



Engineering and Science Directorate

John Beckman

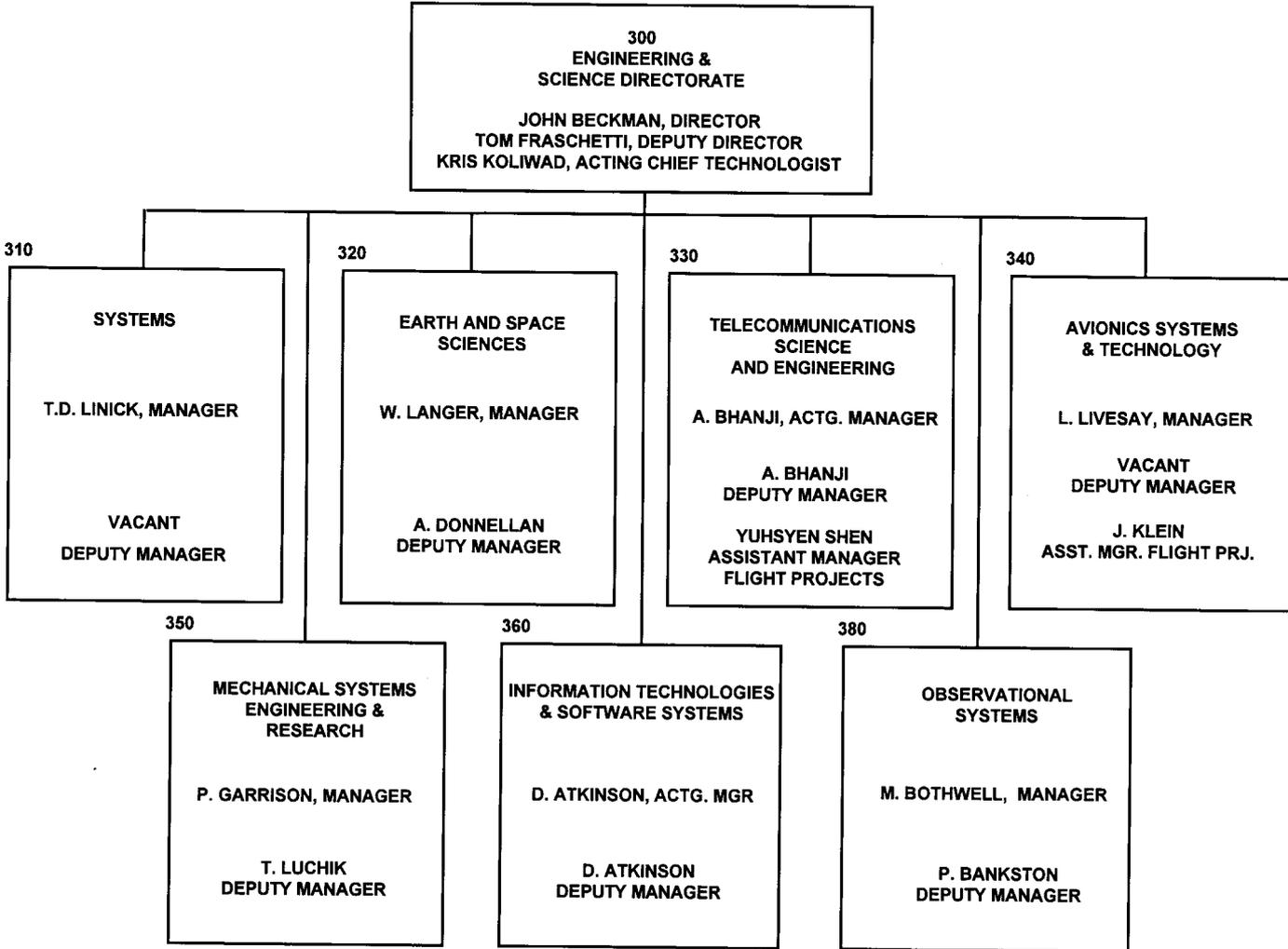
Director

ENGINEERING AND SCIENCE DIRECTORATE PLANS THAT RELATE TO INDUSTRY

Briefing to
INDUSTRY
Business Opportunities with the
Jet Propulsion Laboratory

- Continue/Expand the use of partnerships to promote and influence the development, infusion, and transfer of applicable technologies and mission concepts
- Continue the use of task and task-order contracts to meet the need for rapid technical support

ENGINEERING AND SCIENCE DIRECTORATE



Engineering and Science Directorate Contracting Model (1/3)



Work Elements	Organization
Systems Engineering	SYSTEMS DIVISION - 31
Mission Design	SYSTEMS DIVISION - 31
Navigation	SYSTEMS DIVISION - 31
Assembly, Test & Launch Operations	SYSTEMS DIVISION - 31
Earth Science	EARTH & SPACE SCIENCES DIVISION - 32
Planetary Science	EARTH & SPACE SCIENCES DIVISION - 32
Astrophysics	EARTH & SPACE SCIENCES DIVISION - 32
Extrasolar Planets	EARTH & SPACE SCIENCES DIVISION - 32
Deep Space Communications	TELECOMMUNICATIONS SCIENCE AND ENGINEERING DIVISION - 33
Optical Communications	TELECOMMUNICATIONS SCIENCE AND ENGINEERING DIVISION - 33
Synthetic Aperture Radar	TELECOMMUNICATIONS SCIENCE AND ENGINEERING DIVISION - 33
Radar Altimeters	TELECOMMUNICATIONS SCIENCE AND ENGINEERING DIVISION - 33
GPS Receivers	TELECOMMUNICATIONS SCIENCE AND ENGINEERING DIVISION - 33

Engineering and Science Directorate Contracting Model (2/3)



Work Elements	Organization
Avionics	AVIONIC SYSTEMS AND TECHNOLOGY DIVISION - 34
Power Systems	AVIONIC SYSTEMS AND TECHNOLOGY DIVISION - 34
Mobility Systems	AVIONIC SYSTEMS AND TECHNOLOGY DIVISION - 34
Mechanical Systems	MECHANICAL SYSTEMS ENGINEERING AND RESEARCH DIVISION - 35
Sample Capture and Return	MECHANICAL SYSTEMS ENGINEERING AND RESEARCH DIVISION - 35
Planetary Protection	MECHANICAL SYSTEMS ENGINEERING AND RESEARCH DIVISION - 35
Thermal Control and Cryogenic Coolers	MECHANICAL SYSTEMS ENGINEERING AND RESEARCH DIVISION - 35
Propulsion	MECHANICAL SYSTEMS ENGINEERING AND RESEARCH DIVISION - 35
Autonomy Architecture and Software	INFORMATION TECHNOLOGIES & SOFTWARE SYSTEMS DIVISION - 36
Intelligent Synthesis Environment	INFORMATION TECHNOLOGIES & SOFTWARE SYSTEMS DIVISION - 36
Artificial intelligence	INFORMATION TECHNOLOGIES & SOFTWARE SYSTEMS DIVISION - 36

Engineering and Science Directorate Contracting Model (3/3)

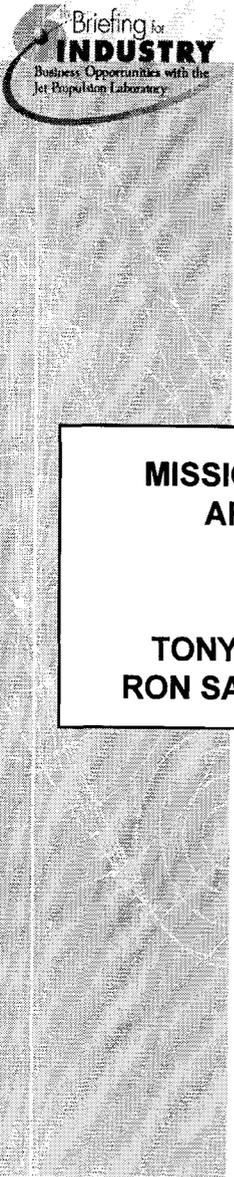
Briefing for
INDUSTRY
Business Opportunities with the
Jet Propulsion Laboratory

Work Elements	Organization
Interferometry	OBSERVATIONAL SYSTEMS DIVISION - 38
Remote Sensing Systems	OBSERVATIONAL SYSTEMS DIVISION - 38
In-Situ Systems	OBSERVATIONAL SYSTEMS DIVISION - 38
Advanced Sensors and Detectors	OBSERVATIONAL SYSTEMS DIVISION - 38
Superconducting Detectors	OBSERVATIONAL SYSTEMS DIVISION - 38
Optical Modeling and Simulation	OBSERVATIONAL SYSTEMS DIVISION - 38

CURRENT ESD CONTRACTS

- Technical Support Efforts Contracts (TSEP)
 - 4 contracts
 - Furnish approximately 639 contractor personnel
 - Multi-year contracts, end December 2004
 - \$1M/week
- Task Order Contracts (Contract Work Orders add tasks)
 - 11 contracts
 - \$476M Total Dollars

SYSTEMS DIVISION - 31



**SYSTEMS
DIVISION 31**

**DAVE LINICK, MANAGER
VACANT, DEP. MGR.**

**MISSION AND SYSTEMS
ARCHITECTURE
(311)**

**TONY FREEMAN, MGR.
RON SALAZAR, DEP. MGR.**

**FLIGHT SYSTEMS
(313)**

**DOUG BERNARD, MGR.
JULIE WEBSTER
ASST. MGR., SAF
SHERYL BERGSTROM
ASST. MGR., KSC**

**PROJECT CONTROL
SYSTEMS
(319)**

HENRY TAUCHEN, MGR.

**NAVIGATION AND
MISSION DESIGN
(312)**

**MIKE WATKINS, MGR.
DENNIS BYRNES, DEP. MGR.**

**MISSION SYSTEMS
ENGINEERING
(314)**

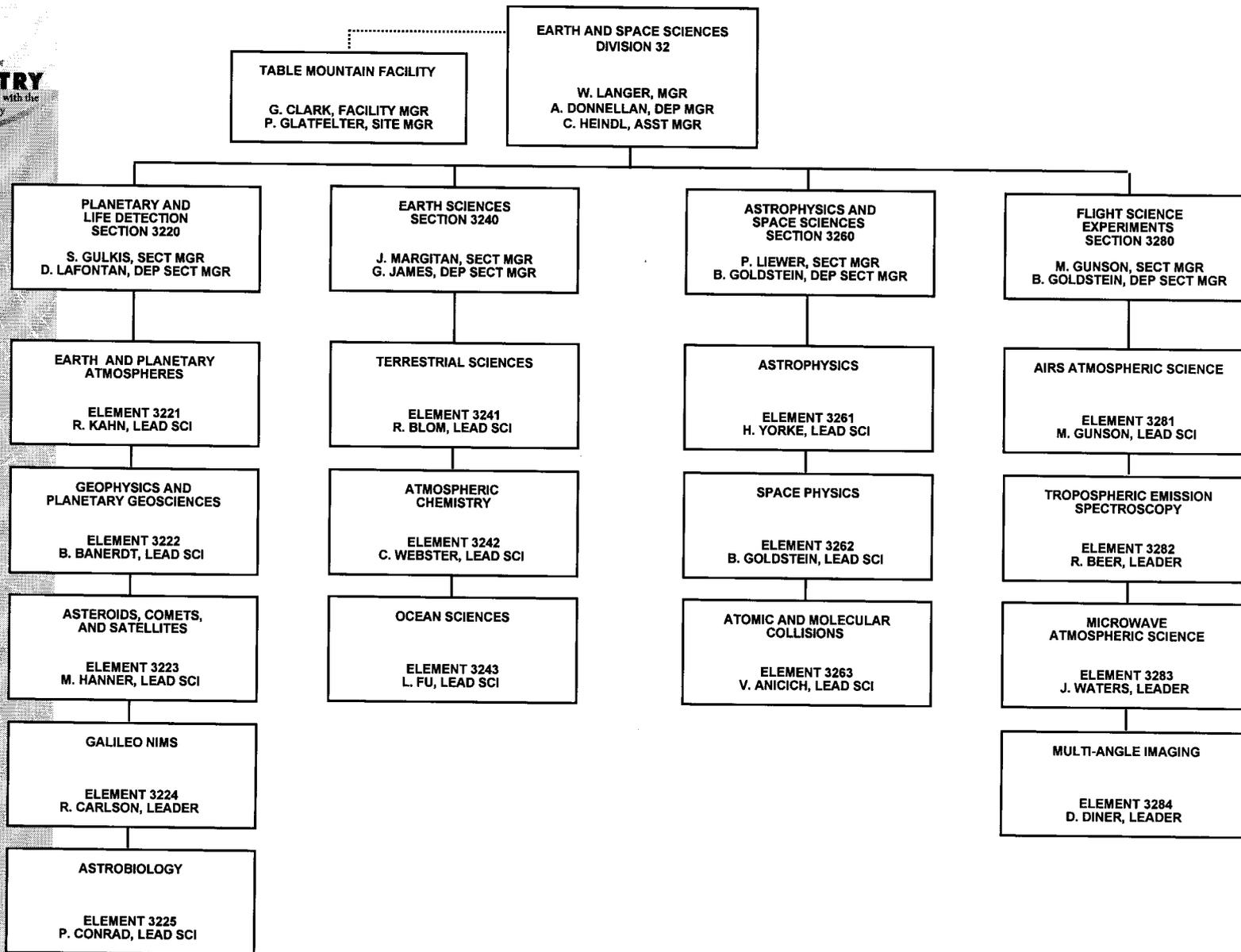
**KATHRYN WELD, MGR.
JODY GUNN, DEP. MGR.**



SYSTEMS DIVISION - 31 CHARTER

- **Accomplish System Engineering of Missions, Spacecraft, and Mission Operations**
- **Develop Mission Architectures, Concepts, and Designs**
- **Facilitate and Execute the Formulation of Missions and the Development of Mission Proposals**
- **Accomplish Deep-Space Navigation**
- **Lead and Execute Spacecraft Test and Integration (ATLO) Activities**

EARTH & SPACE SCIENCES DIVISION - 32

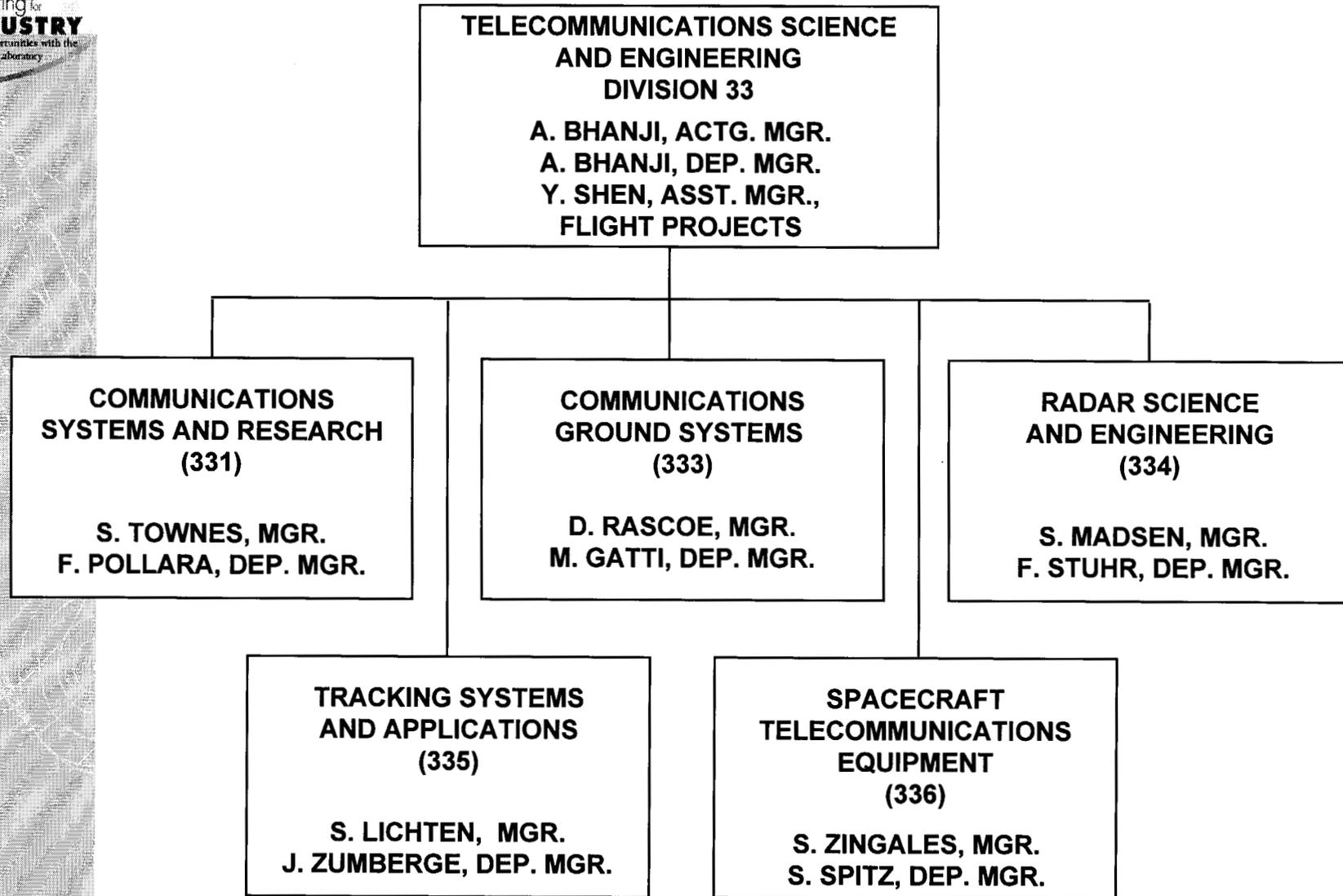


EARTH & SPACE SCIENCES DIVISION - 32 CHARTER



- Experimental, observational and theoretical investigations to advance scientific knowledge regarding
 - Earth Science including atmospheric chemistry, terrestrial sciences, and ocean sciences
 - Solar System bodies
 - Interplanetary space
 - Astrophysical processes
 - Extrasolar planets
- Strategies for detecting extrasolar planets
- Strategies for determining origins of life

TELECOMMUNICATIONS SCIENCE AND ENGINEERING DIVISION - 33



TELECOMMUNICATIONS SCIENCE AND ENGINEERING DIVISION - 33 CHARTER

Briefing to
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Jet Propulsion Laboratory

- To advance the state-of-art and develop concepts, technologies and systems for:
 - Communications and radiometric measurements for deep space missions
 - Scientific observation of Earth and Space by radio or radar remote sensing and applications in Earthly Communications
- To apply these technologies and systems to investigate earth, planetary and astrophysical science

AVIONIC SYSTEMS AND TECHNOLOGY DIVISION - 34



AVIONIC SYSTEMS AND TECHNOLOGY DIVISION 34
LESLIE LIVESAY, MANAGER
VACANT, DEP. MGR.
JOHN KLEIN, ASST. MGR.
FLIGHT PROJECTS

AVIONIC SYSTEMS ENGINEERING (341)
KIM REH, MGR.
TOORAJ KIA DEP. MGR.

AVIONIC EQUIPMENT (344)
LLOYD KEITH, MGR.
GARY BOLOTIN DEP. MGR.

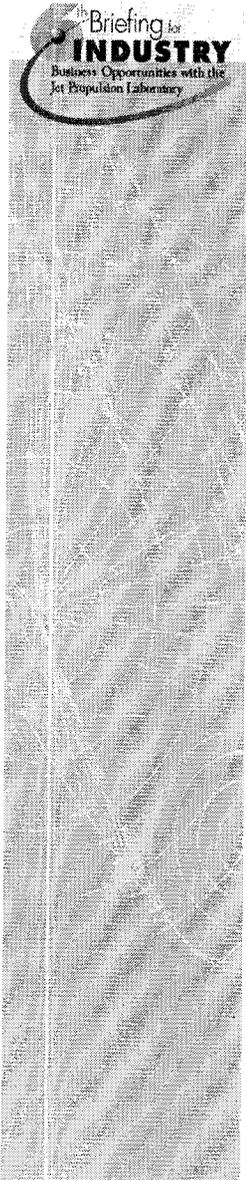
AUTONOMY AND CONTROL (345)
DAVE EISENMAN, MGR.
TAKI OTAKE, DEP. MGR.

POWER AND PRECISION CONVERSION SYSTEMS AND TECHNOLOGY (346)
CAROL LEWIS, MGR.
MARK UNDERWOOD, DEP. MGR.

MOBILITY SYSTEMS CONCEPT DEVELOPMENT (348)
PAUL SCHENKER, MGR.

ELECTRONIC PACKAGING AND FABRICATION (349)
CHUCK BODIE, MGR.
AMIN MOTTIWALA DEP. MGR.

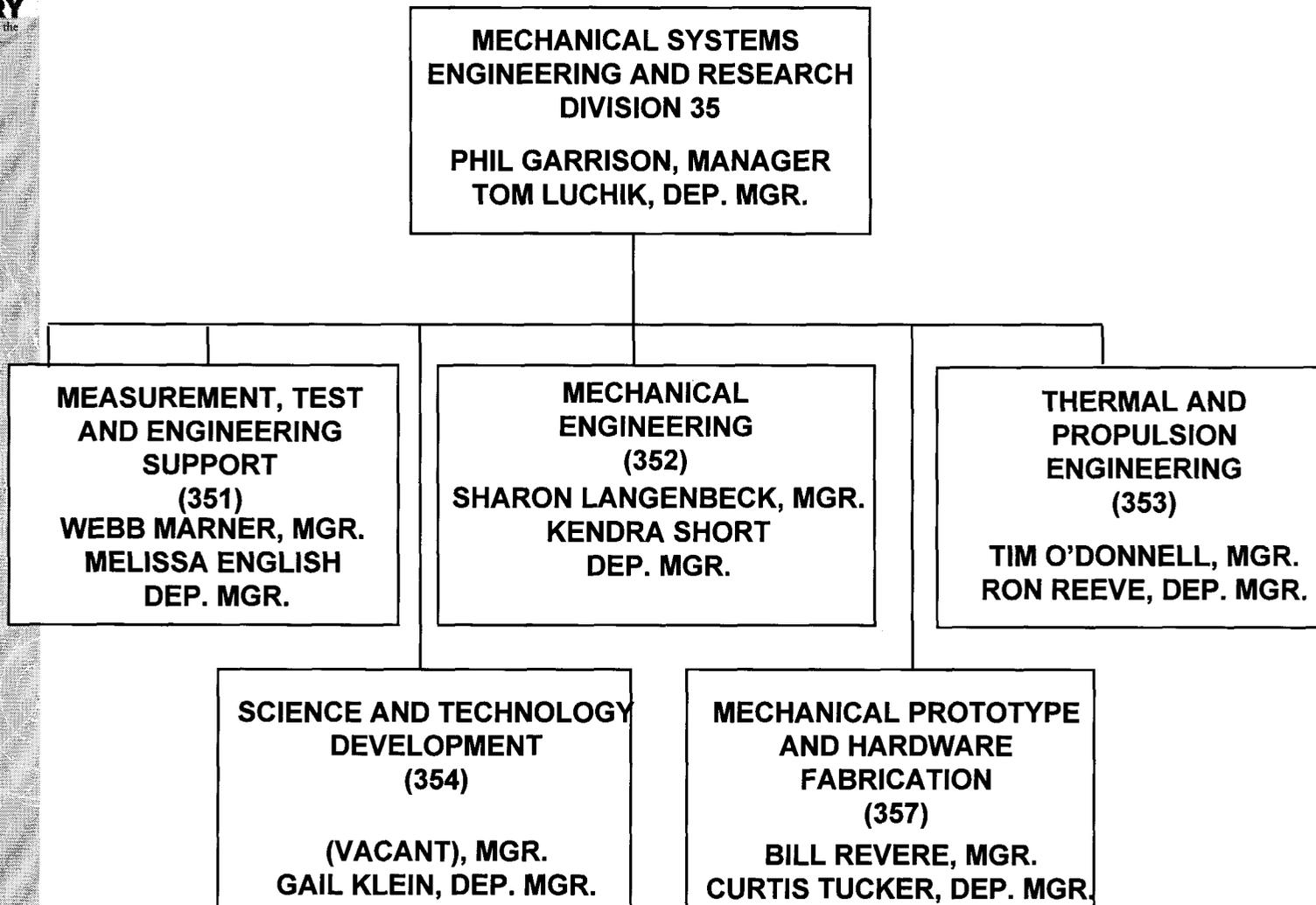
AVIONIC SYSTEMS AND TECHNOLOGY DIVISION - 34 CHARTER



- Research and development of avionics systems and mobility systems and related technologies including:
 - Avionics systems engineering
 - Robotics and teleoperators
 - Semiconductor materials
 - Advanced microelectronics/VSI
 - Photovoltaics
 - Advanced electronic packaging
 - Attitude control & pointing

MECHANICAL SYSTEMS ENGINEERING AND RESEARCH DIVISION - 35

Briefing for
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MECHANICAL SYSTEMS ENGINEERING AND RESEARCH DIVISION - 35 CHARTER



- Mechanical systems development for spacecraft and instruments and related research
- Mechanical systems and precision mechanisms
- Liquid, solid, and electric propulsion systems
- Thermal control and cryogenic cooler systems
- Structures, materials, system dynamics, analytical chemistry and cabling
- Planetary protection, contamination control and biology
- Mechanical fabrication, environmental testing and data acquisition and instrumentation services

INFORMATION TECHNOLOGIES & SOFTWARE SYSTEMS DIVISION - 36



INFORMATION TECHNOLOGIES & SOFTWARE SYSTEMS DIVISION 36

DAVE ATKINSON, ACTG. MGR.
DAVE ATKINSON, DEP. MGR.
DAVE NICHOLS, ASST. MGR
(FLIGHT PROJECTS)

ENGINEERING & COMMUNICATIONS INFRASTRUCTURE (366)

LARRY BERGMAN, MGR.
ANTHONY MARTIN, DEP. MGR.

EXPLORATION SYSTEMS AUTONOMY (367)

ANN TAVORMINA, MGR.
VACANT, DEP. MGR.

SOFTWARE SYSTEMS & OPERATIONS ENGINEERING (368)

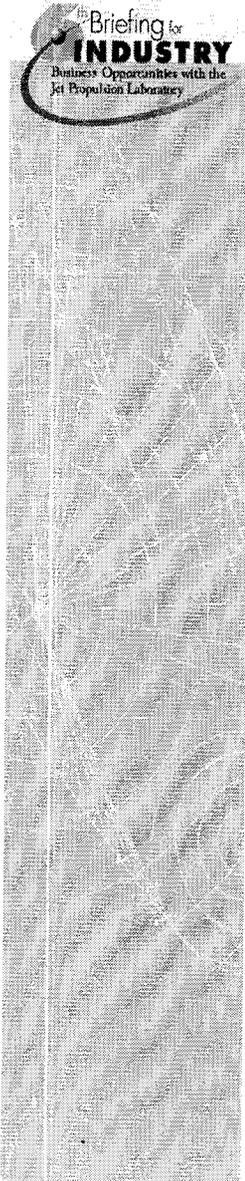
BO KAHR, ACTG. MGR.
BO KAHR, DEP. MGR.
JODY GUNN, ASST. MGR.

MISSION SOFTWARE SYSTEMS (369)

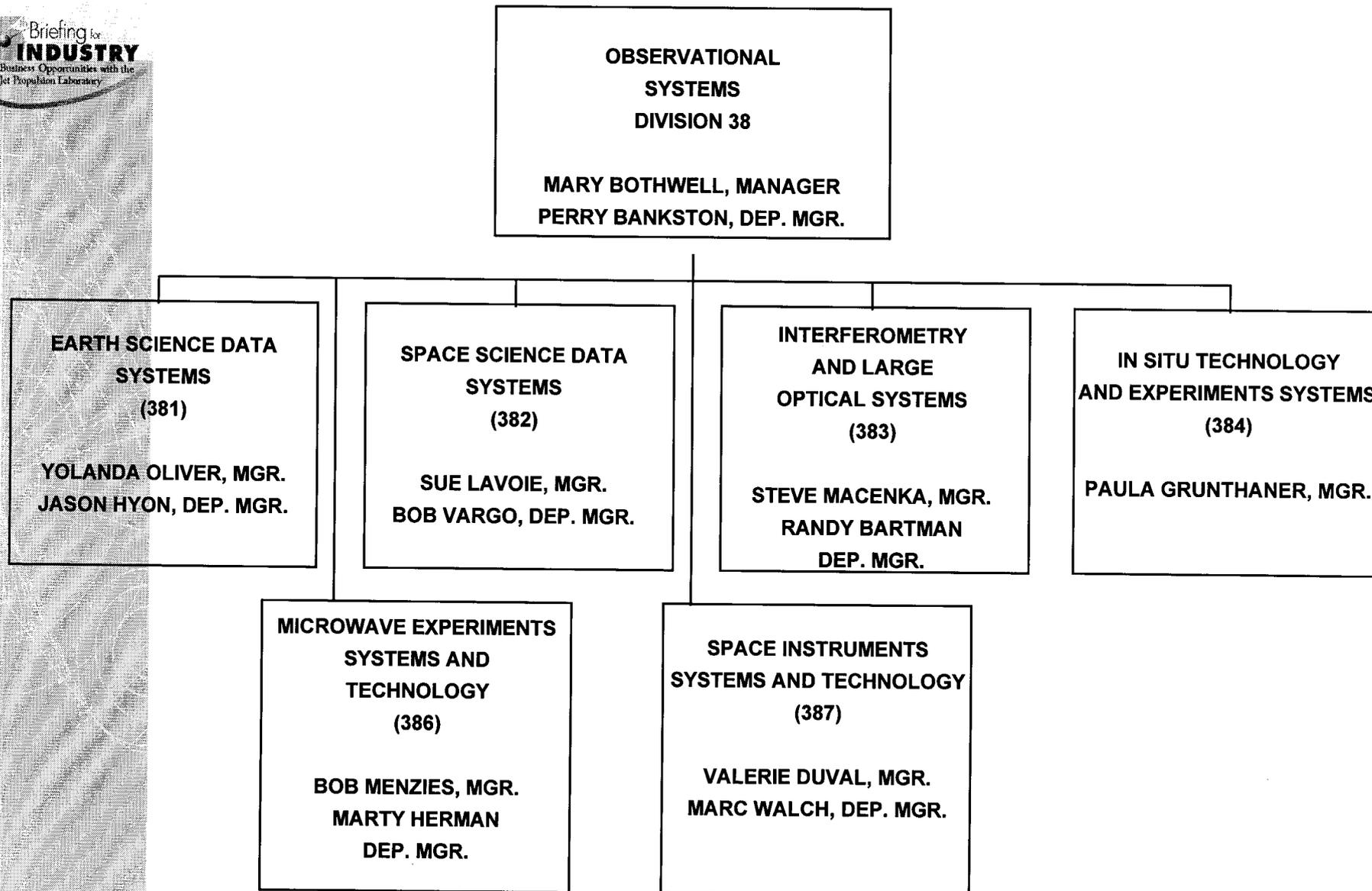
ANNETTE LARSON, ACTG. MGR.
ANNETTE LARSON, DEP. MGR.

INFORMATION TECHNOLOGIES & SOFTWARE SYSTEMS DIVISION - 36 CHARTER

- Development of mission information systems and supporting infrastructure and associated technologies including:
 - Flight and ground software development
 - Enterprise support systems
 - Data management and information extraction
 - Artificial intelligence
 - Autonomy architecture and software
 - Intelligent synthesis environment
 - Quantum computing



OBSERVATIONAL SYSTEMS DIVISION - 38





OBSERVATIONAL SYSTEMS DIVISION - 38 CHARTER

- Conceive and implement science experiments and deliver data products including:
 - Advanced remote sensing instrument systems
 - In-situ sensors, instruments & technology
 - Advanced visible/IR/sub-millimeter detector/sensor technologies
 - Interferometer systems and technology
 - Optical modeling & simulation
 - Science system data management, analysis and visualization



Strategic Forecasts / Timelines and Building Partnerships

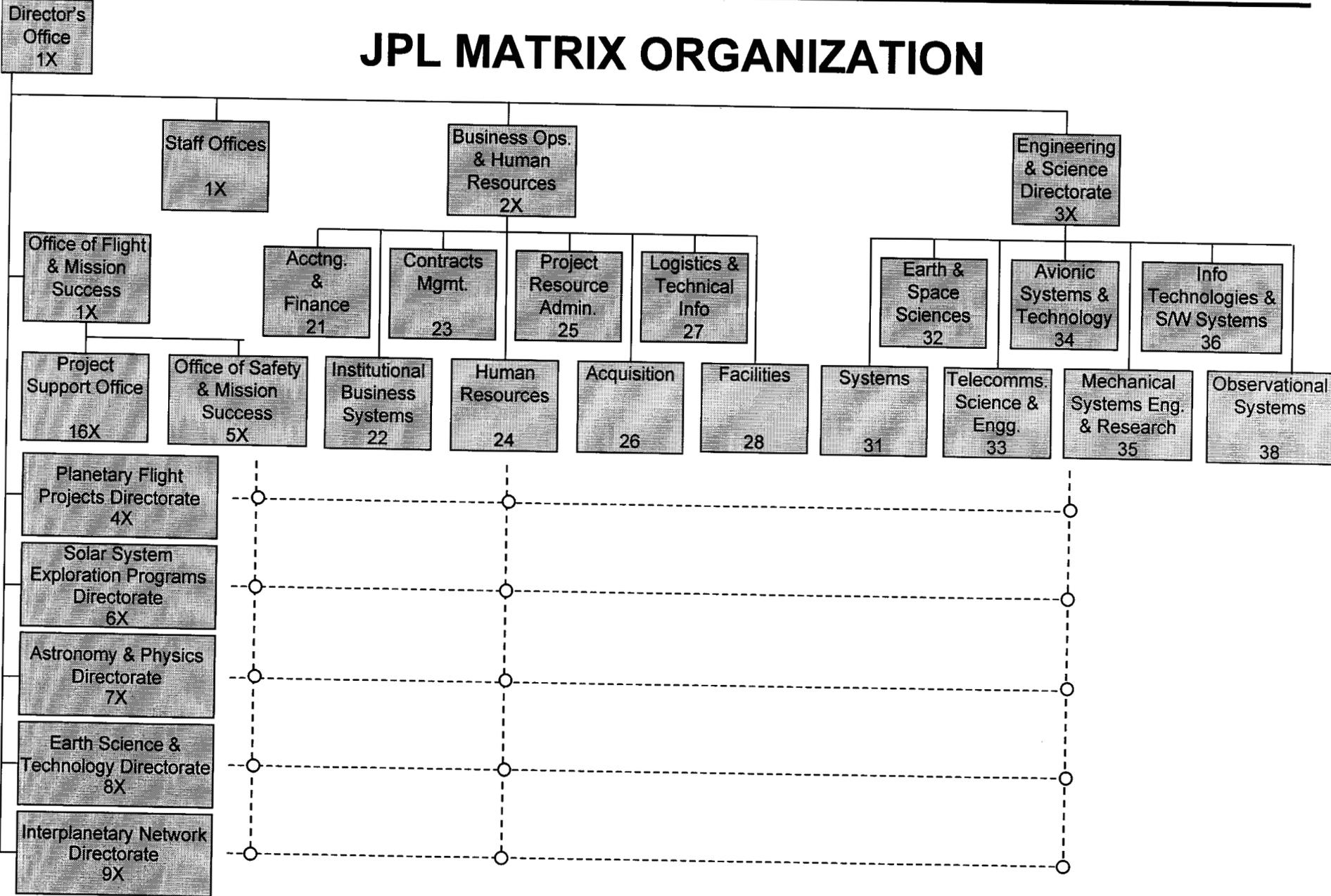
John Beckman

Director For the Engineering and Science Directorate

JPL MATRIX ORGANIZATION

- Program Directorates:
 - Provide sponsor/JPL interface
 - Responsibility for execution of programs and projects
 - Establish project/program offices to manage work
 - Contracts for system level work
- Engineering and Science Directorate
 - Provides homes for engineering and science personnel in a wide variety of technical disciplines
 - Assigns people and organizations to projects and tasks
 - Maintains competencies, capabilities, and technical processes
 - Manages work at task level
 - Contracts for subsystem and instrument technology and development

JPL MATRIX ORGANIZATION



JPL Contracting Model

Briefing for
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	Work Elements	JPL Responsible Organization	Mission
Completed Missions	Systems	Solar System Exploration Programs Directorate - 6X	Discovery
Completed Missions	Systems	Solar System Exploration Programs Directorate - 6X	Mars Scout
Completed Missions	Systems	Solar System Exploration Programs Directorate - 6X	New Frontier
Completed Missions	Systems	Astronomy & Physics Directorate - 7X	Explorers
Completed Missions	Systems	Earth Science & Technology Directorate - 8X	Earth System Science Pathfinder
Assigned Missions	Systems	Planetary Flight Projects Directorate - 4X	Solar System Exploration
Assigned Missions	Systems	Astronomy & Physics Directorate - 7X	Astrophysics
Assigned Missions	Systems	Earth Science & Technology Directorate - 8X	Earth Science
Assigned or Completed Missions	Subsystems & Instruments	Engineering and Science Directorate - 3X	All
Assigned or Completed Missions	Technology	Engineering and Science Directorate - 3X	All