

# NASA Supply Chain Conference 2010

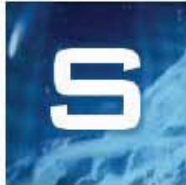
## *Safety and Mission Assurance*

**Roman Kilgore**

GOES-R Chief Safety & Mission Assurance Officer (CSO)



# SAFETY AND MISSION ASSURANCE (SMA) CODE 300



**Judith Bruner**  
(Director)

**Maria So**  
(Deputy Director)

**Eric Isaac**  
(Associate Director)

**Jesse Leitner**  
(Chief SMA Engineer)

**George Alcorn**  
(Assistant Director for Tech Standards Excellence)

**Joe Wonsever**  
(Chief Technical Assessments Engineer)

**Pradeep Sinha**  
(Assistant to the Director)

Safety Mission Assurance Directorate  
**Jeanine Doherty**  
(Administrative Officer)

Information and Assurance Technology Services/  
Code 700  
**Sanjeev Sharma**  
(IT Manager)

Directorate Resource Management Office  
(300.1)  
**Jane Langan**  
(Directorate Resources Manager)

EEE Parts/Workmanship Group  
**Michael Sampson**  
(NASA EEE Parts Assurance Group Program Manager)

**Jeannette Plante**  
(Electronics Packaging Engineer)

System Review Office (301)  
**Mark Goans**  
(Chief)  
**Carolyn Dent**  
(Deputy Chief)

Institutional Support Office (302)  
**Michael Kelly**  
(Chief)  
**Dave Campbell**  
(Deputy Chief)

Resource Analysis Office (305)  
**Cynthia Fryer**  
(Chief)  
**Harry Born**  
(Deputy Chief)

Mission Support Division (320)  
**Dave Cleveland**  
(Chief)  
**VACANT**  
(Deputy Chief)

Occupational Safety & Health Division (350)  
**Armando Lopez**  
(Chief)  
**Patrick Hancock**  
(Associate Chief)

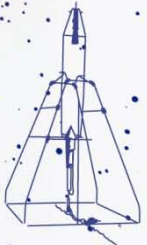
Supply Chain Management

Systems Safety Branch (321)  
**Bo Lewis**  
(Branch Chief)

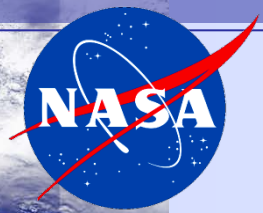
Reliability & Risk Analysis Branch (322)  
**Anthony Diventi**  
(Branch Chief)

Mission Assurance Branch (323)  
**Rob Sticka**  
(Acting Branch Chief)

Institutional Assurance Branch (324)  
**Rob Sticka**  
(Branch Chief)

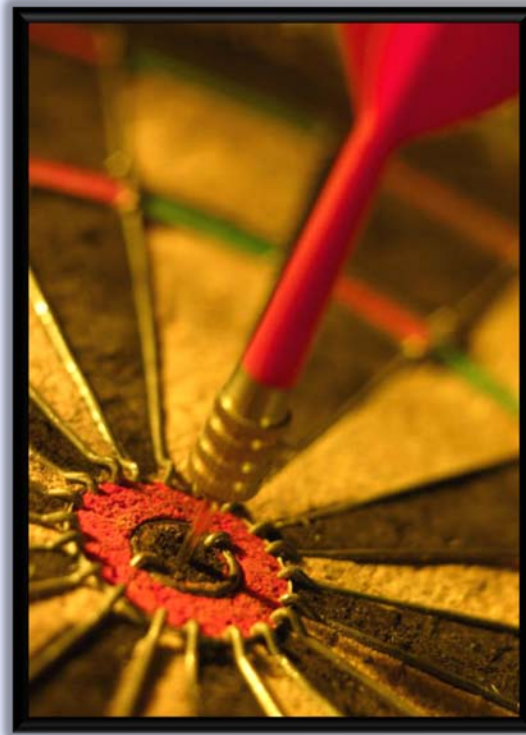


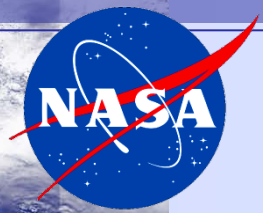
CSOs are at this level



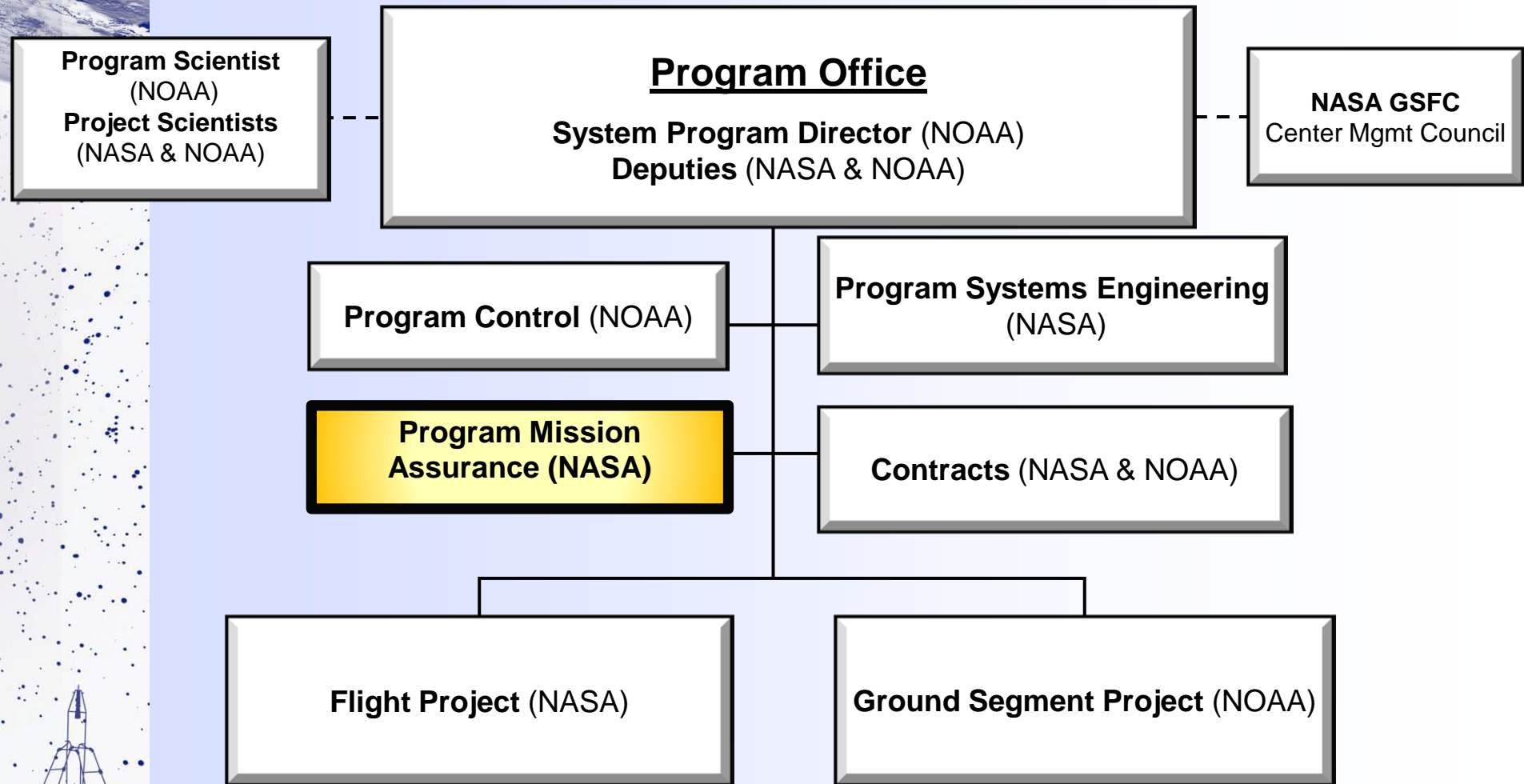
# SMA Purpose

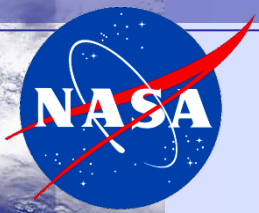
*We provide an independent voice to enable  
Mission Success*



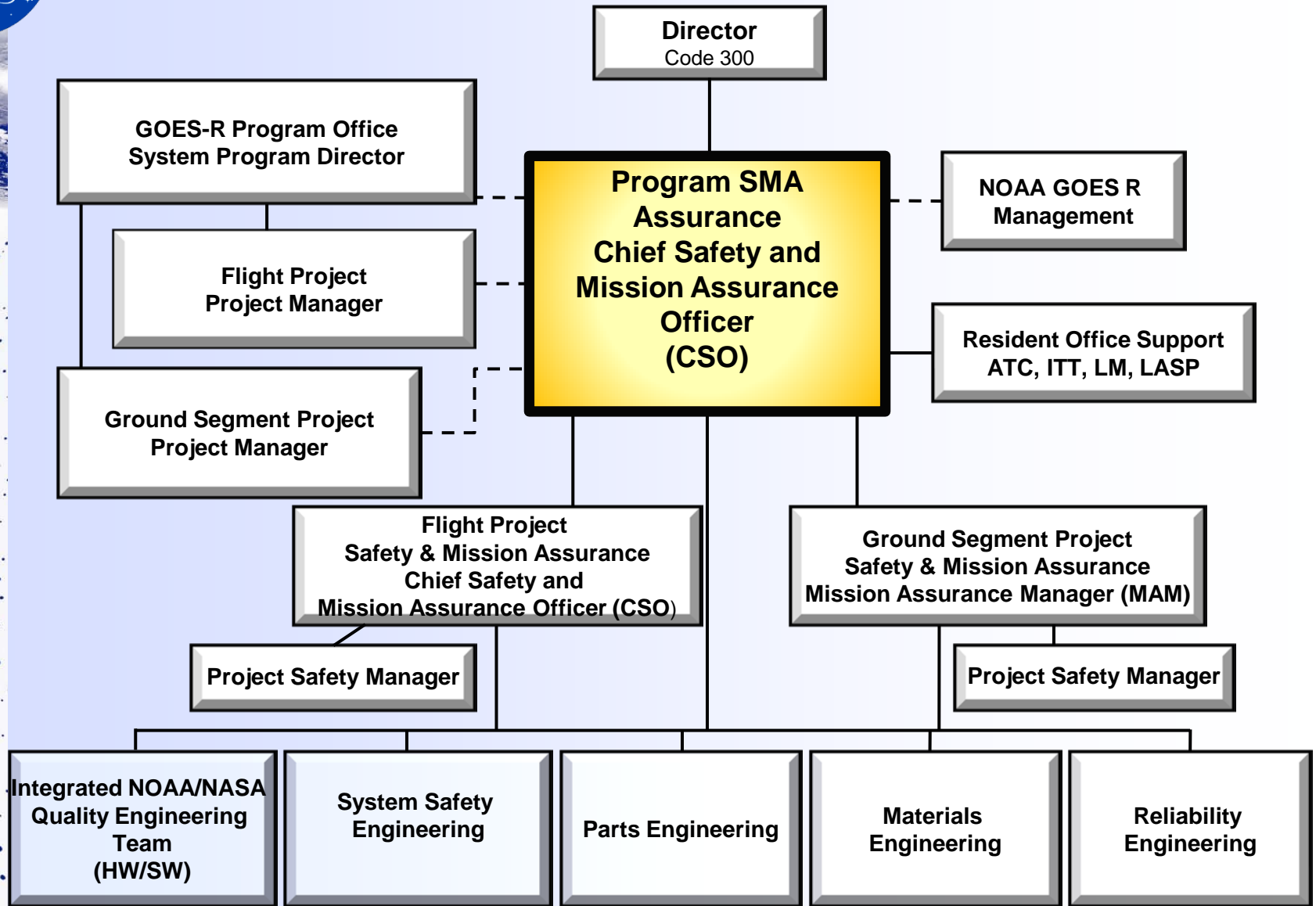


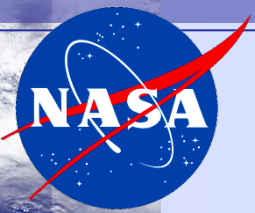
# GOES-R Program





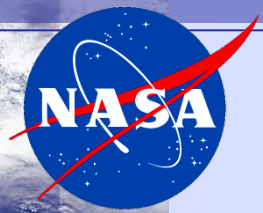
# GOES-R Program SMA





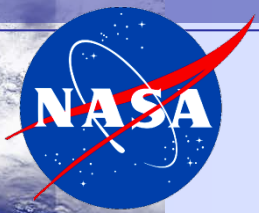
# Implementing SMA Requirements





# Requirements Management



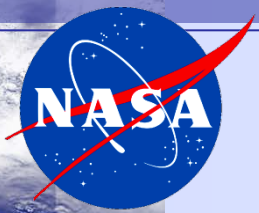


# Implementation of SMA

**For the CSO and the SMA team the list is long...**

- ✓ **Development Mission Assurance Requirements for the projects and programs**
- ✓ **Works Project full life-cycle from Concept through Launch**
- ✓ **Ensures implementation of the Mission Assurance Requirements**
- ✓ Complements the systems review office and systems managers for completion of mission success activities
- ✓ Coordinate risks and issues with the Systems Review Manager both before and after major reviews
- ✓ Ensures that appropriate oversight of contractors is in place
- ✓ CSOs signs off on all project problem reports, failure reports, waivers/deviations and design changes
- ✓ Manages assurance program for both in-house and out-of-house Projects
- ✓ Problem Report/Problem Failure Report (PR/PFR) System
- ✓ Parts Control Board - works closely with Code 562 Parts Engineers
- ✓ Implements Government-Industry Data Exchange Program (GIDEP) compliance and dispositions
- ✓ Works with Code 541 Materials to determine acceptability of printed wiring boards by coupon evaluation
- ✓ **Ensures parts and materials lists are thoroughly reviewed and acceptable for use**
- ✓ Coordinates radiation requirements and implementation with Code 561 (Radiation Effects)
- ✓ Implements Workmanship Standards such as soldering, cabling, harnessing, conformal coating
- ✓ The MA team is co-located with the project office, to provide the most efficient access to the project manager and staff
- ✓ MA team must be a good communicator and understand where support is needed and keep the Project in the loop
- ✓ MA team members walks a fine line between supporting the Project and Program and remaining an independent entity
- ✓ **Works with Systems Safety to implement project safety program**
- ✓ **Works with Reliability to implement project reliability program**
- ✓ Voting member of CCB and risk management board
- ✓ Conduct audits/assessments at hardware developers (and provide follow-up).
- ✓ Determine mandatory inspection points
- ✓ Support in resolution of hardware/software problems
- ✓ Member of Source Evaluation Boards
- ✓ Member of Senior Staff Project and Program
- ✓ Point of contact for all manpower in Code 300
- ✓ Ensure LOD and NCAS task order are written and followed to support the project
- ✓ Attendance and participation at major reviews
- ✓ Provide monthly presentations to Code 300 Management
- ✓ Provide presentations to Project/Program Management as required
- ✓ Presents at the Safety and Mission Success Review (SMSR) to Headquarters
- ✓ Launch campaign support and any post launch activities

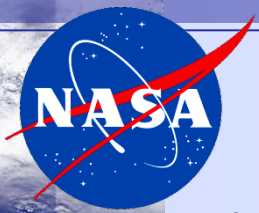




# Where do the SMA Requirements come from?

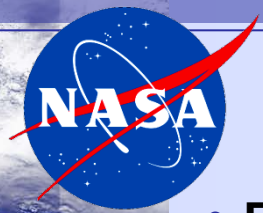
- For GOES-R there are four Mission Assurance Requirements (MAR) documents
  - SCMAR, 417-R-SCMAR-0011
    - SC, Lockheed Martin
  - ABIMAR, 417-R-ABIMAR-0012
    - ABI, ITT
  - IMAR, 417-R-IMAR-0039
    - SEISS, ATC
    - EXIS, LASP
    - SUVI and GLM, Lockheed Martin
  - GSMAR, G417-R-GSMAR-0068
    - Ground, Harris
- Requirements are also covered in SOWs and CDRLs for all contracts on GOES-R

***We strive to ensure that all of our primes & their suppliers meet these requirements***



# Requirements Management

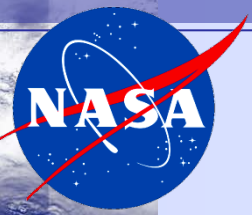
- Assessments/audits
  - The SMA team looks for compliance to the MAR requirements
- Work activities performed by the prime contractors and/or suppliers
  - are subject to evaluation and audit by government-designated representatives
- CSO and SMA team supports projects and program by selecting on & off-site supplier representative's by one of several methods:
  - An Independent Assurance Contractor (IAC)
    - Mission Assurance Support Contract (MASC)
      - ManTech SRS
        - » Used on site and in our resident offices
    - Supply Chain Management Program
      - NASA Contract Assurance Services (NCAS)
  - Defense Contract Management Agency (DCMA)



# Flow Down

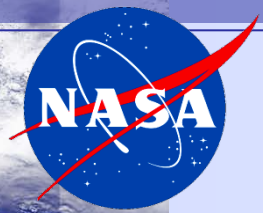
- **For the prime contractor:**

- Required to meet ISO 9001 and insure that their sub-tier suppliers meet the same requirements
  - For smaller suppliers it is understood that they may not be 3rd party certified but they shall have a QMS that is compliant with the minimum requirements of ISO 9001
- All aspects of the MAR (as applicable to prime contractor and suppliers) are the responsibility of the prime to:
  - ✓ Monitor and/or verify compliance through assessments
  - ✓ Document review
  - ✓ Data review
  - ✓ Inspections
  - ✓ Witness or monitor
  - ✓ TIM's
  - ✓ Design reviews
  - ✓ Any other activity regarding product performance and conformance



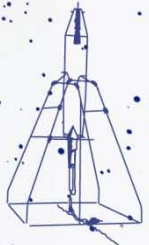
# Lessons Learned & Challenges Going Forward

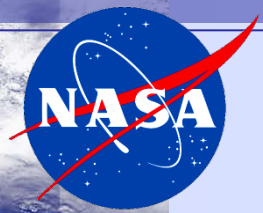
- Develop Mission Assurance Requirements and verify these requirements as early as possible and if needed sell these to your management
  - Trust but verify and validate
- Develop and maintain a professional and open communication with all levels within the projects and program
  - Program, flight and ground are Pro SMA
  - This has not been a challenge and my goal is to keep it that way
- Develop and maintain a professional relationship and open communication with all Mission Assurance Director's of Aerospace Companies
  - Has been tough with certain primes and subs as they are not used to this much oversight and involvement



# Lessons Learned & Challenges Going Forward cont'd...

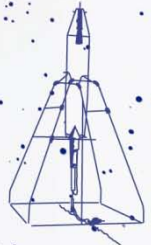
- Ensure that supplier documents history of any engineering models in the event that they may become flight models
  - Things change as we all know and if the pedigree of paperwork is not there it will be a tough sale
- Communication is key
  - Shadow ones doorway, pick up the phone, try to bypass the dreaded email frenzy

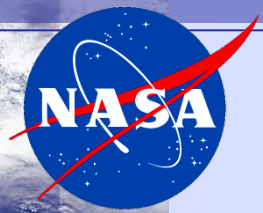




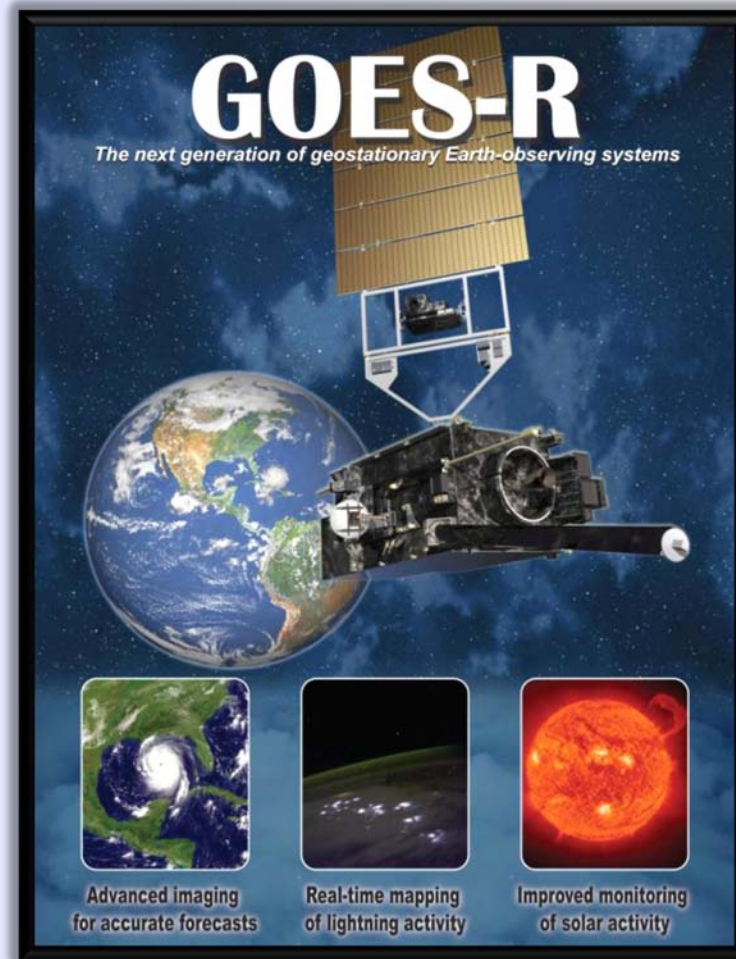
# Lessons Learned & Challenges Going Forward cont'd...

- LOD and Task Orders in place for inspections and visit at primes and suppliers
  - Challenging on GOES-R since we have 58 contractors
    - Have the team in place with the KSAs to manage and work the task at hand
    - Frequency and face time
  - Requirements Flow down and Supplier Control are key areas which must be addressed and performed successfully in order to reduce future spacecraft/instrument problems

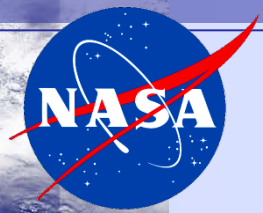




# In the end our driving focus is Mission Success



***To achieve it requires all of our collective experience***



# Closing

Thank you for the opportunity to present  
If there are any questions, please do not  
hesitate to contact me:

Roman Kilgore

GOES-R CSO

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[Roman.A.Kilgore@nasa.gov](mailto:Roman.A.Kilgore@nasa.gov)