National Aeronautics and Space Administration
STS 133
NASA
STS 133

# STS-133/ULF5 Mission Overview

**09/16/10**

LOCKHEED MARTIN

Name Aaron Frith
Title Lead Ground Controller

# STS-133/ULF-5 *Discovery (OV-103)*

## *Crew*

Commander: **Steven Lindsey**
Pilot : **Eric Boe**
Mission Specialist : **Alvin Drew**
Mission Specialist : **Michael Barratt**
Mission Specialist : **Tim Kopra**
Mission Specialist : **Nicole Stott**

## *Flight Profile*

| | |
|---|---|
| Launch Date: | Nov 1, 2010 |
| Launch Time: | 12:40 GMT |
| Window: | 10 Minutes |
| Orbit: | 51.6º 122 nm |
| Duration: | 11+1+2 days |
| Landing Date: | Nov 12, 2010 |
| Landing Time: | 15:39 GMT |

## *Flight Directors*

| | |
|---|---|
| *SSP Lead* | ***Bryan Lunney*** |
| *Ascent* | ***Richard Jones*** |
| *Entry* | ***Tony Ceccacci*** |
| *ISS Lead* | ***Royce Renfrew*** |

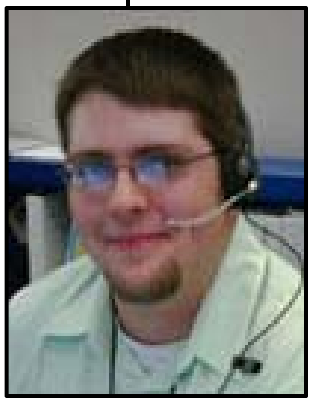
## *Ground Controllers*

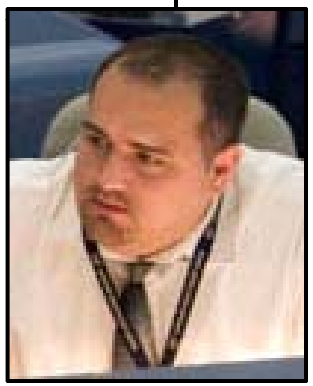
| | |
|---|---|
| *SSP Lead* | ***Aaron Frith*** |
| *Ascent/Entry* | ***Bill Foster/ Joe Morris*** |
| *Orbit 1* | ***Aaron Frith/ Brian Jones*** |
| *Orbit 2* | ***Johnnie Brothers/ Luke Greer*** |
| *Orbit 3* | ***Mike Marsh/ Ubaldo Garcia*** |

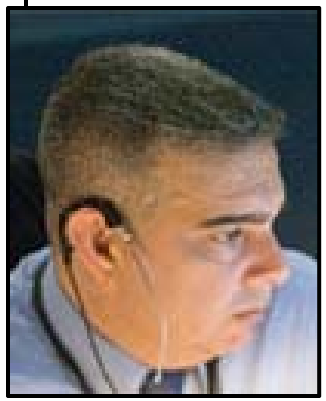
## *Mission Objectives:*

133rd Shuttle Mission
35th Station Flight
39th and Final Flight of *Discovery*
Deliver and install EXPRESS Logistics Carrier 4 (ELC4)
Deliver and install Permanent Multi-Purpose Module (PMM). *PMM is the modified Leonardo MPLM*
Deliver Robonaut2

# *Ground Control Hierarchy**





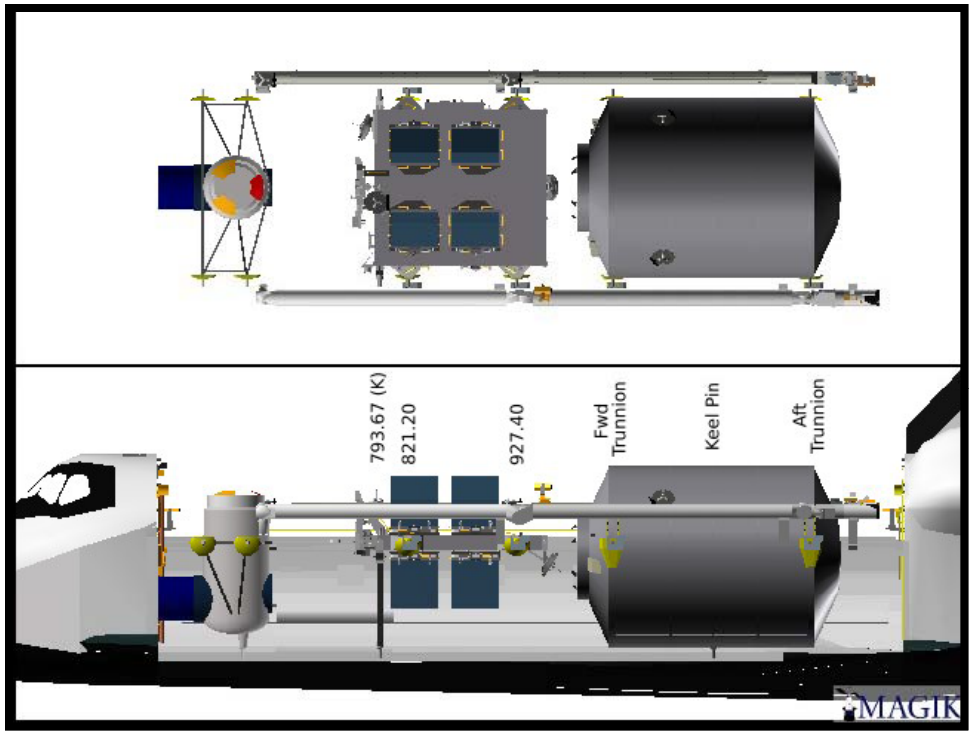


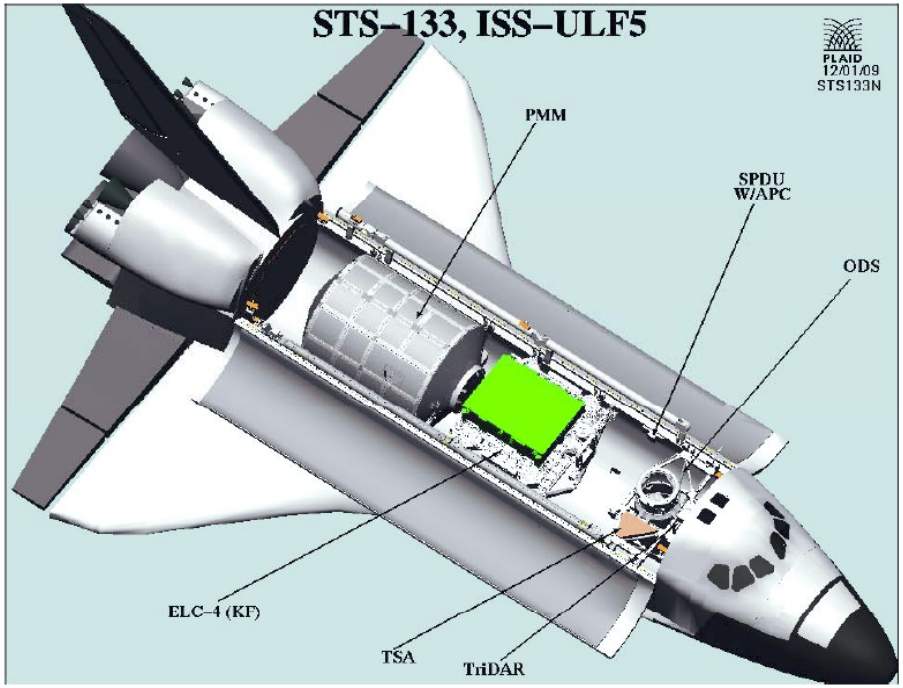
***According to Frith**

# STS-133 Mission Timeline Overview
# 11+1+2

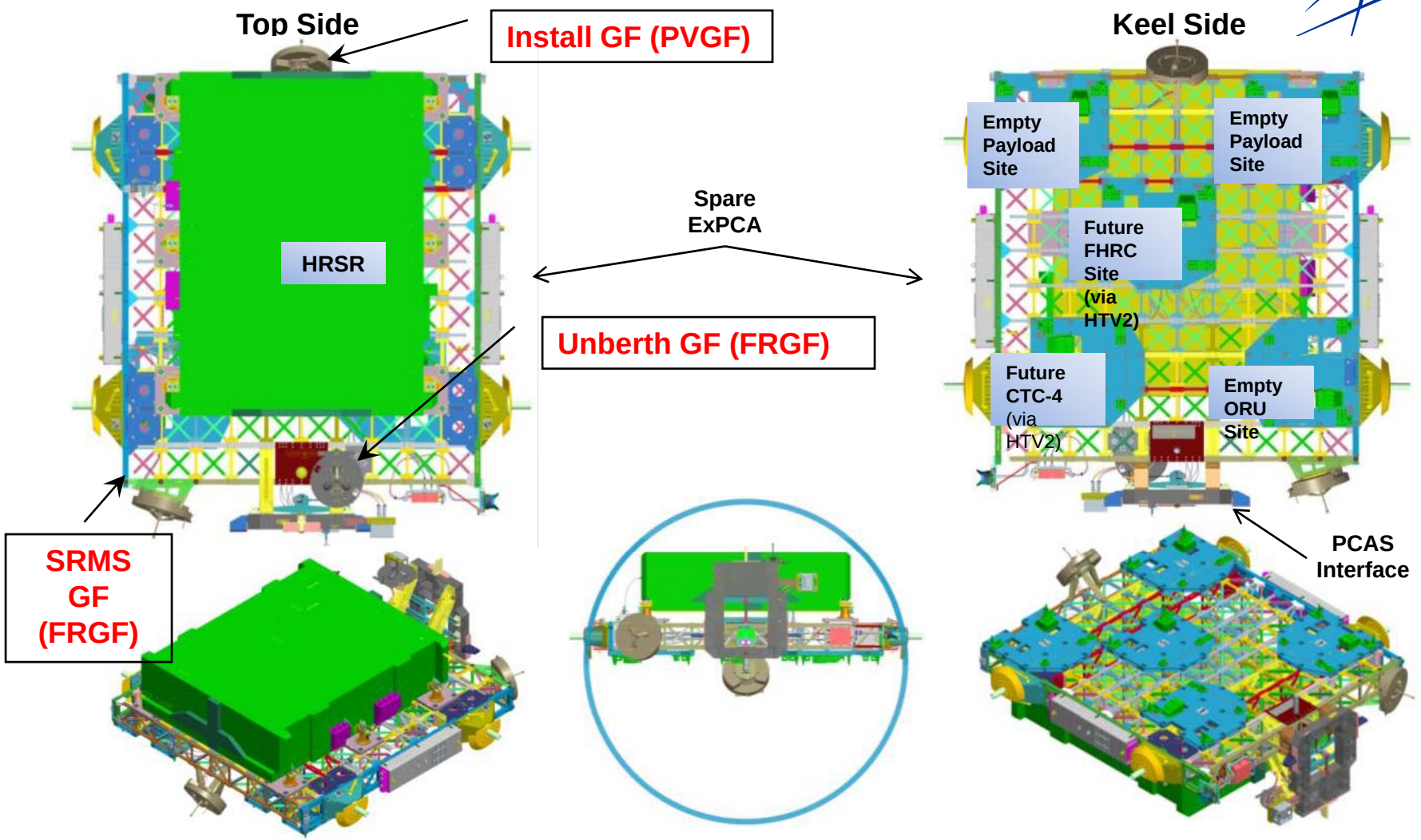
- FD1 – Ascent, RMS C/O, WLE & ET photo downlink
- FD2 – OBSS Unberth, Surveys, RNDZ Tools checkout
- FD3 – RNDZ & Dock, ELC Unberth & H/O
- FD4 – OBSS Unberth H/O, Middeck X-fer
- FD5 – EVA 1: 612 Cable Install, PM Stow
- FD6 – PMM Unberth & Install, Focused Inspection (if req'd)
- FD7 – EVA 2: LWAPA Retrieval& Install
- FD8 – Reboost, Off Duty
- FD9 – Crew Conferences, Off Duty, Hatch Close
- FD10 – Undock, Sep, Fly around, Late Inspection, OBSS Berth
- FD11 – FCS Checkout, RCS Hotfire, Tribute, Cabin stow
- FD12 – Deorbit, Entry

# Payload Bay Overview



# *Express Logistics Carrier (ELC) 4 Overview*




- Heat Rejection System Radiator (HRSR) Flight Support Equipment (FSE)
- ExPRESS Pallet Controller Avionics 4 (ExPCA #4)
- Flex Hose Rotary Coupler (FHRC)[6]
- Cargo Transportation Container-4 (CTC-4)

# Robonaut2

http://robonaut.jsc.nasa.gov/default.asp

*Robonaut2 surpasses previous dexterous humanoid robots in strength, yet it is safe enough to work side-by-side with humans. It is able to lift, not just hold, this 20-pound weight (about four times heavier than what other dexterous robots can handle) both near and away from its body.*

DESTINY

# “We’re go, Flight”