



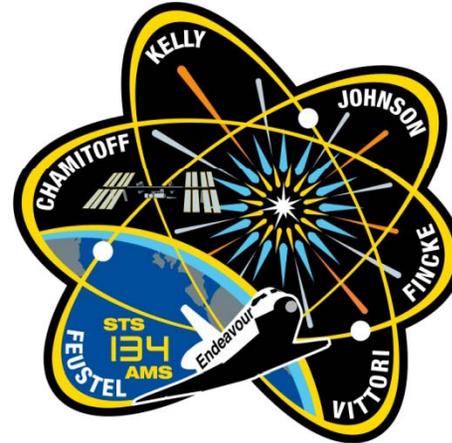
# STS-134 / ULF-6 Mission Overview

02/26/11



Name	Luke Greer
Title	Ground Controller

# STS-134/ULF-6 Endeavour(OV-105)



## Ground Controllers

SSP Lead	Luke Greer
Ascent/Entry	Bill Foster/ Brian Jones
Orbit 1	Luke Greer/ Aaron Frith
Orbit 2	Joe Morris/ Ubaldo Garcia
Orbit 3	Mike Marsh/ Johnnie Brothers

## Crew

<b>Commander</b>	Mark E. Kelly
<b>Pilot</b>	Gregory H. Johnson
<b>MS-1</b>	Gregory Chamitoff
<b>MS-2</b>	Michael Fincke
<b>MS-3</b>	Roberto Vittori
<b>MS-4</b>	Andrew J. Feustel

## Flight Profile

Launch Date:	April 19, 2011
Launch Time:	2348 GMT
Window:	10 Minutes
Orbit:	51.6° 122 nm
Mission Duration:	14+1+2

## Flight Directors

SSP Lead	Gary Horlacher
Ascent	Bryan Lunney
Entry	Anthony Ceccacci
ISS Lead	Derek Hassmann

## Mission Objectives:

- 35th shuttle mission to the ISS
- Delivery of the EXPRESS Logistics Carrier 3 (ELC3)
- Delivery of the Alpha Magnetic Spectrometer (AMS)
- Delivery of spare parts including two S-band communications antennas, a high-pressure gas tank, additional spare parts for Dextre and micrometeoroid debris shields.



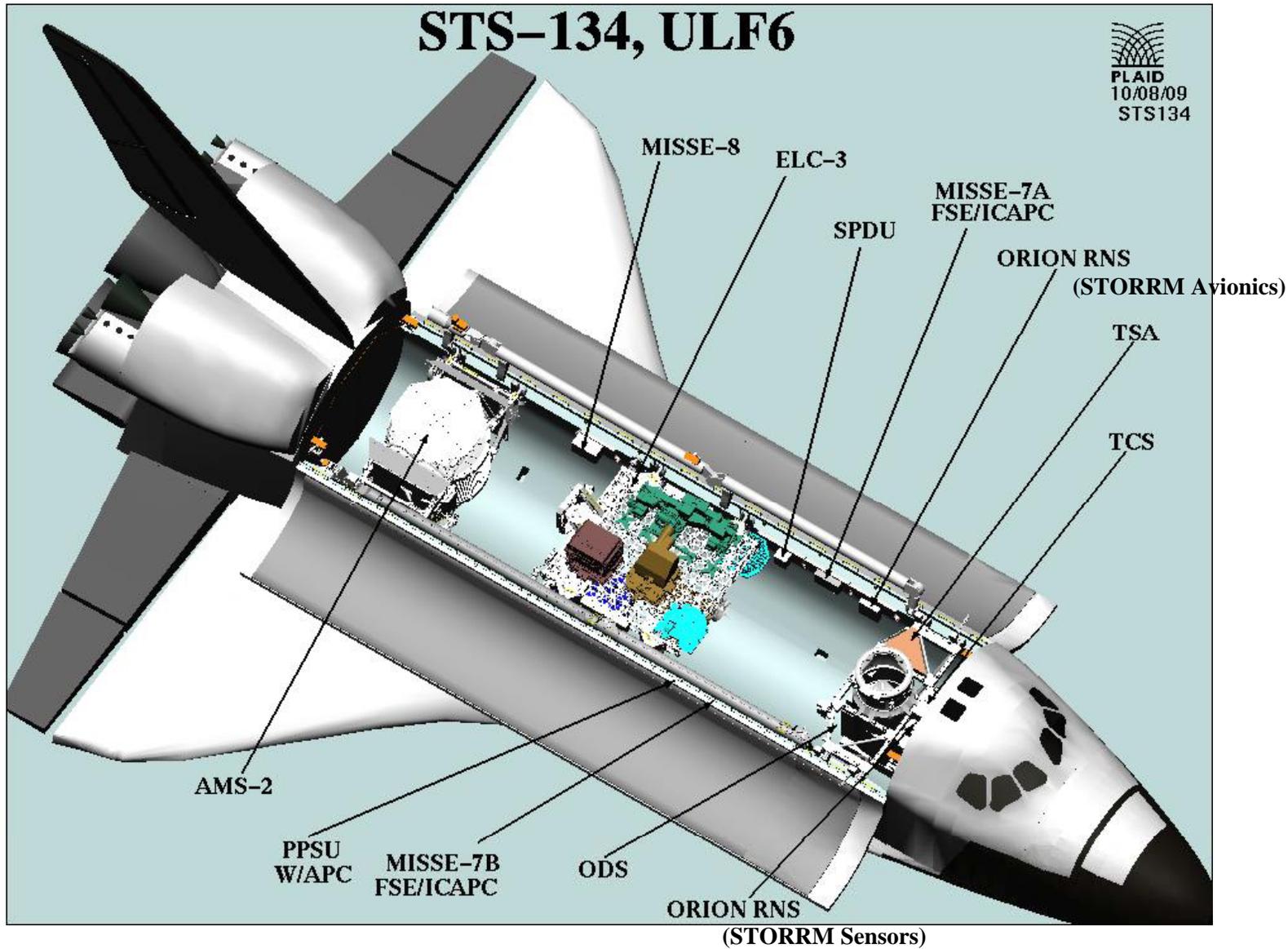
# STS-134 Mission Timeline Overview



- **FD01 Launch**
- **FD02 TPS Survey**
- **FD03 Rndz/Dock**
- **FD04 AMS Handoff, EVA prep and campout**
- **FD05 EVA1 (MISSE, SPDM LEE lube)**
- **FD06 Focused Inspection, water dump, EVA prep**
- **FD07 EVA2 (Clean SARJ)**
- **FD08 Late inspection, EVA prep, Off Duty (4hours)**
- **FD09 EVA3 (Boom transfer)**
- **FD10 Off Duty (4 hours), Crew Conference, Hatch Close**
- **FD11 Undock/Flyaround/Re-Rendezvous**
- **FD12 Cabin Stow/ FCS check out**
- **FD13 Deorbit and Landing**



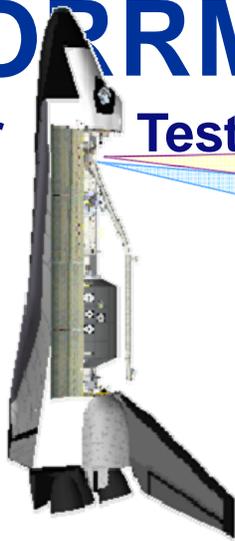
# Payload Bay Overview



# STORRM Hardware

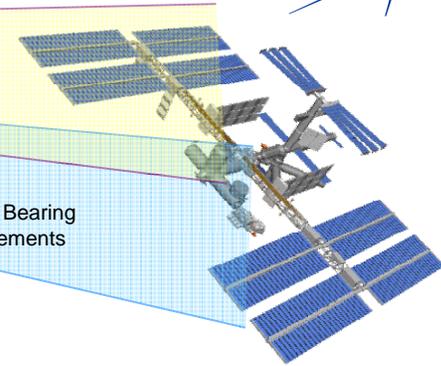
Sensor

## Test for Orion Rel-Nav Risk Mitigation

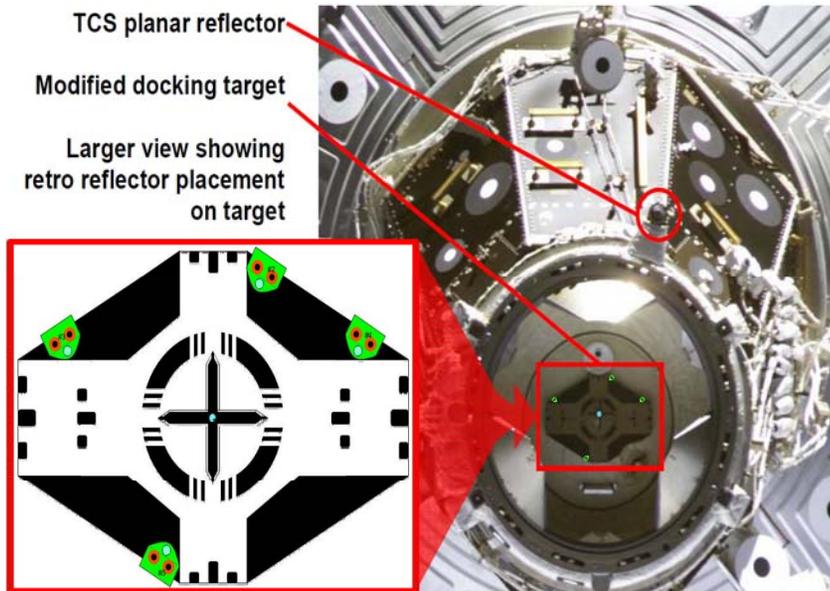
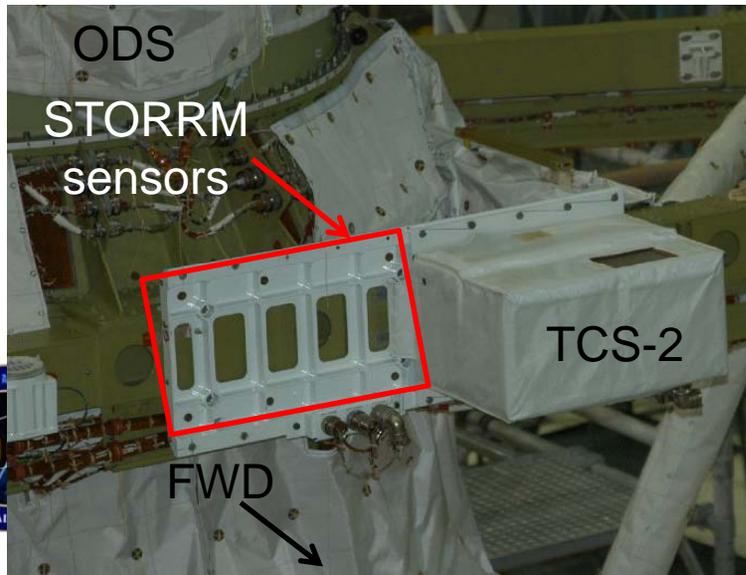


VNS: Range / Range Rate,  
Bearing measurements

Camera: Bearing  
measurements



- Vision Navigation Sensors (VNS) and Docking Camera (DC) in TCS-1 location on ODS truss
- Avionics located in an Adaptive Payload Carrier (APC) in Bay 3 port
  - Interface with ODS-mounted sensors and PGSC



# STORRM Objectives/Operations

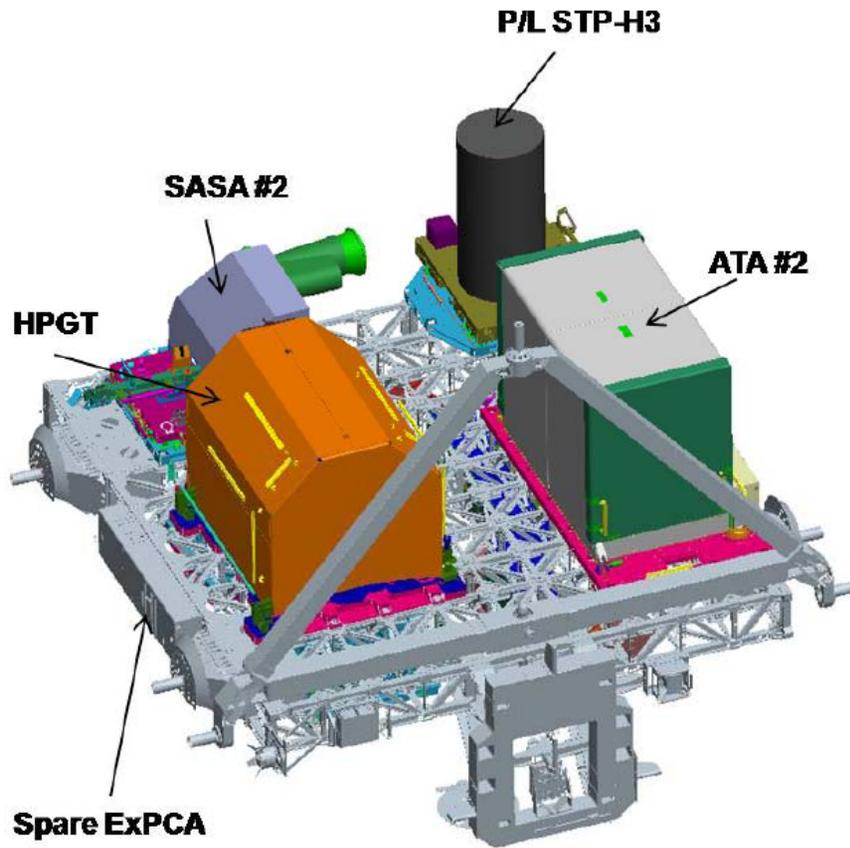


- **STORRM Objective:** Non-interference data collection during FD3 rendezvous/docking and FD11 undocking/flyaround. Post-undocking, re- rendezvous from ~6 km to no closer than 600 ft of ISS. Characterize sensor acquisition and performance on trajectory planned for Orion co-elliptic approach.
- **OBJECTIVE:** Sensor Test for Orion Rel-Nav Risk Mitigation (STORRM). Evaluate the performance of Orion Relative Navigation Sensors during rendezvous operations with ISS
  - Vision Navigation Sensor (VNS) - Laser system w/infrared sensor
  - Centerline docking camera - 5 megapixel camera
- DTO collects sensor data during several flight phases
  - Day of Rendezvous/Flight Day 3: Data collected during nominal rendezvous and approach
  - After undock: Data collected during undock and separation, and during re-rendezvous using Orion like “co-elliptic” rendezvous trajectory

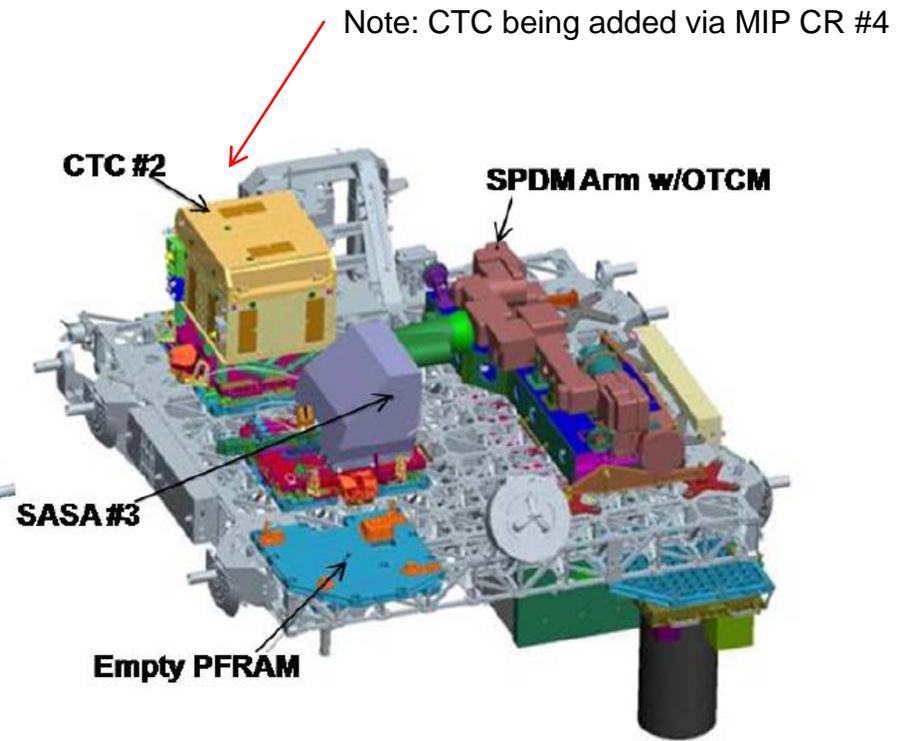




# ELC3 (Express Logistics Carrier 3)



Bottom side



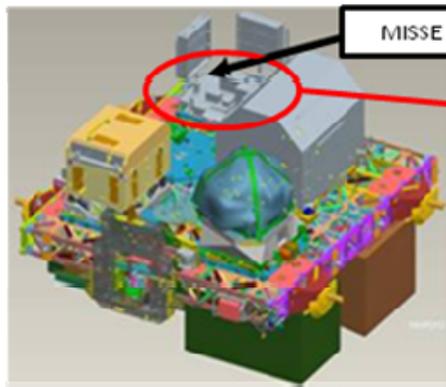
Top side





# MISSE 8 (Materials in Space Station Experiment)

- Launched unpowered in PLB sidewall carrier
  - Needs own carrier as cannot use either of MISSE 7's
- Transferred to ExPCA on ELC2 after MISSEs 7a/7b returned to PLB
- Replaces 7a (zenith); 7b location (ram) remains empty (there is potential for a Mini PEC to be installed in the ram location)
- Return highly desired, but designed so 80% science attained through ISS 1553 link



MISSE 7 ExPCA

