Version: 6-16-09 Aligned with FY10 President's Budget

Agency Mission Planning Manifest (AMPM

Note: Data is approved by Mission Directorate Associate Administrators, and corresponds to FY10 budget

Approved by PA&E: 9-24-09

CY: 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029

Space Operations

STS-119 ISS-15A | STS-130 ISS-20A
STS-125 HST SM4 | STS-131 ISS-19A
STS-127 ISS-2J/A | STS-132 ISS-ULF4
STS-128 ISS-17A | ISS-133 ISS-ULF5
STS-129 ISS-ULF3 | STS-134 ISS-ULF6

TDRS-K, TDRS-L, TDRS-M**, TDRS-N**

Shuttle Mission Executio → Shuttle Transition →

International Space Station Operations* →

Exploration

LRO/LCROSS

Orion IOC

UNDER REVIEW (2016–2020)

UNDER REVIEW (2021–2025)

UNDER REVIEW (2026–2029)

Science

Earth Sciences

GOES-O, NOAA-N', Glory, Aquarius, GOES-P, NPP, LDCM, GPM Core, SMAP, GPM Const, GOES-R, IceSat-II, Venture1, GOES-S, ESDS-3, Venture2, ESDS-4, ESDS-5, Venture3, ESDS-6, Venture4, ESDS-7, ESDS-8, Venture5, ESDS-9

Heliophysics

SDO, SET-1, RBSP, BARREL-1*, GOLD, BARREL-2*, MMS, Solar Orb, Solar Prbe, STP-5, LWS-7, STP-6, LWS-8, STP-7, LWS-9, STP-8

Planetary Science

MSL%, Grail, JUNO, LADEE, MAVEN, PMoO-3, Disc-12%, Mars-16, ExoMars, NewFront3, Mars-18, Lunar Network%, Mars-20, OPF-1%, Disc-13, PMoO-4, Mars-22, Lunar-2%, Mars-24, Disc-14%, PMoO-5, Lunar-3, Mars-26, PMoO-6, Disc-15, NewFront4, Mars-28, Lunar-4%, PMoO-7

Astrophysics

SOFIA*, HST-SM4, Kepler, Planck, Herschel, WISE, 20-SOF, 50-SOF, NuStar, 60-SOF, 80-SOF, Astro-H, 80-SOF, JWST, 80-SOF, 96-SOF, Astro-1, 96-SOF, 96-SOF, AMoO-1, 96-SOF, Astro-2, 96-SOF, AMoO-2, 96-SOF, 96-SOF, Astro-3, 96-SOF, HST-D, 96-SOF, Astro-4, 96-SOF, AMoO-3, 96-SOF, Astro-5

Theme Independent (Incl. Suborbital & Ground Systems)*

ST-7, SMEX-12, SMEX-13, EX-1, EX-2, EX-3, EX-4, EX-5, EX-6, EX-7, EX-8, EX-9, EX-10

10-Air 20-Bal 24-SR | 10-Air 20-Bal 24-SR | 10-Air 20-Bal 24-SR | 10-Air 20-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR | 10-Air 25-Bal 24-SR

Aeronautics Research Milestones

Aviation Safety

- Demonstrate integrated gas path sensing and diagnostics for aircraft engine health management
- Evaluate new methods for recovery of unimpaired aircraft from upset conditions
- Validate residual life prediction methods for selected aircraft materials
- Deliver validated assessment of adaptive flight display concepts/tools/technologies to assure operations in NextGen

Airspace Systems

- Develop simulation analysis of service-provider-based automated separation assurance
- Validate initial super-density concepts
- Re-design models for enhanced Traffic Flow Management performance
- Mature automated separation assurance methods with integrated centeralized and distributed control
- Validate NextGen System Improvements

Fundamental Aeronautics

- AF/NASA/DARPA X-51; IRVE flight test; HIFiRE (Flight 1)
- MEDLI
- Variable speed (~50%) rotor concept
- 33% fuel burn/CO_2 reduction for conventional aircraft
- 42 dB cumulative below Stage 4 noise reduction for SFW aircraft
- 15% efficiency improvements for supersonic aircraft
- 40% fuel burn/CO_2 reduction for unconventional aircraft; Materials for HMMES thermal protection with heating > 1 kW/sq cm
- Technologies to enable low-boom supersonic flight over land
- 50% fuel burn reduction/CO2 for unconventional SFW aircraft
- efficiency improvements for supersonic aircraft; 62 dB cumulative below Stage 4 noise reduction for unconventional SFW aircraft; Technology validation for reusable hypersonic TBCC/RBCC for TSTO
- 75% fuel burn reduction/CO2 for unconventional SFW aircraft

Milestone/Launch dates are approximate beyond 5 yr budget

* Ground-based elements (includes suborbital)
** Option
% Radioisotope Power Systems (RPS) planned
# Mars/Lunar/OPF missions require international participation

LEGEND

Crewed | Uncrewed — Space Operations/Exploration

Earth Science | Heliophysics | Planetary Science | Astrophysics | Theme Independent — Science

▲ Milestone Accomplished

Aviation Safety | Airspace Systems | Fundamental Aeronautics — Aeronautics

Note: Changes made to Earth Sciences manifest by Earth Science Division Resource Analyst on 6-3-09 Sand Chart tool meeting