NASA
Office of Safety and Mission Assurance

Terry Wilcutt, Chief

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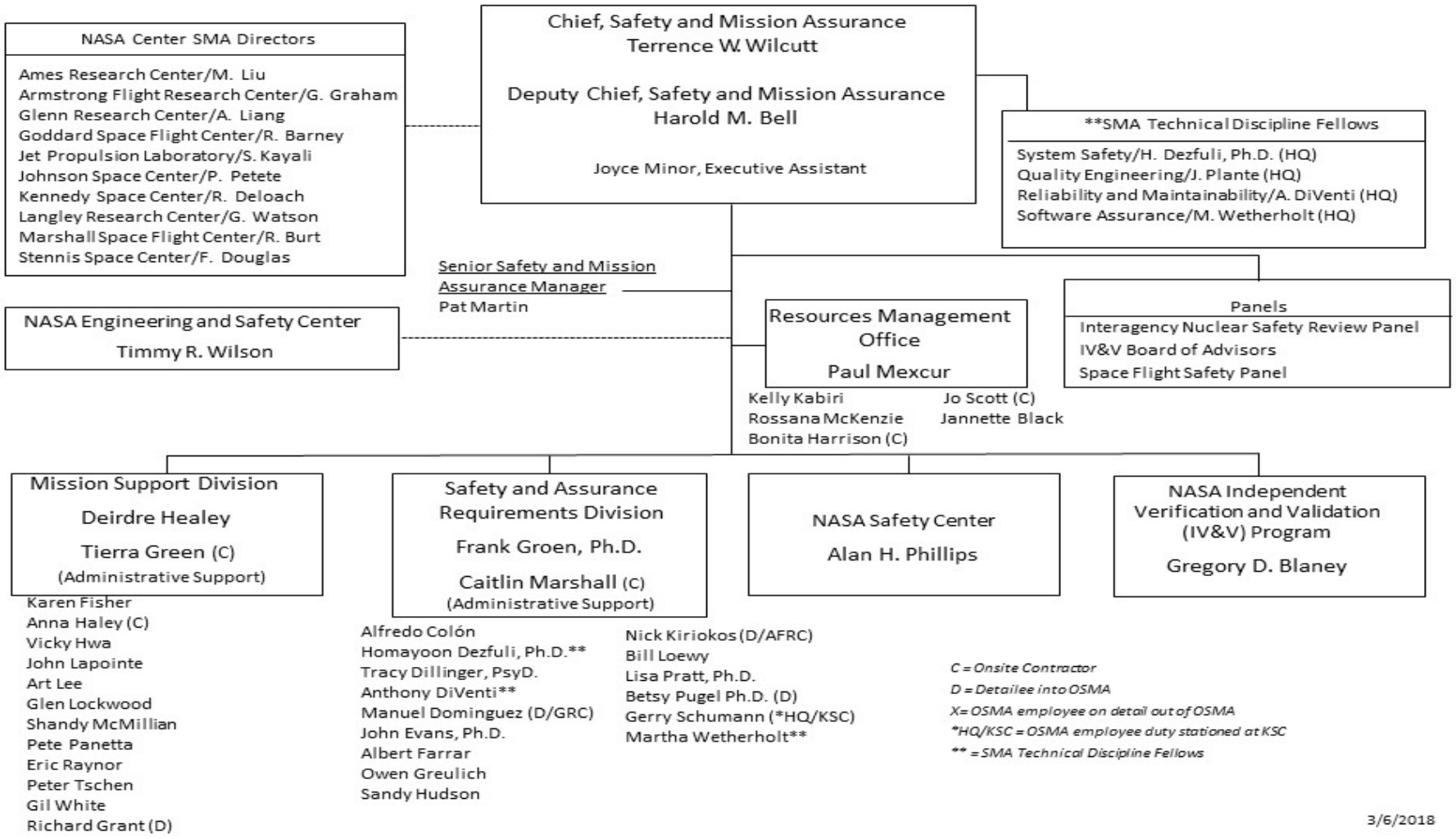
OSMA Overview

- **Mission:** “The Office of Safety and Mission Assurance (OSMA) provides policy direction, functional oversight, and assessment for all Agency safety, reliability, maintainability, and quality engineering and assurance activities and serves as a principal advisory resource for the Administrator and other senior officials on matters pertaining to safety and mission success” [NPD 1000.3]

- The Office of Safety and Mission Assurance represents one of three Technical Authority areas: Engineering, SMA, Health and Medical

OSMA Organization



Divisions and Functions

MSD (HQ)

- Center and Mission Directorate liaisons
- Safety and Mission Success Reviews
- NASA Safety Reporting System
- Annual Operating Agreement reviews

SARD (HQ)

- SMA discipline and program leadership
  - Mission Assurance and Institutional Safety
- SMA standards and directives management
- Research, development and test programs
- Program/project technical reviews
- Agency-level discipline working groups
- Safety culture assessments

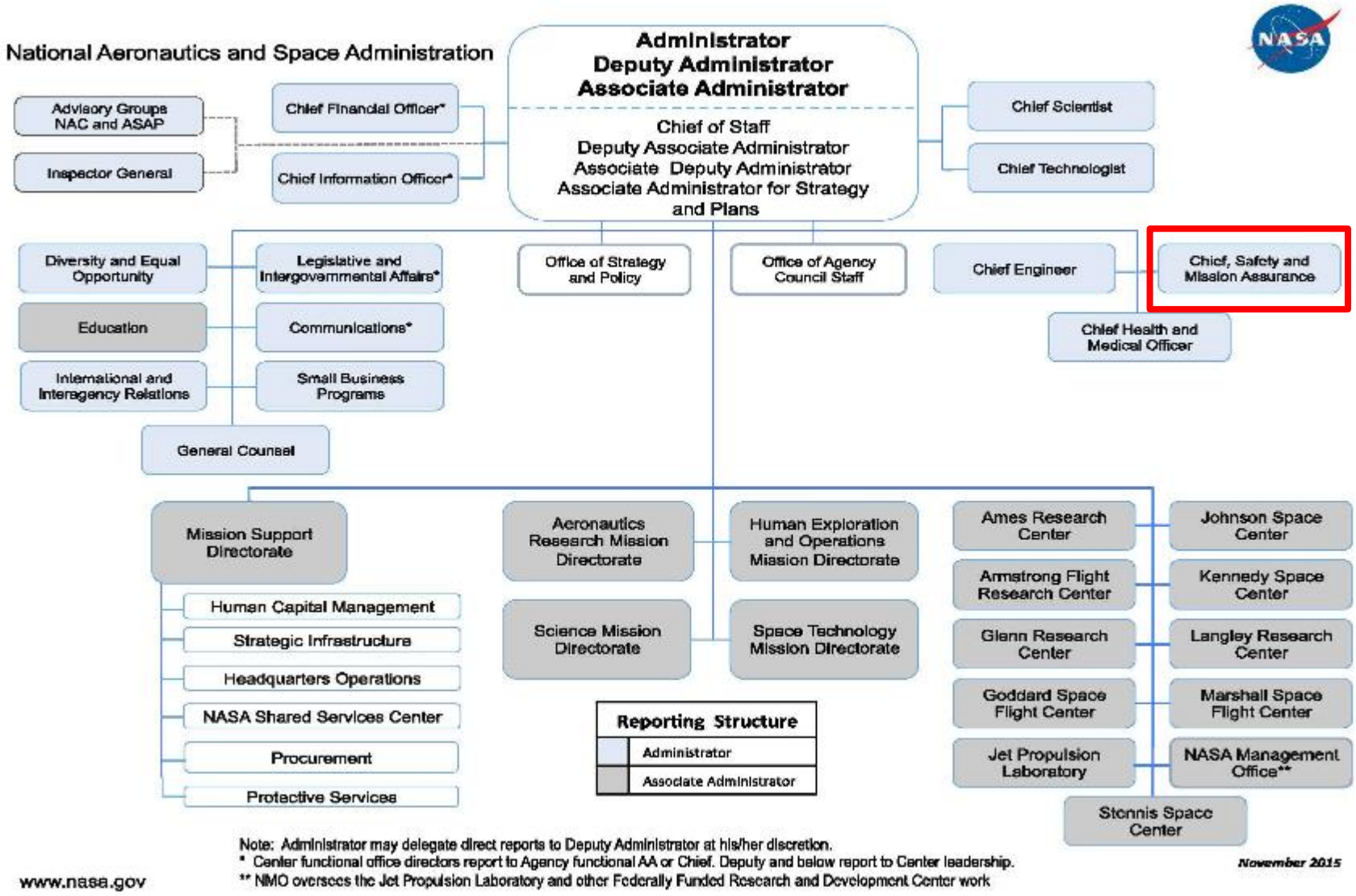
NSC (Cleveland, OH)

- SMA Technical Excellence program
- Mishap investigation program support
- SMA knowledge management program
- SMA audits and assessments

IV&V (Fairmont, WV)

- Independent technical analysis of safety and mission critical software products
- Software SMA support
- Cybersecurity and information assurance
- Independent testing
- Software Assurance Research Program (SARP) management

Place within the NASA Organization



SMA Discipline/Program Area Breakdown

- Quality Engineering
- Reliability and Maintainability
- System Safety
- Risk Management
- Software Assurance
- Human Rating
- Payload Safety
- Range Safety
- Orbital Debris Mitigation
- Meteoroid Environments
- Nuclear Flight Safety
- Planetary Protection *

- Non-Destructive Evaluation
- EEE Parts Assurance
- Workmanship
- Metrology and Calibration

- Institutional Safety
- Pressure Systems
- Lifting Devices and Equipment
- Explosives Safety

- Safety Culture
- Human Factors
- Mishap Investigation
- Safety Reporting System
- Advisories and Alerts
- Audits and Assessments
- Technical Excellence
- Knowledge Management

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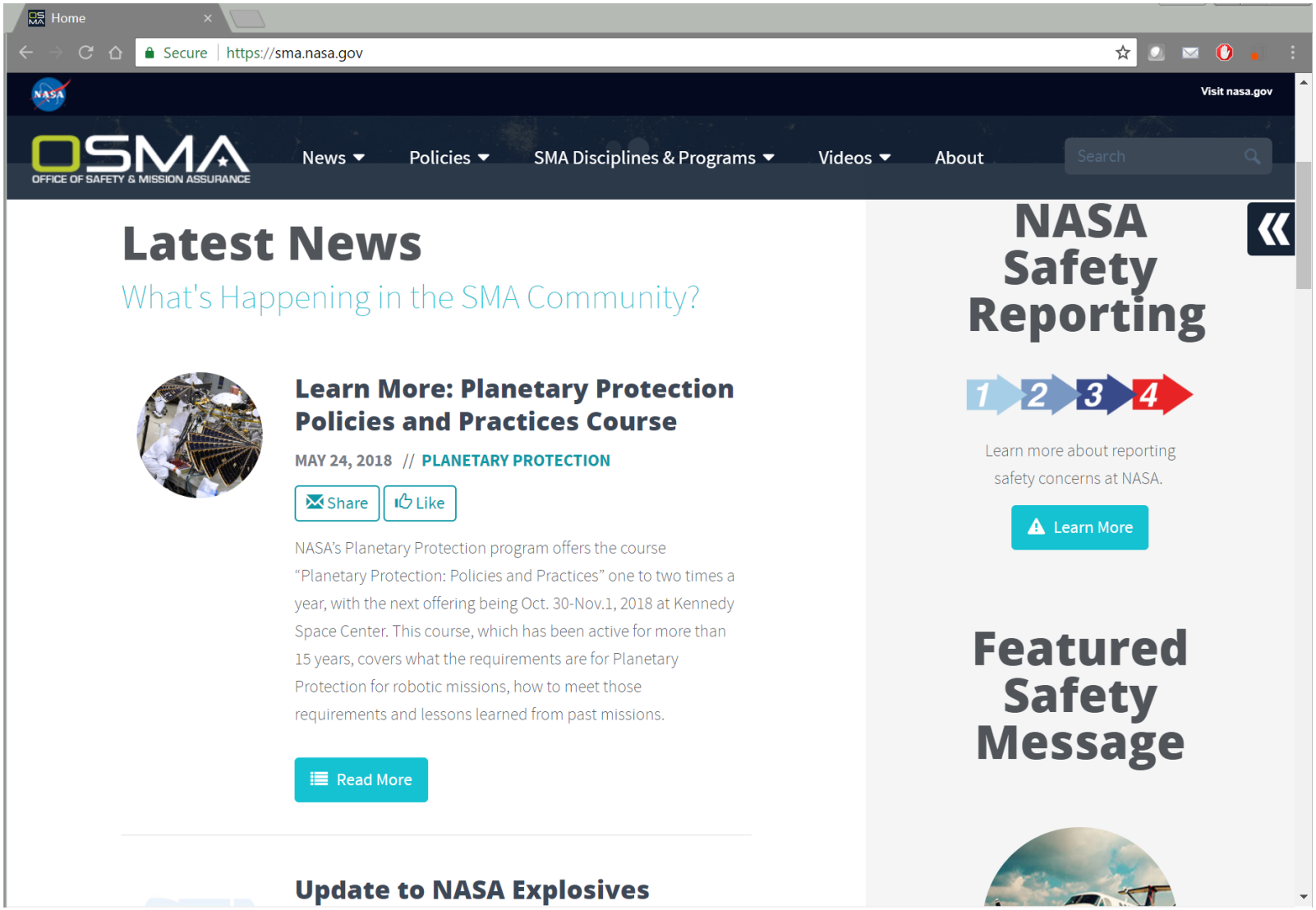
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NASA's Planetary Protection program offers the course "Planetary Protection: Policies and Practices" one to two times a year, with the next offering being Oct. 30-Nov.1, 2018 at Kennedy Space Center. This course, which has been active for more than 15 years, covers what the requirements are for Planetary Protection for robotic missions, how to meet those requirements and lessons learned from past missions.
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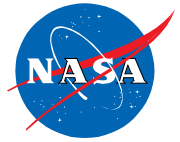
NASA Mission Manifest

- **Recent launches:**
  - Joint Polar Satellite System (JPSS)
  - Transiting Exoplanet Survey Satellite (TESS)
  - Geostationary Operational Environmental Satellite (GOES-S)
  - InSight
  - Gravity Recovery and Climate Experiment Follow-On (GRACE-FO)

- **This year:**
  - Ionospheric Connection Explorer (ICON)
  - Ice, Cloud and land Elevation Satellite (ICESat-2)
  - Parker Solar Probe
  - Commercial Crew Program test flights

- **Future key missions:**
  - James Webb Space Telescope (Spring 2020)
  - Orion and Space Launch System (Summer 2020)
  - Mars 2020 (Summer 2020)



2017-2018 OSMA Highlights

Commercial Space

- **National Space Council focus on commercial space industry**
  - Transform launch and re-entry licensing regime
  - Consolidate space commerce responsibilities (except launch/reentry)
  - Ensure protection and stewardship of radio frequency spectrum
  - Review export licensing regulations
  - Ensure a stable and orderly space environment (Space Traffic Management)
- **Congress also debating space commerce**
  - House Resolution 2809, American Space Commerce Free Enterprise Act
- **OSMA affected and/or involved in various ways**
  - E.g., range safety, orbital debris mitigation, planetary protection

Transfer of Planetary Protection Office

- **Planetary Protection authority moved to OSMA**
  - Previously within Science Mission Directorate
  - Now aligned with Technical Authority (independent checks and balances) function
  - Preparation for planetary protection oversight for human spaceflight

- **New Planetary Protection Officer (Dr. Lisa Pratt) appointed**
  - Focused on mission oversight, research opportunities, authority transition.

- **Updates to policy and procedural directives underway**

Notable Directive and Standard Updates

- **EEE Parts Management and Control Requirements for Space Flight Hardware & Critical Ground Support Equipment (8739.10)**
  - New standard covering the selection, acquisition, traceability, testing, handling, packaging, storage and application of EEE parts

- **Reliability and Maintainability (R&M) Standard for Spaceflight and Support Systems (8729.1A)**
  - Updated standard covering R&M objectives and strategies for spaceflight system development

- **Human Rating Requirements for Space Systems (8705.2C)**
  - Updated directive to clarify existing requirements for NASA-owned HSF programs

- **Agency Risk Management Requirements (8000.4C)**
  - Updated directive to clarify the agency's expectations for formal and transparent risk acceptance processes

more information at sma.nasa.gov

Training and Development

- **Initiated Technical Excellence Cohort Program**
  - Initiated to accelerate SMA professional development
  - One year program to complete the Level Two STEP Program
  - Class size about 30 SMA members from across the Agency
    - Nominated by SMA Directors
    - Participate in 3 Face to Face meetings, monthly course work and lectures
  - Receives great reviews from participants and home centers

- **Conducted Executive Safety Leadership Program events**
  - Two day learning events for Agency executives (about 100 per event)
  - Covers federal safety and health program requirements, processes, stories and culture
  - Culminates with crafting of personal statement by attendees for sharing with team members

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