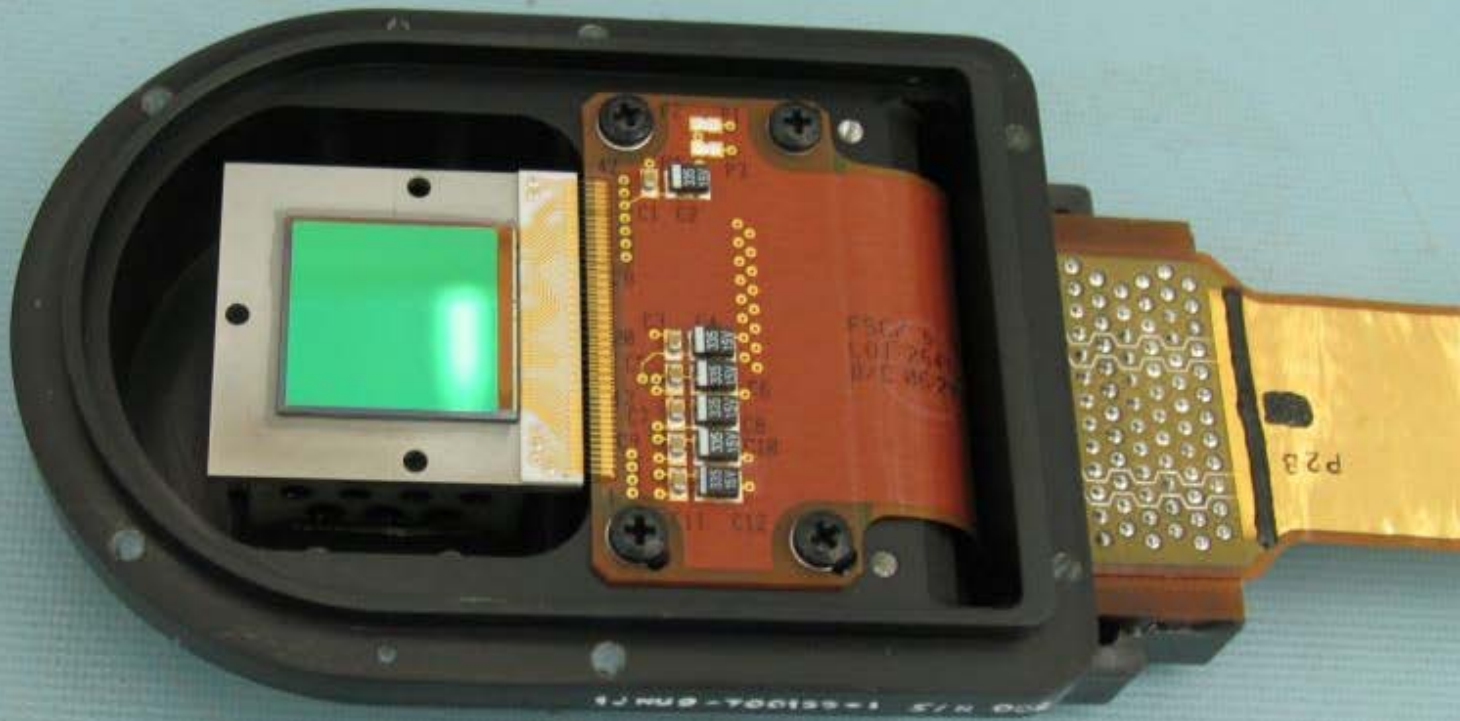


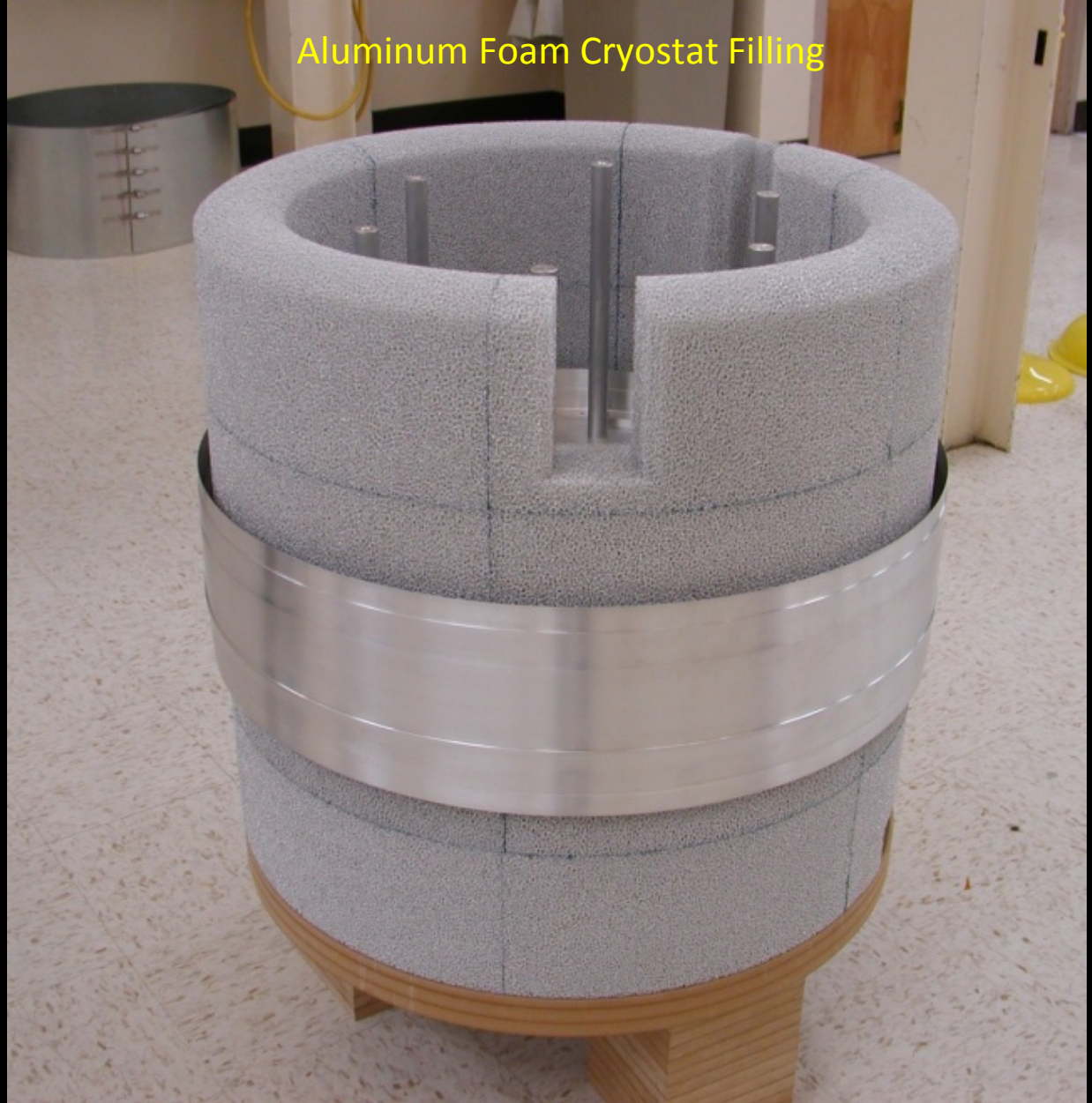

Reimaging Optics


Scan Mirror


$1024^2$ HgCdTe Detector in Focal Plane Mount Assembly

# $1024^2$ Si:As Detector in Focal Plane Mount Assembly



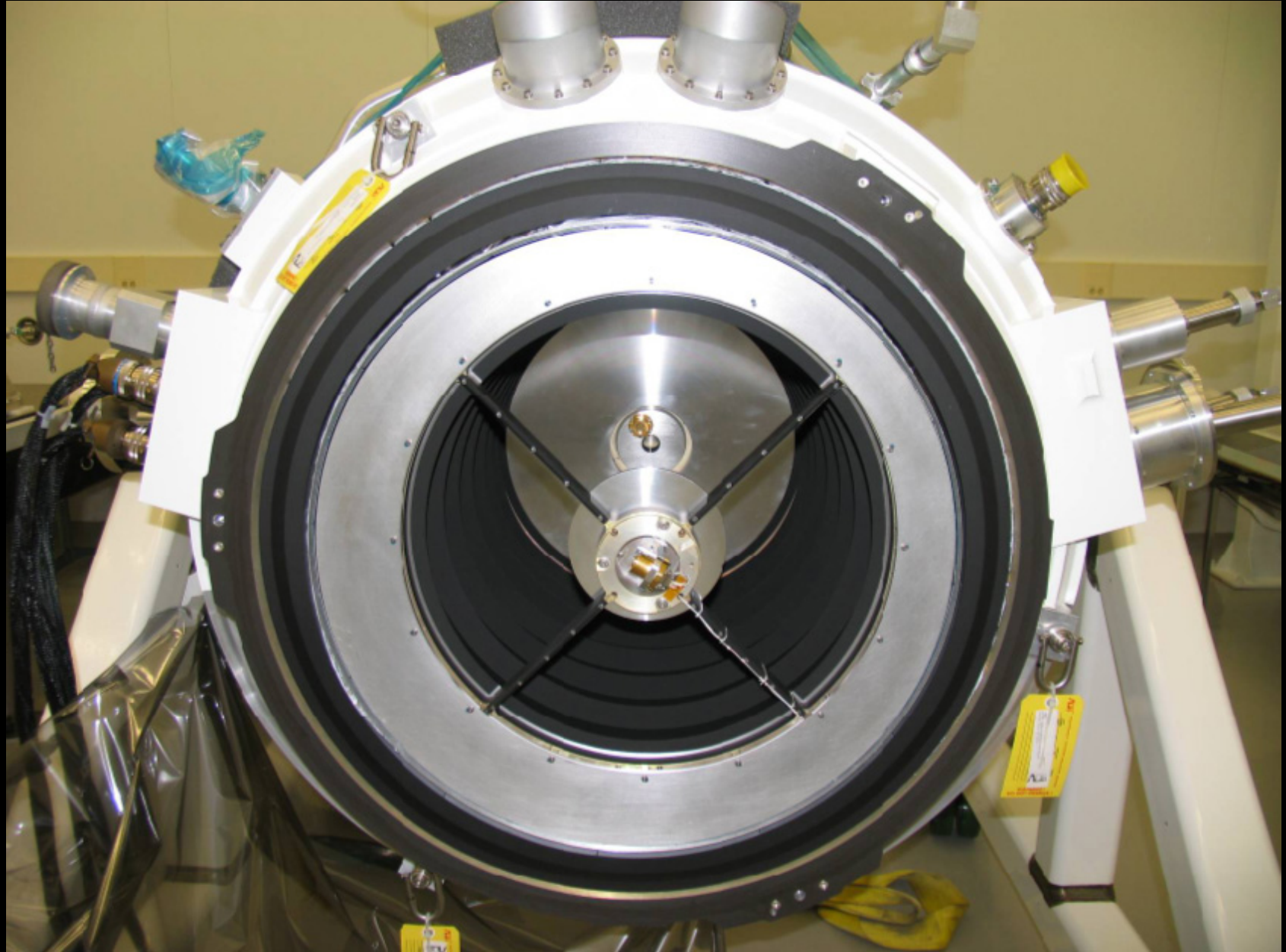

Aluminum Foam Cryostat Filling

WISE Cryostat with Aperture Cover


WISE Cryostat

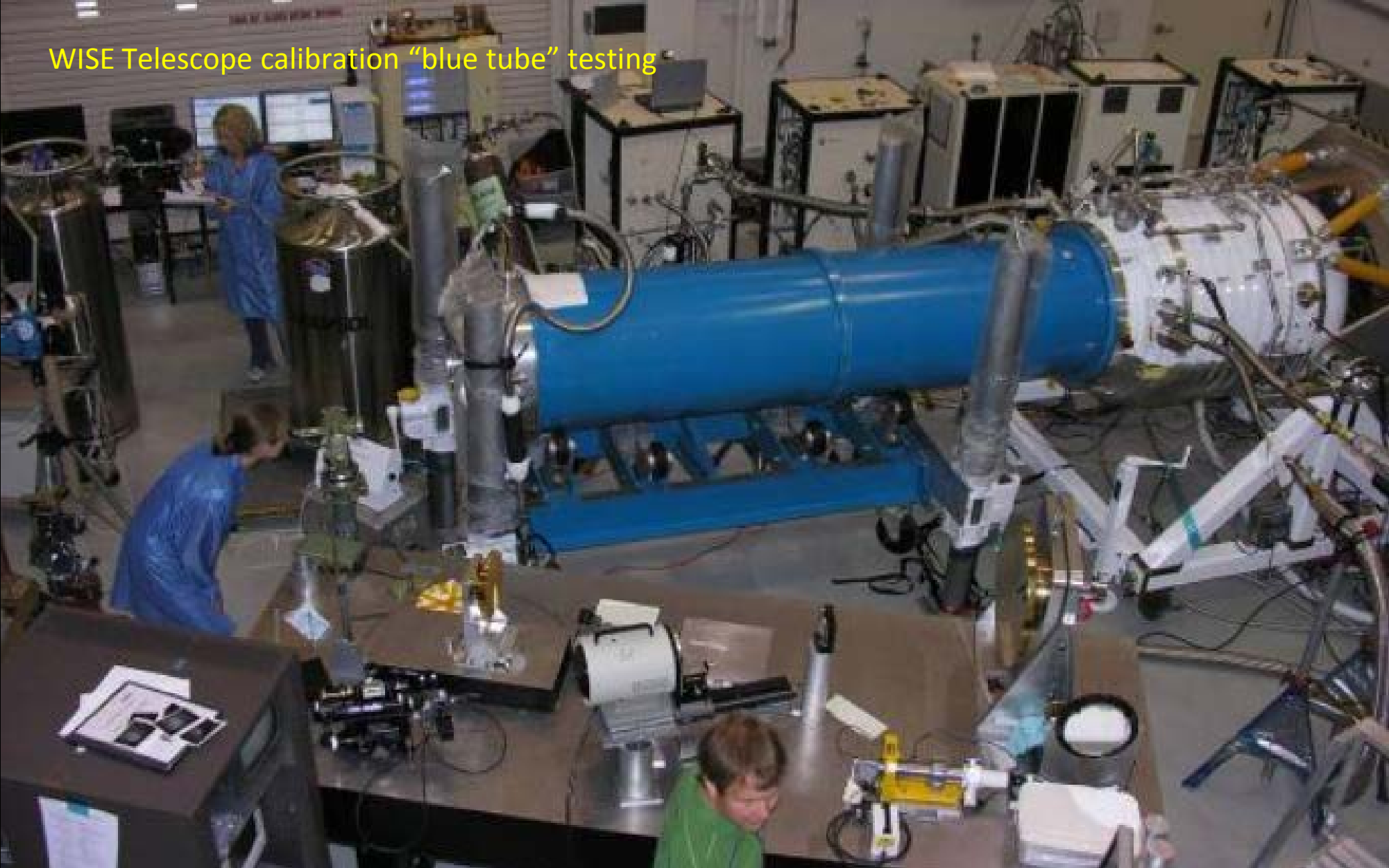

WISE Aperture Shade

WISE Telescope assembled with the Cryostat




WISE Telescope
assembled with the
Cryostat

WISE Telescope assembled with the Cryostat

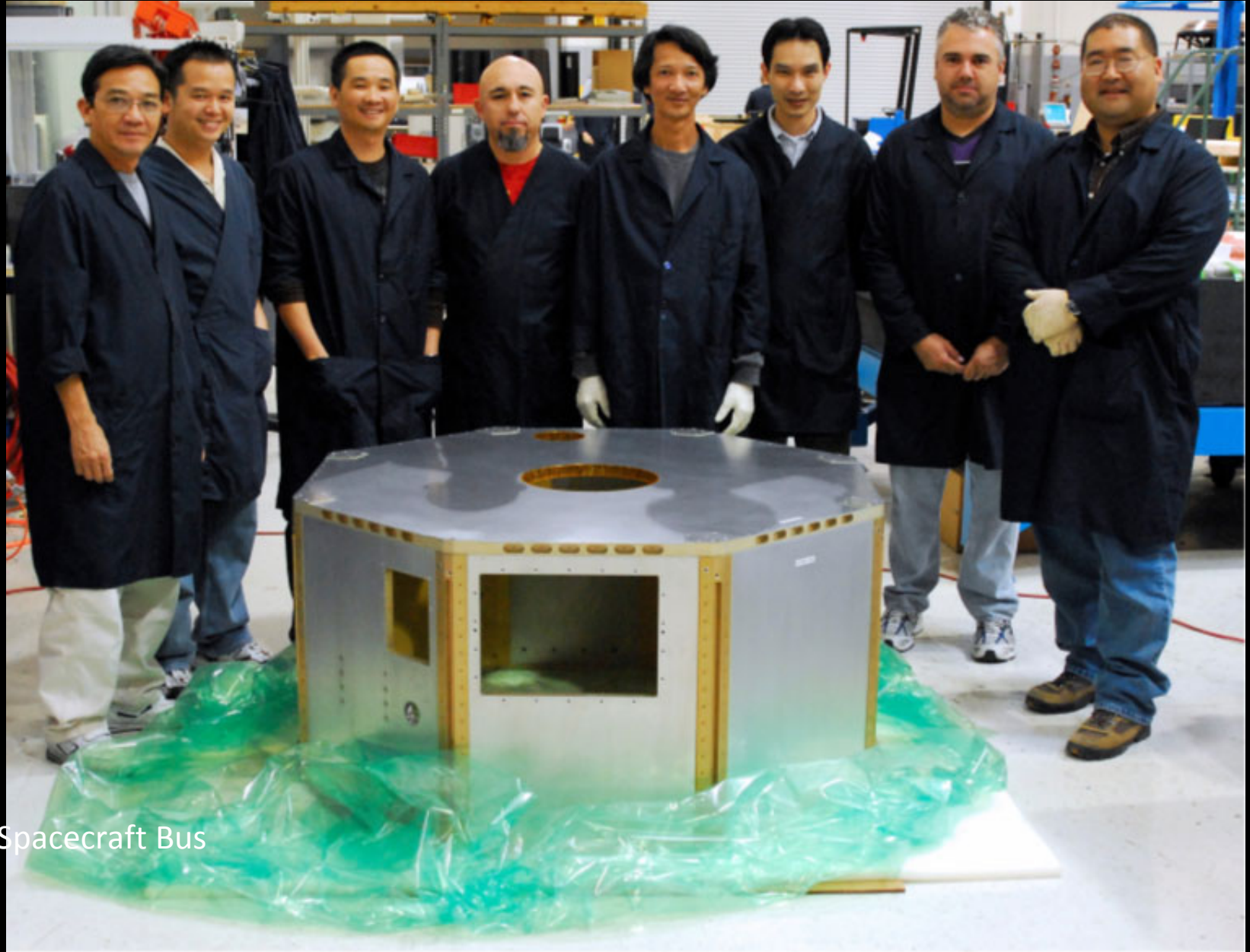

WISE Telescope calibration “blue tube” testing

R2-D2

Or

WISE Telescope assembled with the Cryostat?

Fully Assembled
WISE Payload

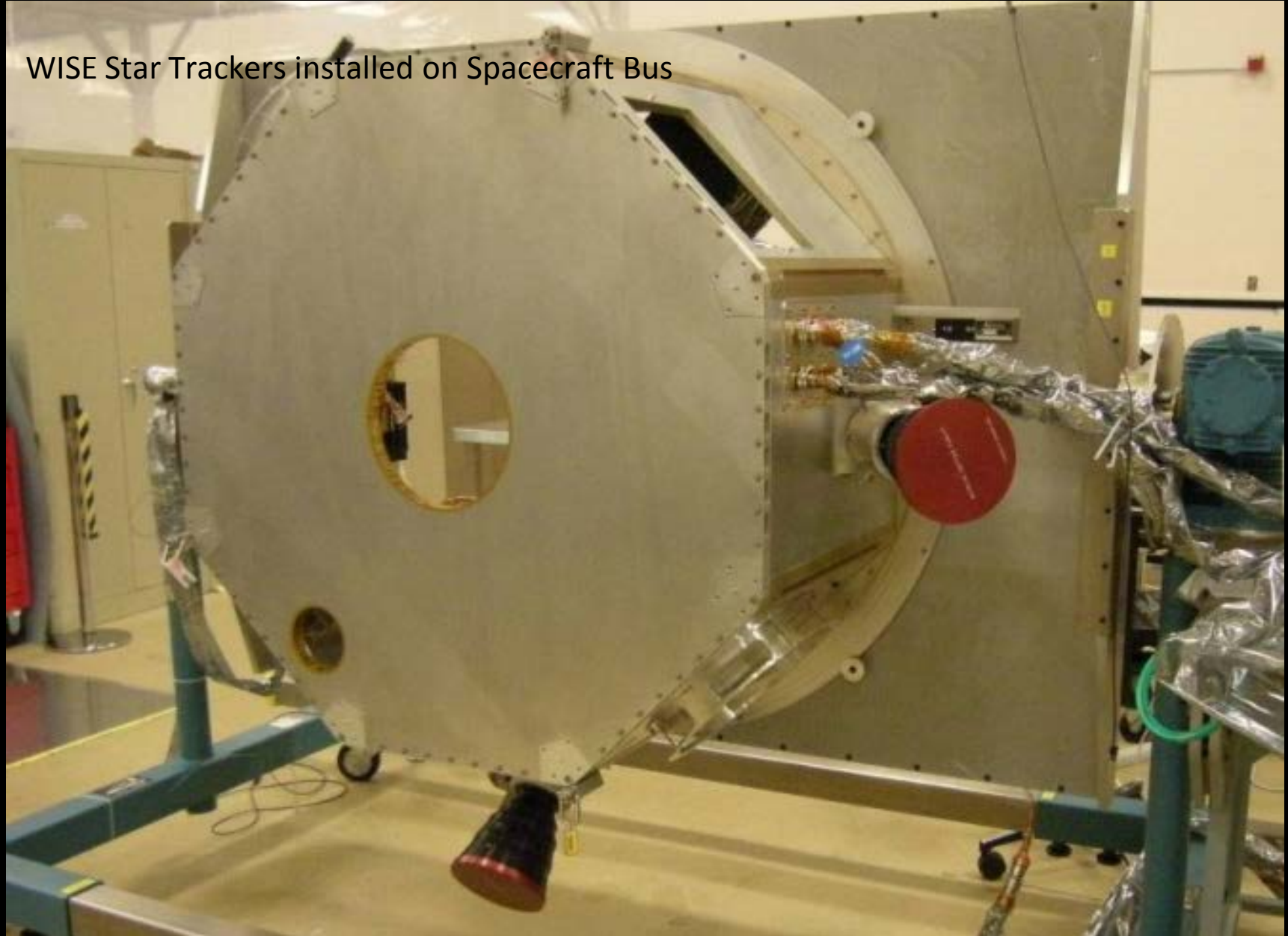


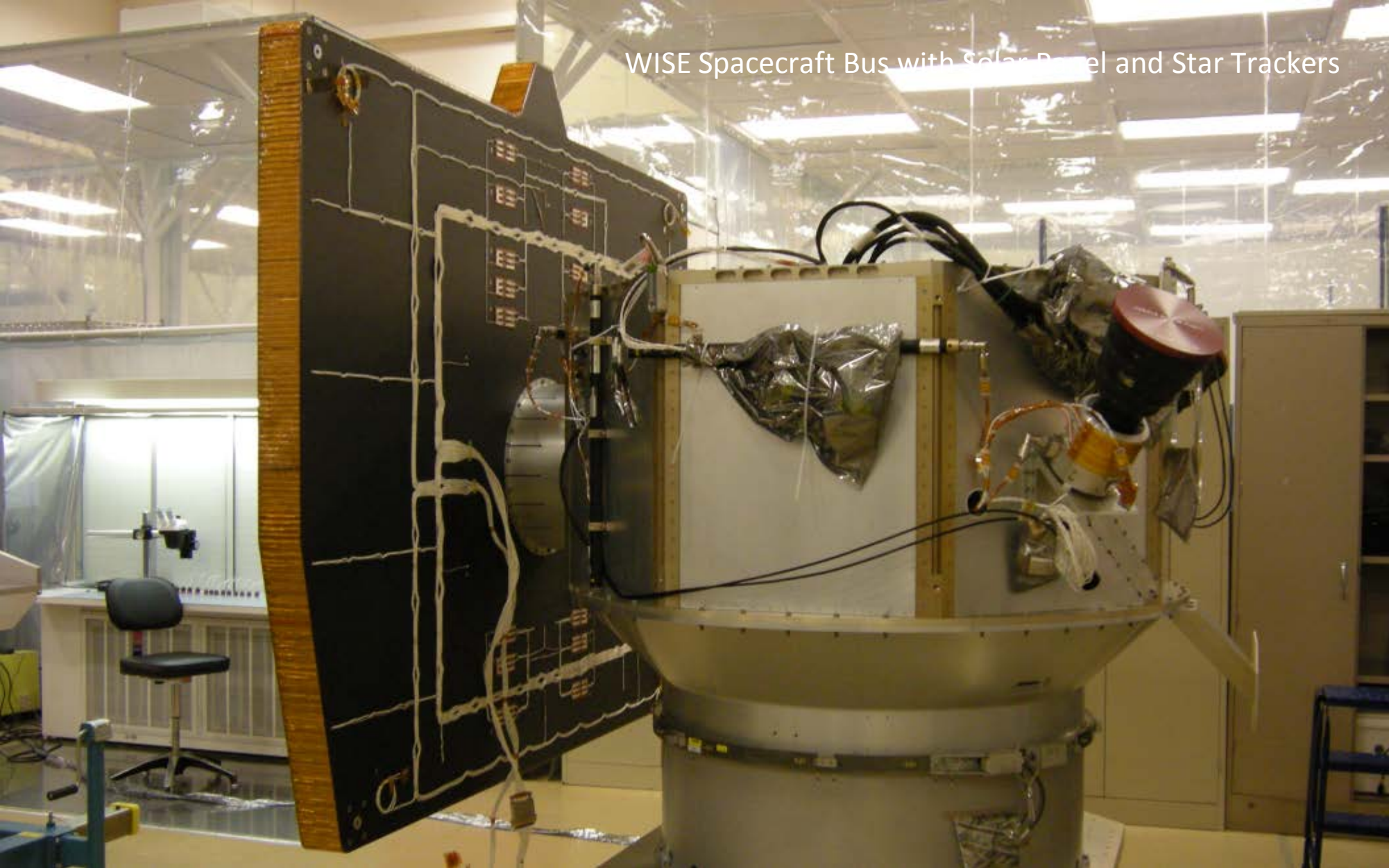
WISE Spacecraft Bus


WISE Spacecraft Bus Interior with electronics


WISE High Gain Antenna

WISE Star Trackers


WISE Star Trackers installed on Spacecraft Bus

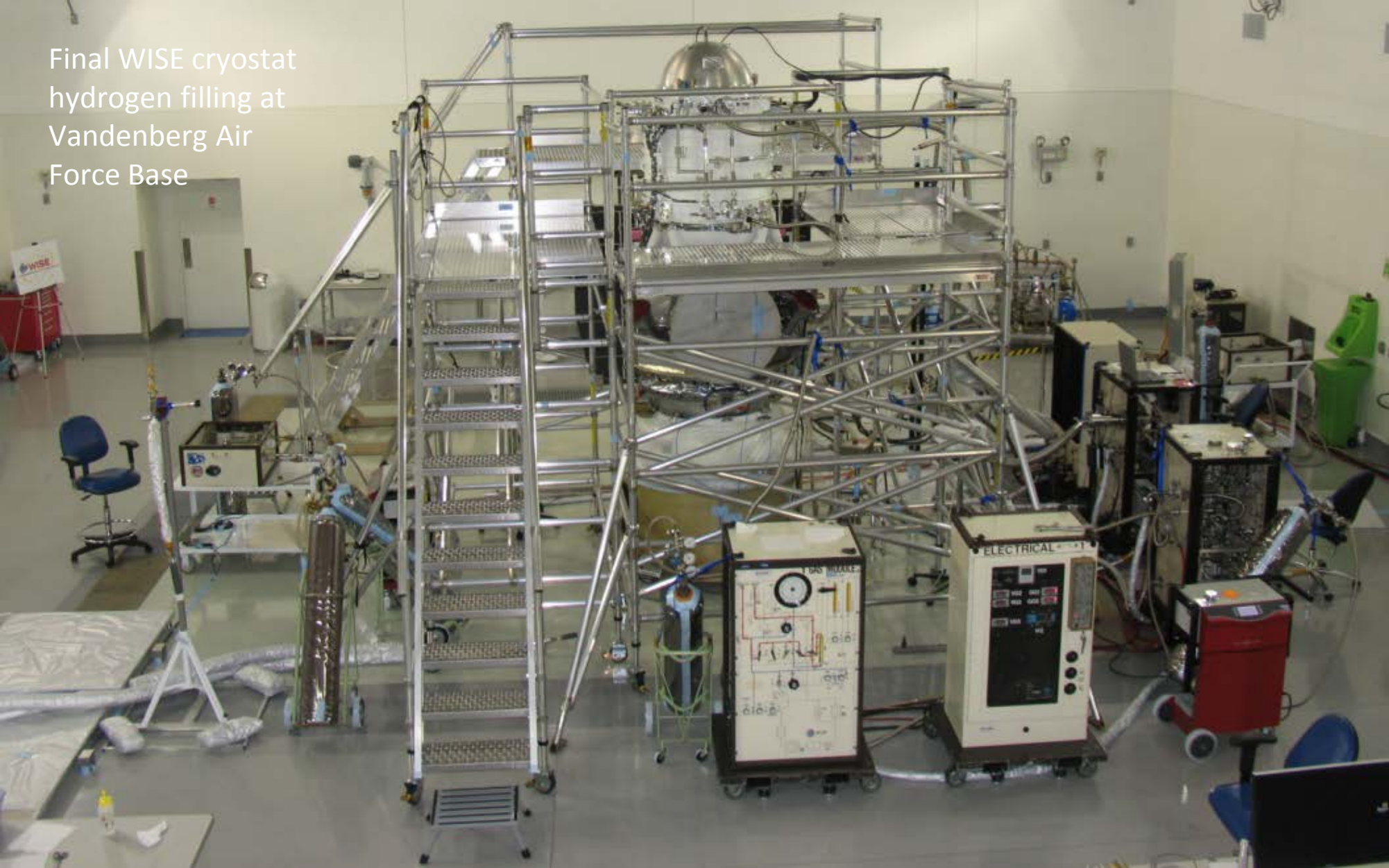

WISE Spacecraft Bus with Solar Panel and Star Trackers

Fully Assembled WISE Flight System

Fully Assembled
WISE Flight System

# Fully Assembled WISE Flight System and WISE Science Team

WISE Flight System undergoing acoustic vibration testing




Final WISE cryostat hydrogen filling at Vandenberg Air Force Base

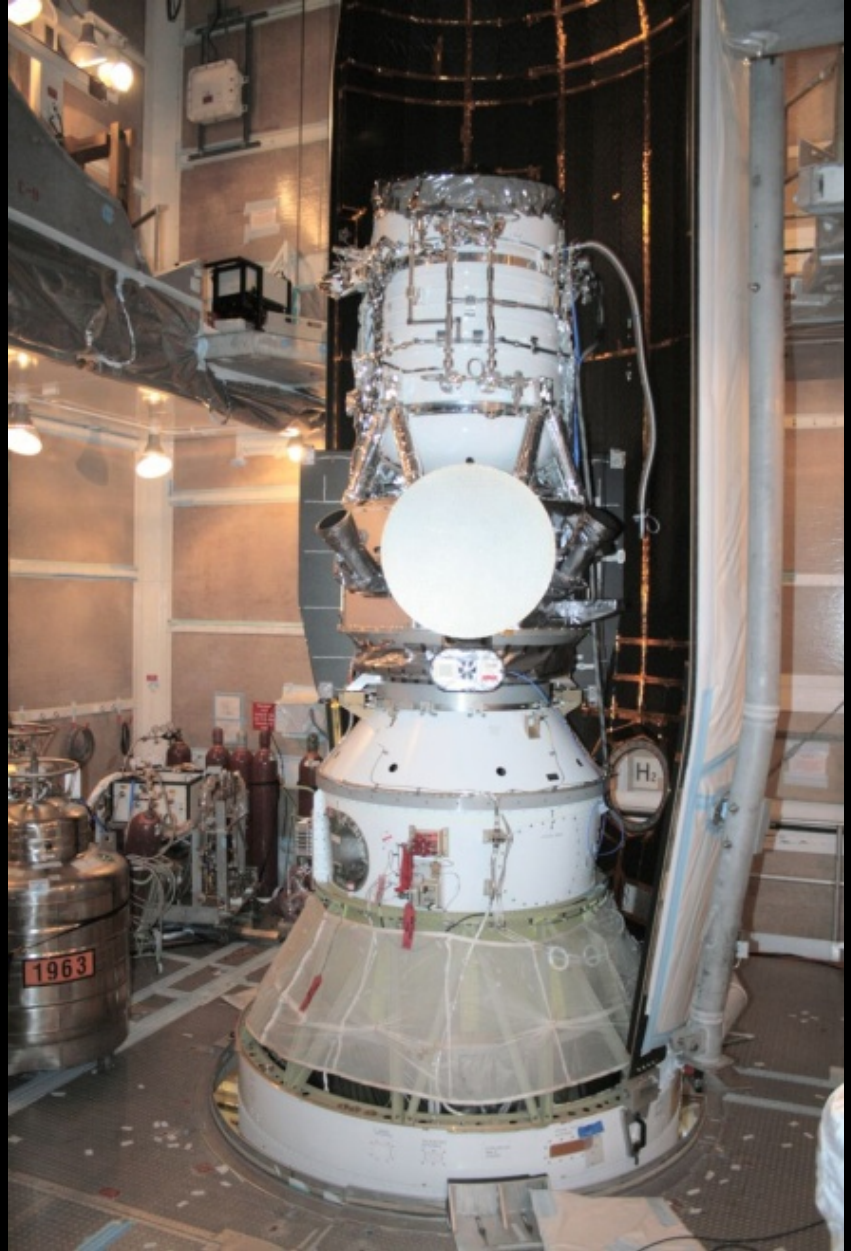
Delta II rocket assembly at Vandenberg Air Force Base


WISE

Transporting WISE
to the launch pad

Lifting WISE into
the Delta II fairing

WISE inside the Delta II Rocket Fairing



WISE inside the Delta II Rocket Fairing

WISE inside the Delta II Rocket Fairing


ULA
United Launch Alliance
NASA
SPACE LAUNCH
COMPLEX
2W


SLC-
STAT
VEH. F
ORD. IN
No Sm
Bey
This

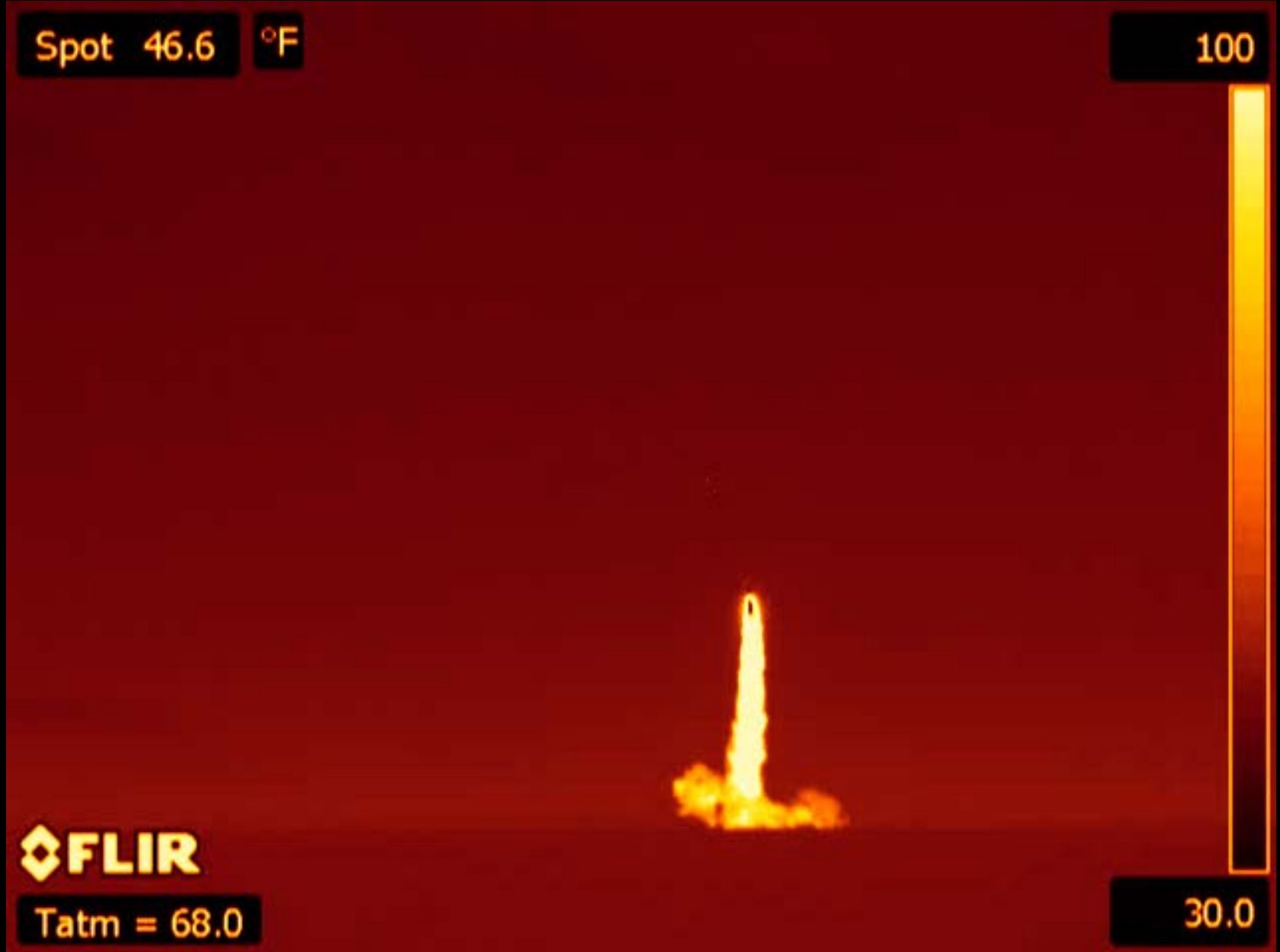
WISE Science Team

Delta II
Shadow in
the Fog

Ready to Launch!


NASA
WISE
ULA


Spot 46.2 °F
100
FLIR
Tatm = 68.0
30.0

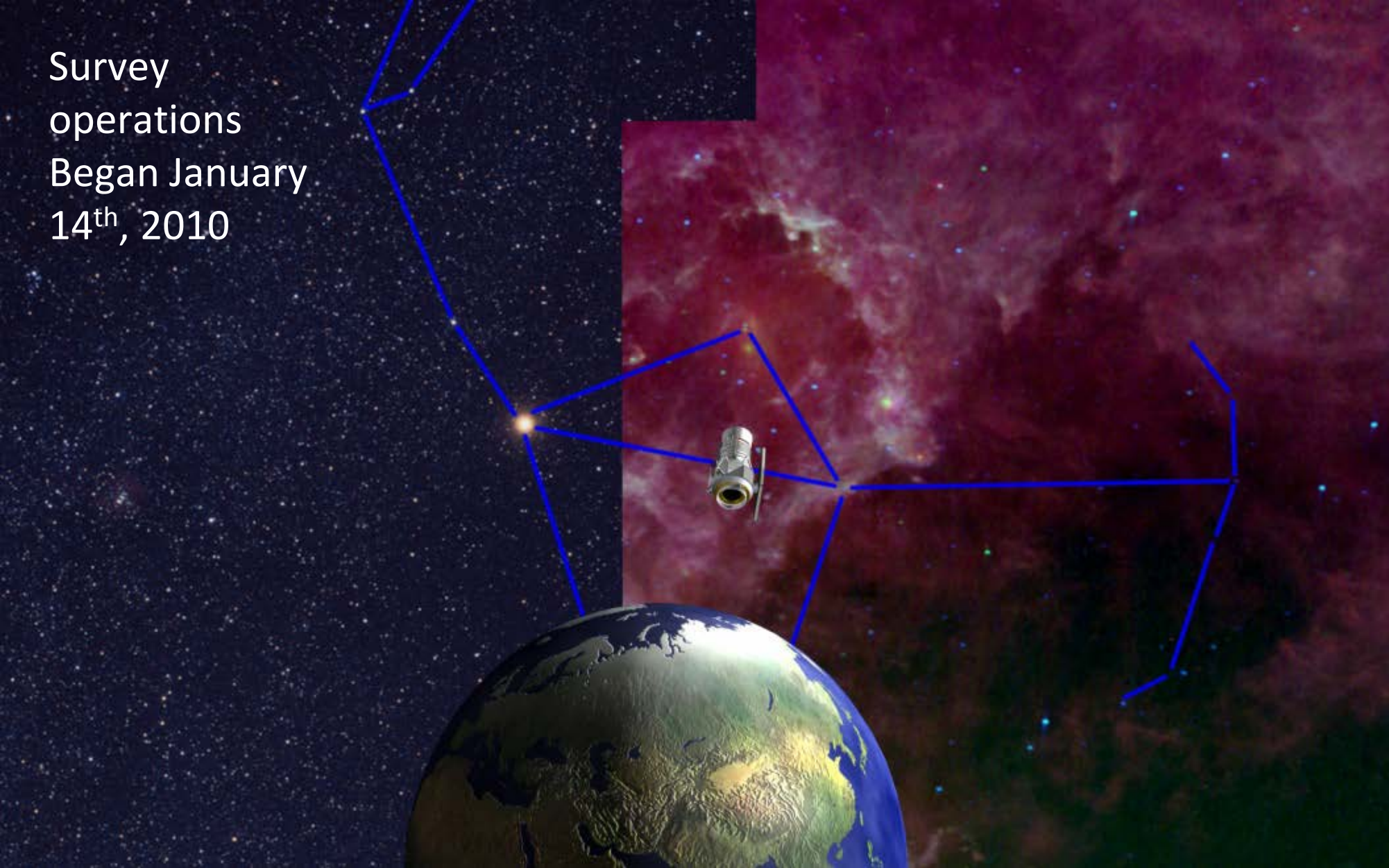

Spot 46.6 °F
100
FLIR
Tatm = 68.0
30.0


Spot 46.8 °F
100
FLIR
Tatm = 68.0
30.0

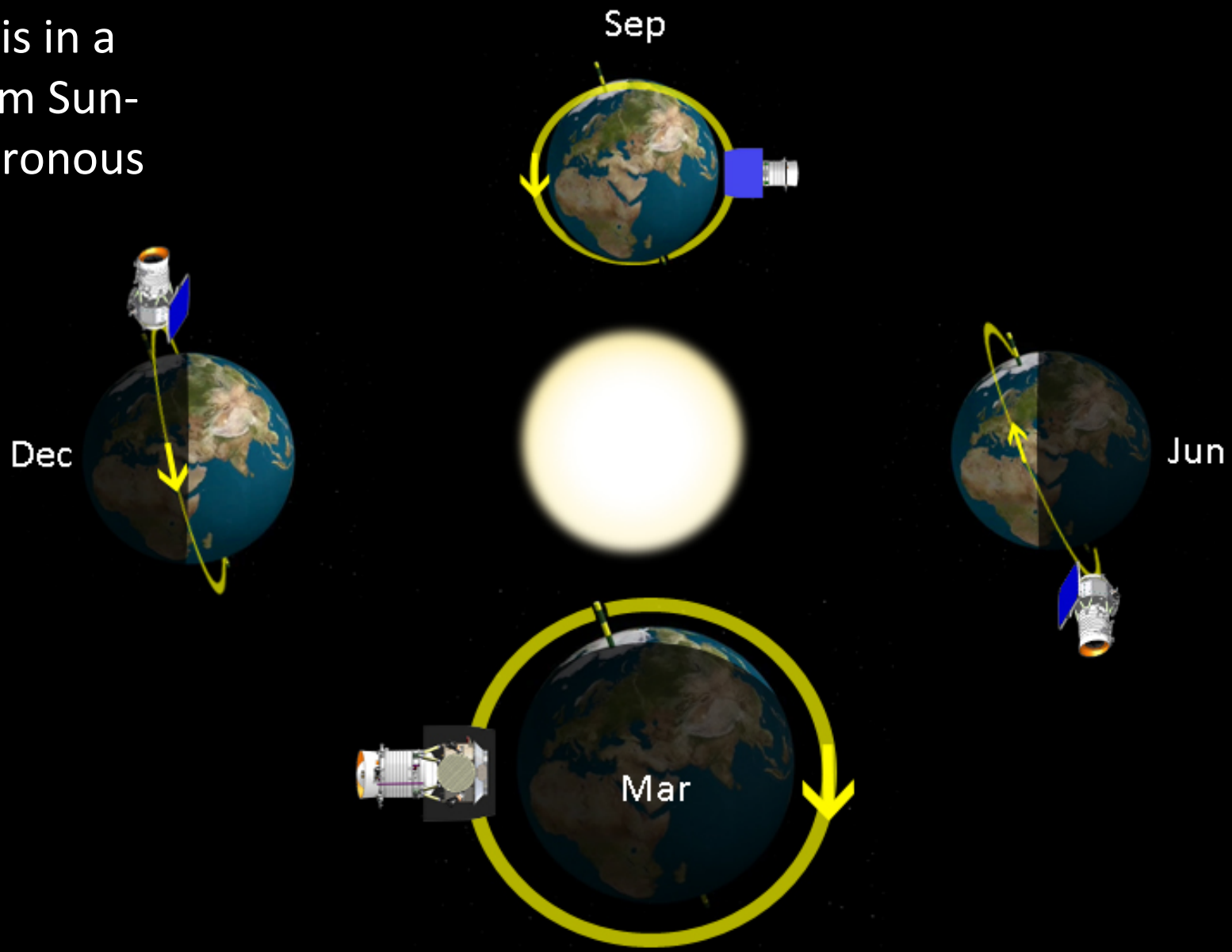

Spot 46.6 °F
100
FLIR
Tatm = 68.0
30.0

WISE Launch Seen from Los Angeles

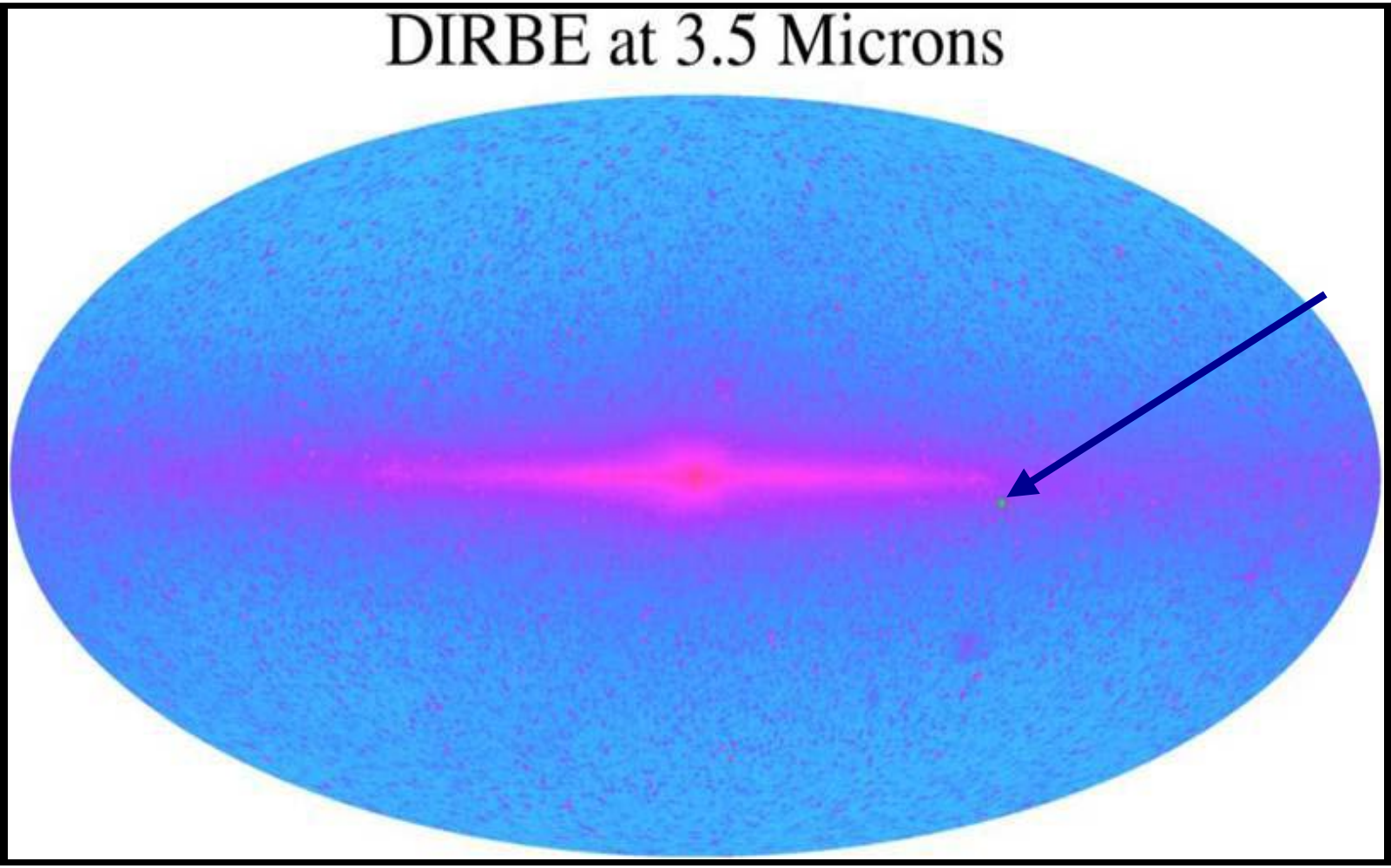

WISE cover ejected
successfully on
Dec. 29th, 2009


Survey
operations
Began January
14th, 2010

WISE is in a 525 km Sun-synchronous orbit



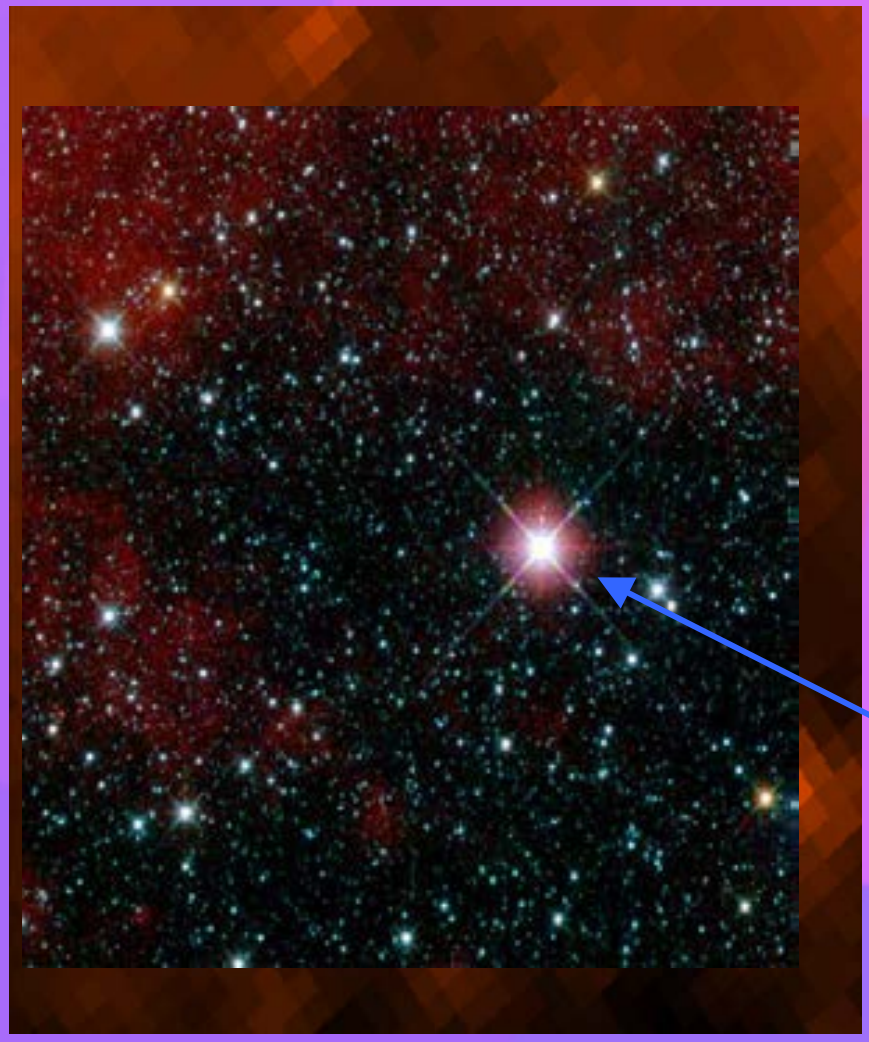
# WISE First Light



# Zoom in on DIRBE

1.15 degree field

Moon to scale



DIRBE 3.5 microns

IRAS 12 microns

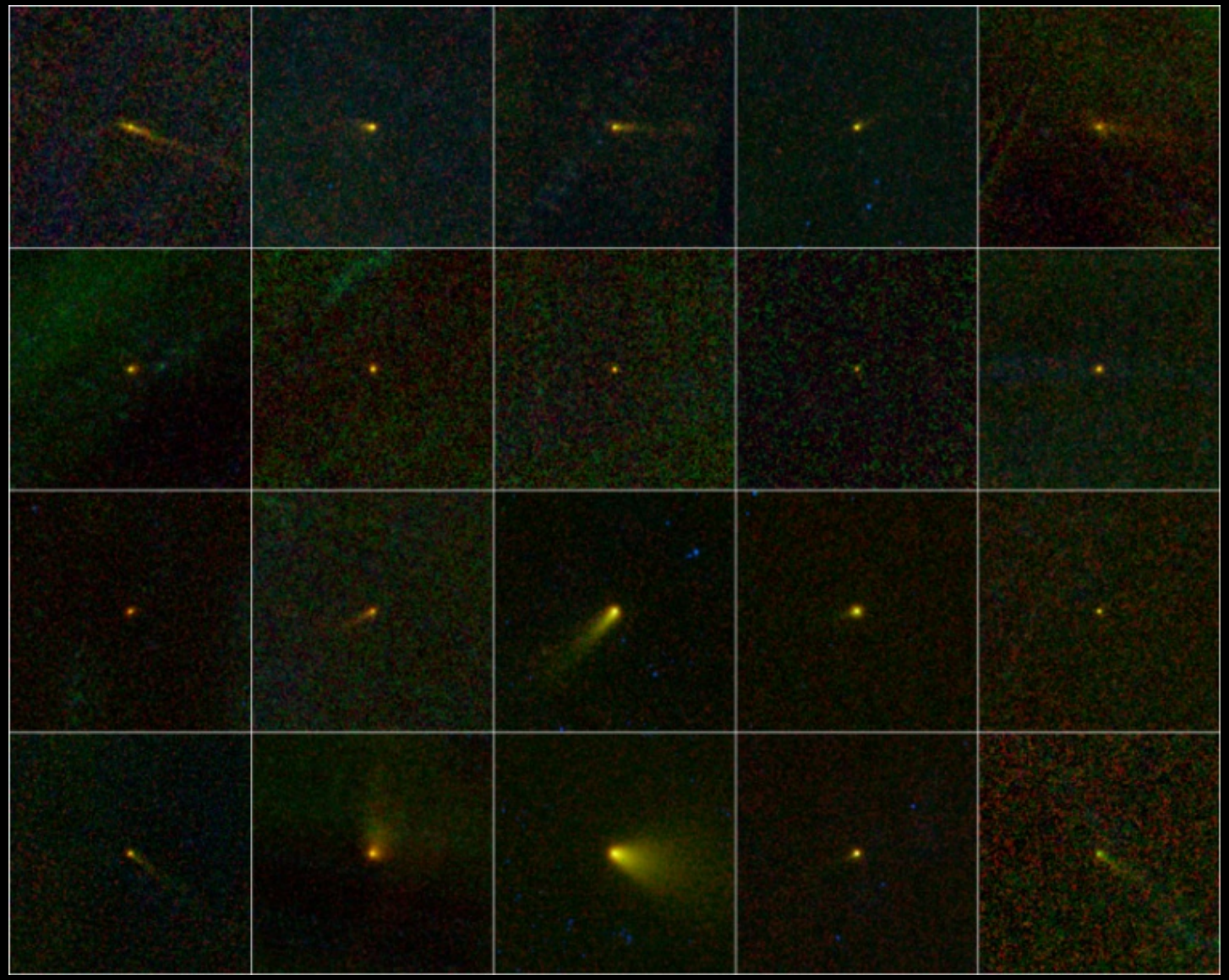
WISE 3.4, 4.6, 12 microns

47’ Field of View

V482 Car

# COMETS

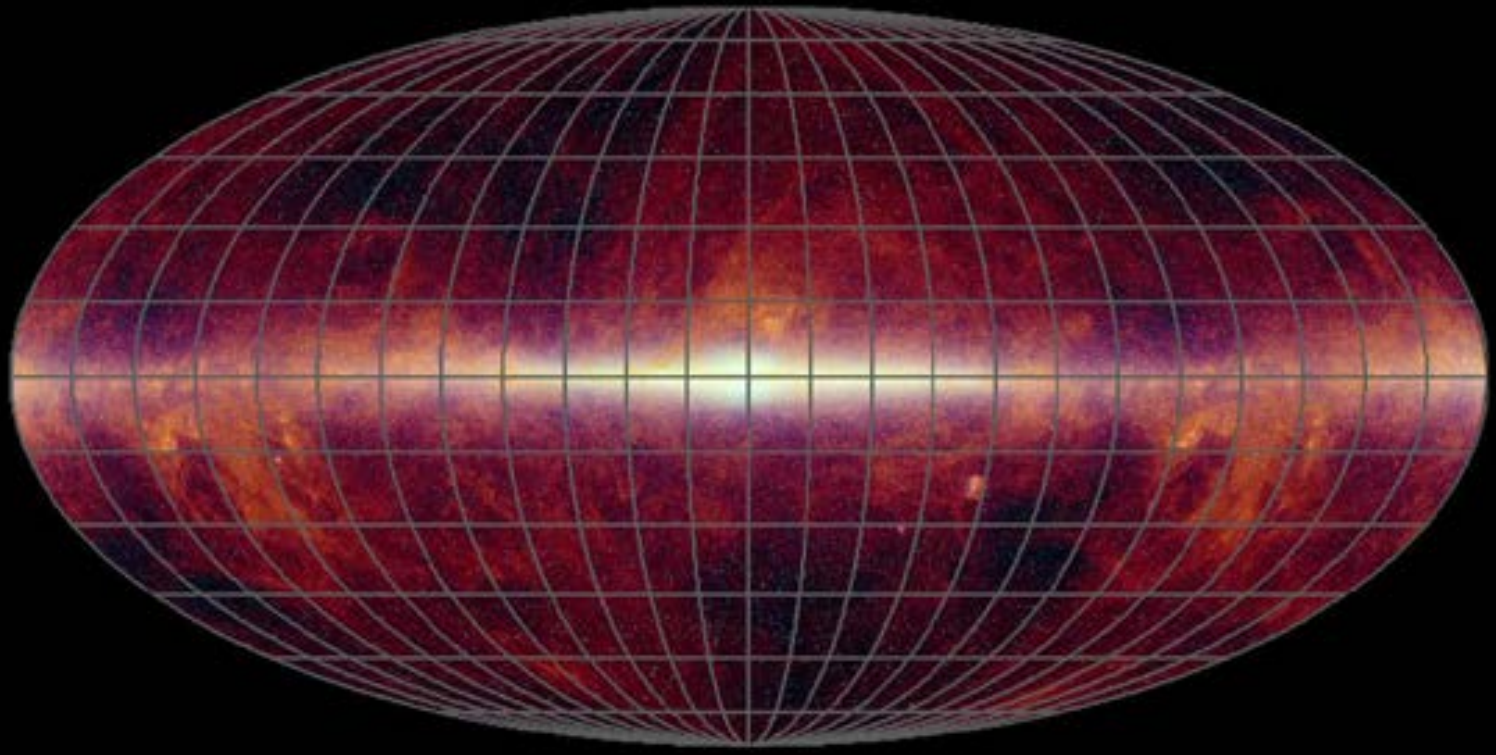
WISE has already discovered **20 new comets!**



WISE has already **discovered 33,000 new asteroids and 134 Near Earth Objects!** (NEO's orbits come within 28 million miles of Earth's orbit)

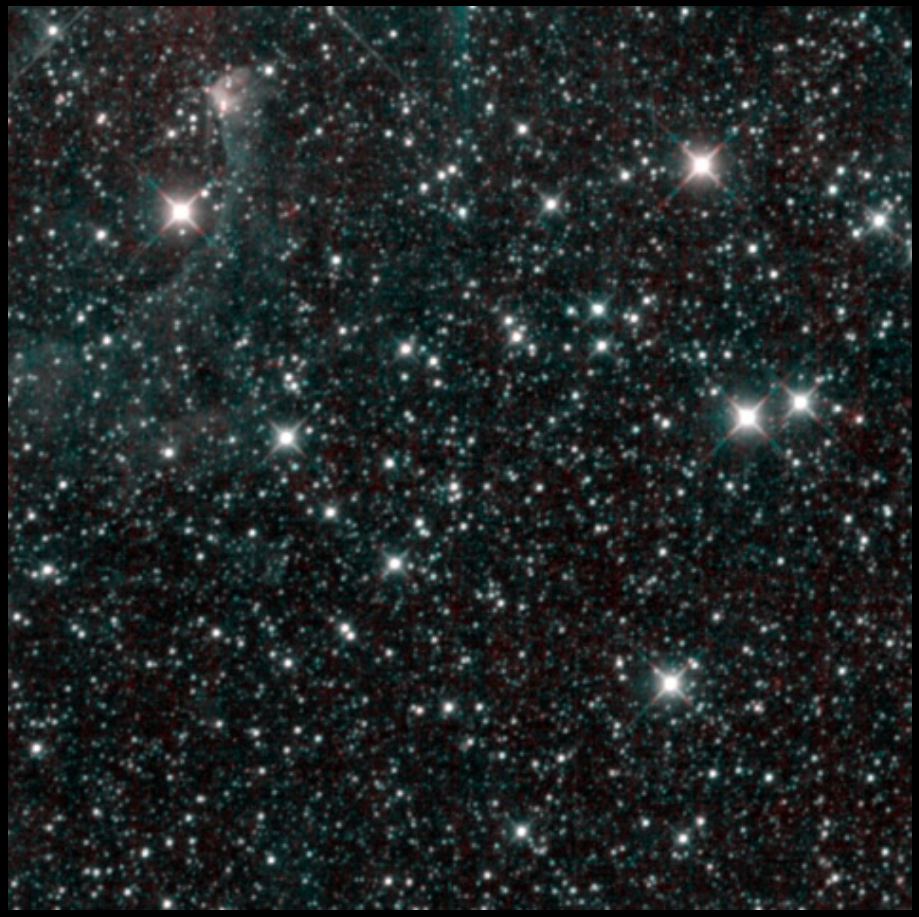
# WISE has discovered new ultra-cool brown dwarfs

# WISE completed its All-Sky Survey on July 17, 2010



It began running out of coolant (as expected)  on August 20, 2010

On the morning of February 1st, 2011, WISE took its last snap shot of the sky…



On February 17, 2011, WISE Principal Investigator Ned Wright sent the last command to WISE to turn off the transmitter.

On April 14, 2011, WISE data from 57% of the sky was released to the public